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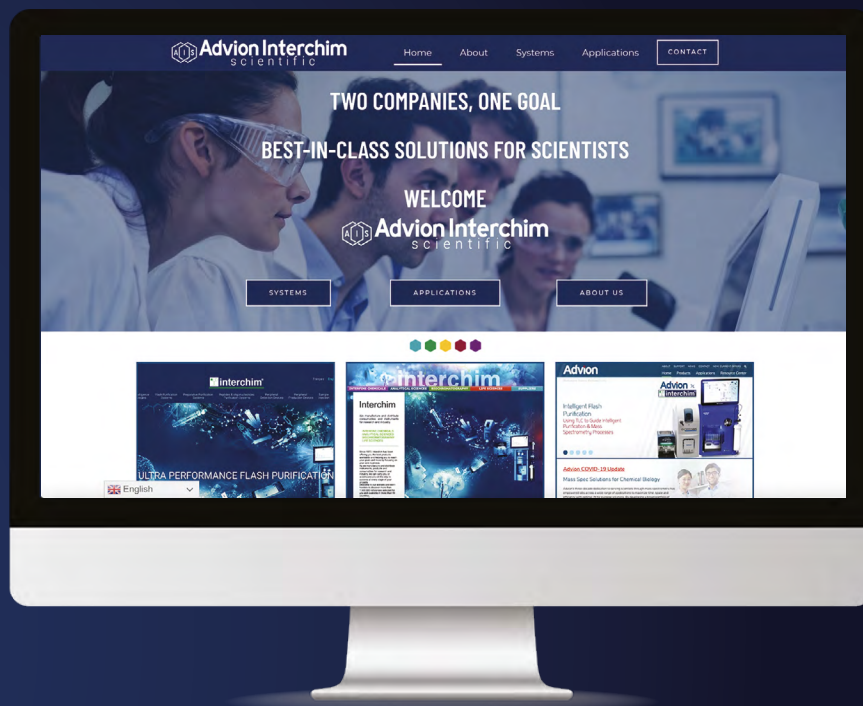
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A new methodology to determine the isoelutropic conditions on ultra-performance flash purification stationary phases from analytical reversed liquid chromatography stationary phase

Sylvie Héron^{1,*}, Didier Charbonneau², Pauline Albisson^{1,2}, Guillaume Estievenart^{1,2}, Sihem Gronia¹, Alain Tchaplal¹

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Development of an analytical strategy for the analysis of different classes of solutes in Reversed Phase Liquid Chromatography. Fast determination of isoelutropic conditions by changing the stationary phase in aqueous and non-aqueous Liquid Chromatography.

S. Héron¹, Arnaud Tamba^{1,3}, D. Charbonneau², M.G. Maloumbi^{1,3}, A. Tchaplal¹

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Could the same core-shell silica batch functionalized with the same microwave grafting procedure lead to various C18 stationary phases? Insight in thermal pretreatments

Mélanie Mignot^{*,1}, Alain Tchaplal², Olivier Mercier³, François Boyer³, Pascal Cardinael¹, Valérie Peulon-Agasse¹

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Chiral ionic liquids derived from isosorbide: synthesis, properties and applications in asymmetric synthesis.

Olivier Nguyen Van Buu, Audrey Aupoix, Nhung Doan Thi Hong, Giang Vo-Thanh* New Journal of Chemistry, 2009, 33, 2060-2072.

Synthesis Of Imidazolium and Pyridinium-Based Ionic Liquids and Applications of 1-Alkyl-3-Methylimidazolium Salts as Pre-Catalysts for the Benzoin Condensation Using Solvent-Free Microwave Activation.

Audrey Aupoix, Bruce Pégot, Giang Vo-Thanh* Tetrahedron, 2010, 66, 1352-1356.

Thermal pretreatments of superficially porous silica particles for high-performance liquid chromatography: Surface control, structural characterization and chromatographic evaluation

Mélanie Mignot¹, Muriel Sebban², Alain Tchaplal³, Olivier Mercier⁴, Pascal Cardinael¹, Valérie Peulon-Agasse^{1,*}

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10-fold decrease in functionalization time of partially porous silica particles? Microwave versus reflux heating

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High density octadecyl-chemically bonded core-shell silica phases for High Performance Liquid Chromatography: Comparison of synthetic routes, structural characterization and chromatographic evaluation

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Microwave preparation, characterization, and evaluation of a new polar-embedded aromatic core-shell stationary phase for high-performance liquid chromatography

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Publication highlights that include Advion Interchim Scientific products

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Uptisphere® 3µm ODB - Upti-Clean® SI/CN : E. Bichon, and all ; *Journal of Chromatography B*, 838 (2006) 96-106 ; LC-ESI-MS/MS determination of phenylurea and triazine herbicides and their dealkylated degradation products in oysters.

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Uptisphere® 3µm HDO : Jean-Baptiste Baugrosa, and all ; *Journal of Chromatography A*, 1216 (2009) 4941-4949 ; Optimisation of pressurised liquid extraction by experimental design for quantification of pesticides and alkyl phenols in sludge, suspended materials and atmospheric fallout by liquid chromatography-tandem mass spectrometry

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Uptisphere® 5µm HSC : M.H. Ropers and all ; *Food Hydrocolloids* 23 (2009) 1149-1155; Contamination of food by fluorinated surfactants - Distribution in emulsions and impact on the interfacial protein behaviour/Uptisphere Strategy 2.2µm C18 HQ Filip Cuyckensa,* , and all ; *Journal of Chromatography A* ; Improved liquid chromatography-Online radioactivity detection for metabolite profiling

FluoProbes® GelRed : E. Jaffrès,a,b, D. Sohier, F. Leraib, M.F. Pileta, H. Prévosta, J.J. Joffraudb,* , X. Dousseta ; Study of the bacterial ecosystem in tropical cooked and peeled shrimps using a polyphasic approach ;

Uptisphere® 5µm : WC4 Philippe Joly and all ; *Blood Cells, Molecules, and Diseases* ; Identification and molecular characterization of four new large deletions in the globin gene cluster

Uptibond UB5-P : Jean-Philippe Antignac, and all ; *Environmental Pollution* 157 (2009) 164-173 ; Exposure assessment of French women and their newborn to brominated flame retardants : Determination of tri- to decapolybromodiphenylethers (PBDE) in maternal adipose tissue, serum, breast milk and cord serum

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Uptima™ secondary antibody : Grégory Gatouillat and all, *Cancer Letters* 257 (2007) 165-171 ; Immunization with liposome-anchored pegylated peptides modulates doxorubicin sensitivity in P-glycoprotein-expressing P388 cells and

Fluoprobes® 488 : Carole Morel and all ; *Experimental Cell Research* 313 (2007) 3971-3982 ; Involvement of sulfhydryl oxidase QSOX1 in the protection of cells against oxidative stress-induced apoptosis

Uptisphere® 5µm MM1 : Ning Li and all ; *Applied Catalysis B: Environmental* 80 (2008) 237-247 ; Application of CeO_{3.33}ZrO_{0.63}PrO_{0.04}O₂-supported noble metal catalysts in the catalytic wet air oxidation of 2-chlorophenol : Influence of the reaction conditions

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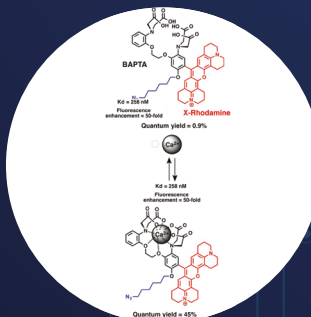
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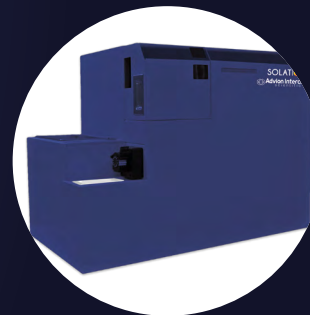
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Theoretical Principles

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Sample preparation



Sample preparation

This refers to a very wide range of techniques designed to eliminate numerous interferences that could damage the analysis equipment or limit the quantification of the products of interest. This allows you to put the sample in a compatible form to fit the analytical or purification method.

They come in several methods:

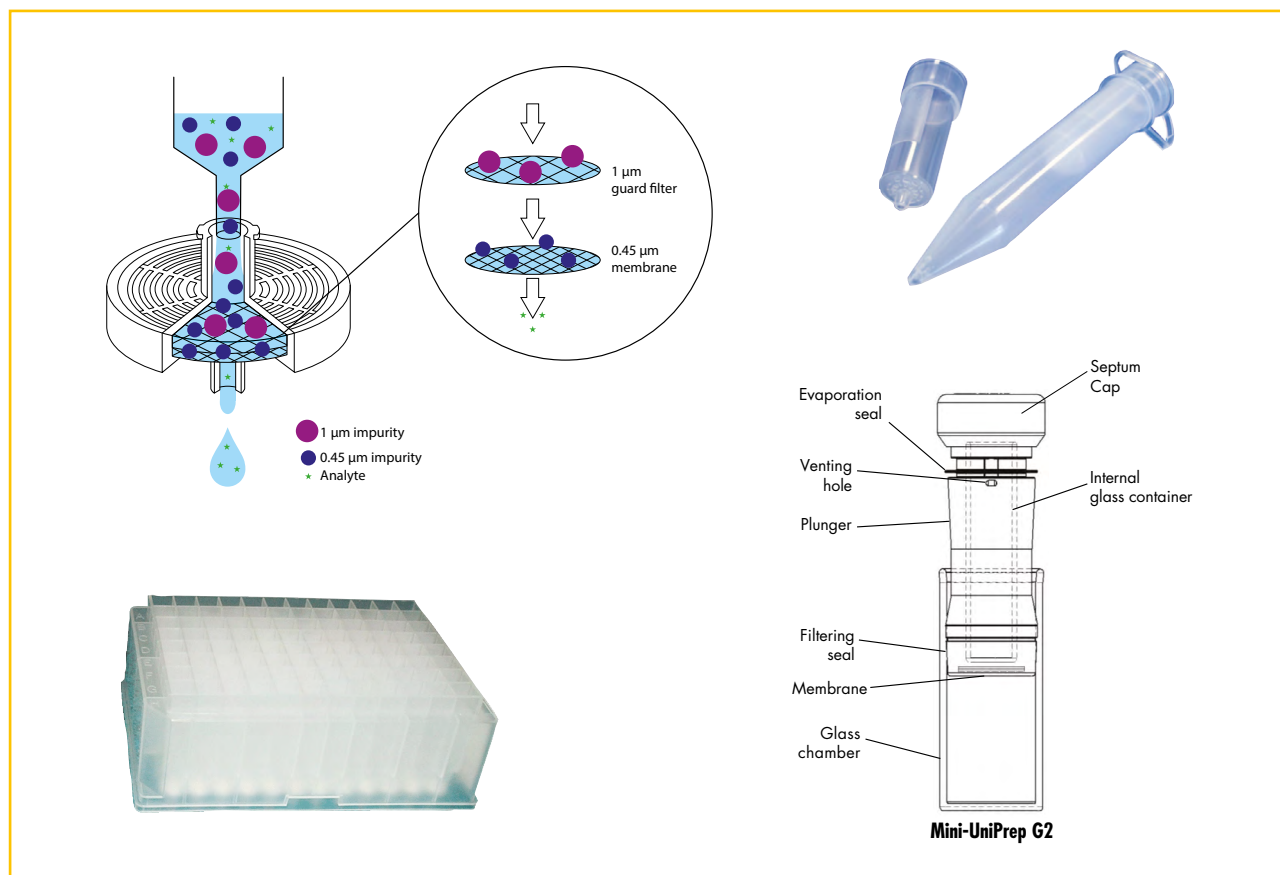
- Filtration
- Extraction (on solid phase, liquid/liquid, by solvent under pressure, by soxhlet...)
- Dry-load (adsorption of the sample on a porous solid before injection on column)

Filtration

Correctly filtering the matrix limits the clogging the column (LC or GC). The porosity of the filter must be correlated to the size of particles in suspension in the sample.

It is carried out through a membrane which can be :

- Placed on a Büchner type holder
- Integrated into a syringe filter
- Integrated in a centrifuge tube
- Integrated into a vial
- Integrated into a 96-well plate





Filtration

It is essential to check the chemical compatibility of the filter shells and membranes with the solvents according to the table of compatibility below.

| | ACETAL Delrin | CTFE | ETFE Tefzel | Polyamide Nylon | PCTFE Kel-F | PEEK | PTFE |
|-------------------------|------------------|------|----------------|--------------------|----------------|------|------|
| Temp. max raccords | 60 | | 80 | 90 | 80 | 125 | |
| Temp. max tube | | | 80 | 0 | 0 | 100 | |
| Autoclavable | no | | yes | no | no | yes | yes |
| Acetaldehyde | A | A | A | C | A | A | A |
| Acetic Anhydride | D | A | A | C | A | A | A |
| Acetone | D | A | B | B | A | A | A |
| Acid, Hydrofluoric | D | A | A | D | A | A | A |
| Acid, Trifluoroacetic | C | C | C | D | A | A | A |
| Acid, Acetic Dilute 50% | C | B | B | D | A | A | A |
| Acid, Hydrochloric 37% | D | A | A | D | A | A | A |
| Acid, Nitric | D | A | A | D | A | A | A |
| Acid, Sulfuric | D | A | A | D | A | A | A |
| Acetonitrile | D | A | A | A | | A | A |
| Alcohol, Ethyl | D | A | A | D | A | A | A |
| Alcohol, Isobutyl | A | A | A | D | A | A | A |
| Alcohol, Methyl | B | A | A | D | | A | A |
| Alcohol, n-Butyl | A | A | A | D | A | A | A |
| Alcohol, Propyl | A | A | A | D | A | A | A |
| Ammonium Hydroxide | A | A | A | C | A | A | A |
| Aniline | B | A | A | B | A | A | A |
| Aqua Regia | D | B | C | D | A | A | A |
| Benzaldehyde | A | B | B | B | A | | A |
| Benzene | A | B | B | A | B | A | D |
| Carbon Tetrachloride | B | A | A | A | A | A | A |
| Chlorobenzene | D | B | B | B | A | A | A |
| Chloroform | B | B | B | D | B | A | A |
| Cyclohexane | A | B | B | A | A | A | A |
| Esters | D | A | A | A | B | A | A |
| Ether | A | B | B | A | B | A | A |
| Ether, Diethyl | D | B | B | C | C | A | A |
| Ether, Isopropyl | A | A | A | B | A | A | A |
| Ethyl, Methyl | B | A | A | B | A | A | A |
| Hexane | B | A | A | A | A | A | A |
| Hydrazine | B | A | A | | B | A | A |
| Hydrogen Peroxide | B | A | A | B | A | A | A |
| Methylene Chloride | B | A | A | A | A | D | A |
| Petroleum Ether | A | A | A | A | | A | A |
| Phenol | C | A | A | D | A | A | A |
| Sodium Hydroxide | D | A | A | B | A | A | A |
| Tetrahydrofuran | A | A | A | A | A | D | A |
| Toluene | B | A | A | C | A | A | A |
| Trichloroethylene | B | B | B | B | A | A | A |
| Trimethylpentane,2,2,4 | C | B | B | A | | A | A |
| Water | A | A | A | A | A | A | A |
| Xylene | A | A | A | A | A | A | A |

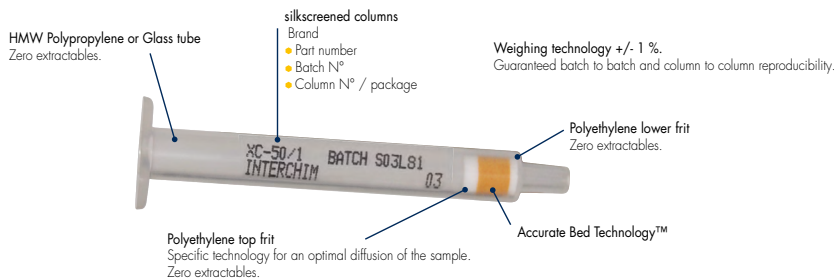
A: Excellent - B: Good - C: Poor - D: Not recommended



Solid phase extraction (SPE)

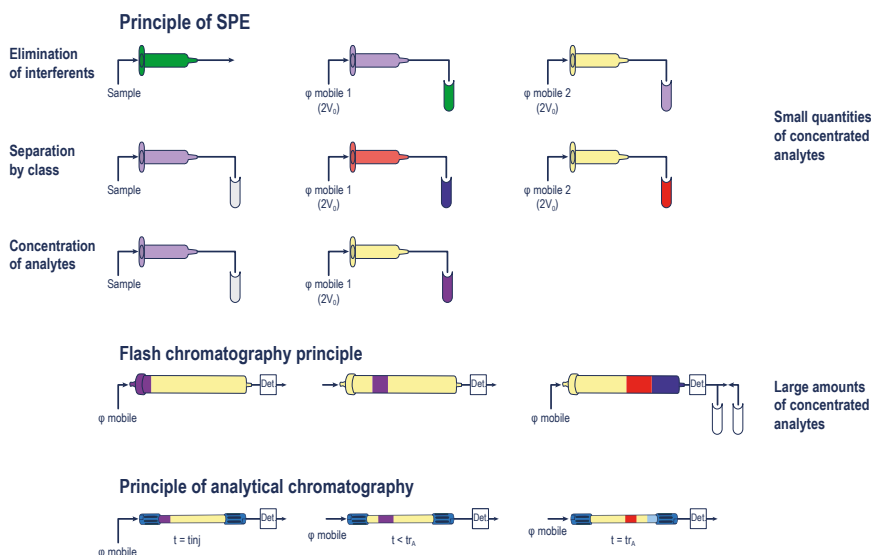
The extraction column consists of a syringe body in which an adsorbent (silica or polymer resin) is inserted in between two frits.

The liquid sample passes through the adsorbent at low speed by suction or by positive pressure.



- SPE is a step gradient mode HPLC.
- It enables separation of analytes by structural class and concentration before a GC or HPLC analysis.
- The objective of SPE is to separate the solutes of interest from the matrix and interfering solutes.

Typically, SPE applies to samples with analytes of different polarities (purification or separation by class). When the goal is only to concentrate a large volume sample, SPE can be used with analytes of similar structures. Thus, it offers a very effective alternative to the analysis of very large volumes of a diluted sample in pre-concentration mode at the top of the column.



SPE is a separative process in which the analytes are first adsorbed on the stationary phase and then desorbed in a minimal volume of mobile phase. This is a liquid chromatography of very low efficiency (typically $N < 50$ plates). To separate compounds, very high selectivities are required: $\alpha > 4$

Breakthrough volume

From a certain volume of sample percolated on the SPE cartridge, the solutes will start to elute. This is defined as the breakthrough volume. This volume is considered to be reached when the concentration of the eluted compound(s) represents 1% of the adsorbent capacity.

Concentration factor, enrichment factor

The interest of SPE lies in the increased concentration of the analytes with the reduction of sample volume. The concentration factor can easily reach 1000/1.

$$\text{Enrichment factor} = \frac{\text{Percolated volume}}{\text{Elution volume}} \times \text{Extraction yield}$$

Interest in small particle sizes

The elution volume is directly dependent on the dead volume of the SPE cartridge. The smaller the particle size of the support, the smaller the interstitial volumes and the smaller the elution volume.



Liquid/liquid extraction

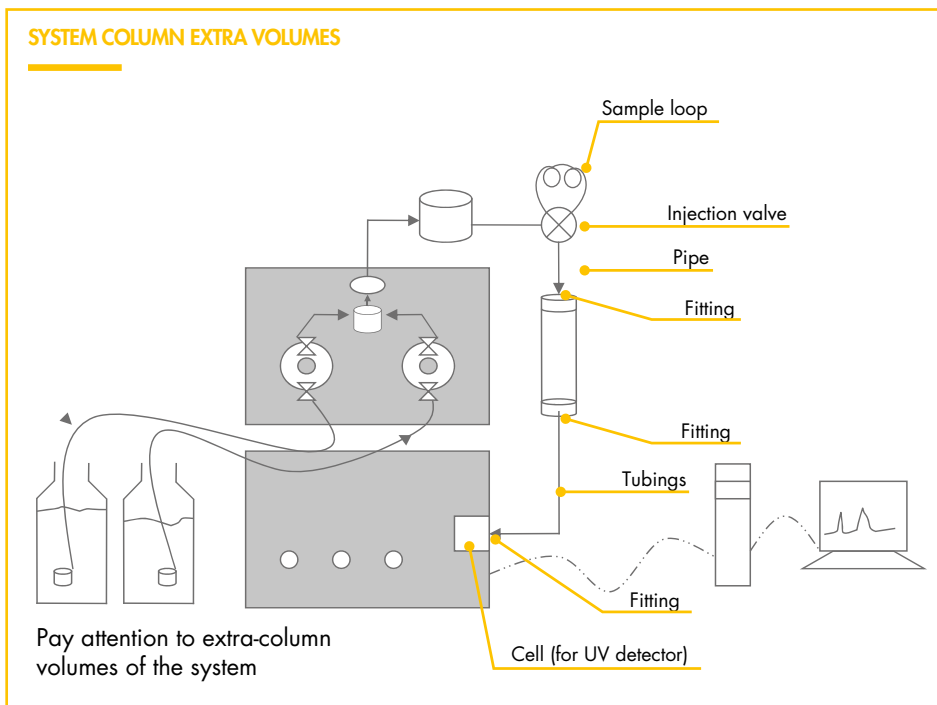
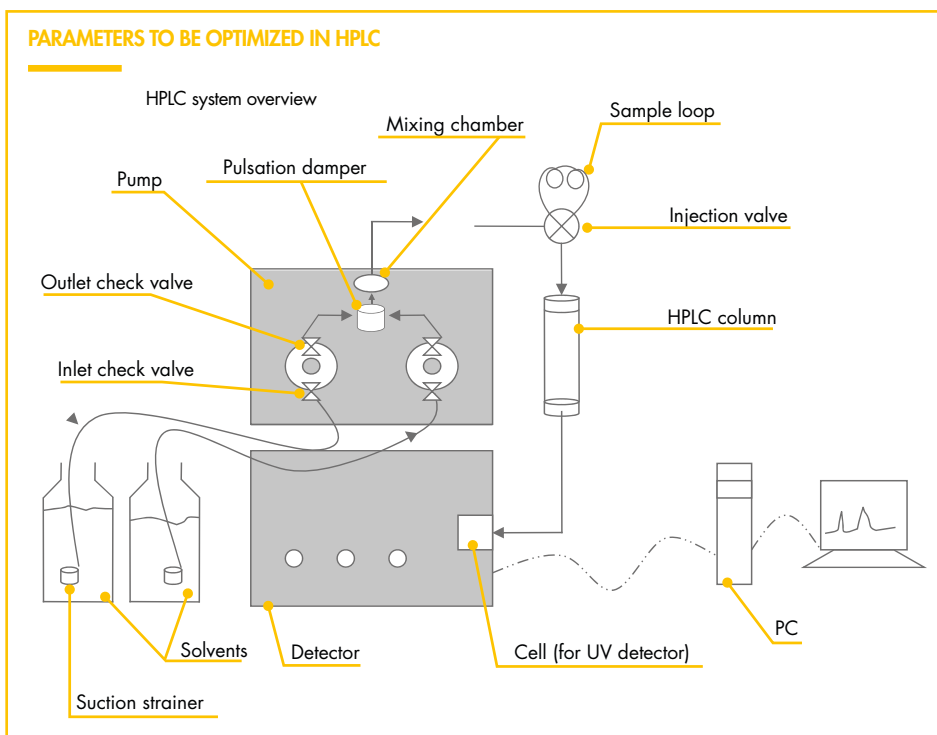
This technique separates products with different physico-chemical properties. In a separating funnel, two immiscible liquids are stirred and the solutes are separated according to their solubility in each solvent during the decantation phase.

Soxhlet or pressure extraction

A Soxhlet extractor enables extraction of one or more chemical species contained in a solid by continuously passing a solvent. The extract obtained in liquid form can then be treated by SPE if necessary. The extraction by pressurized solvent uses the same principle in an accelerated way.



The results of an analysis are based on many factors, not only to the analytical column as commonly thought. A correct configuration of the system (HPLC) is also essential. The diagrams below point out where to focus the attention.



These critical points can cause dilution of the injected sample which will be characterized by a broadening of peaks.



The parameters below influence the analysis:

| | | |
|--|---------|-----------------------|
| Type of bonding and coverage rate (µmol/m ²) | impacts | Selectivity |
| Type of silica (pure or not, % metals) | impacts | Peak asymmetry |
| Particle size or particle diameter (µm) | impacts | Efficiency |
| Pore diameter (Ångström) | impacts | Analyte exclusion |
| Porous volume (mL/g) | impacts | Zero retention volume |
| Specific surface (m ² /g) | impacts | Load capacity |

Influence of particle size

HPLC:

- The particle diameter is generally between 1.7 µm and 5 µm.
- The lengths are between 3 cm and 30 cm.

Preparative and Flash:

- The particle diameter is generally between 10 µm and 50 µm.
- The lengths are between 5 cm and 50 cm.

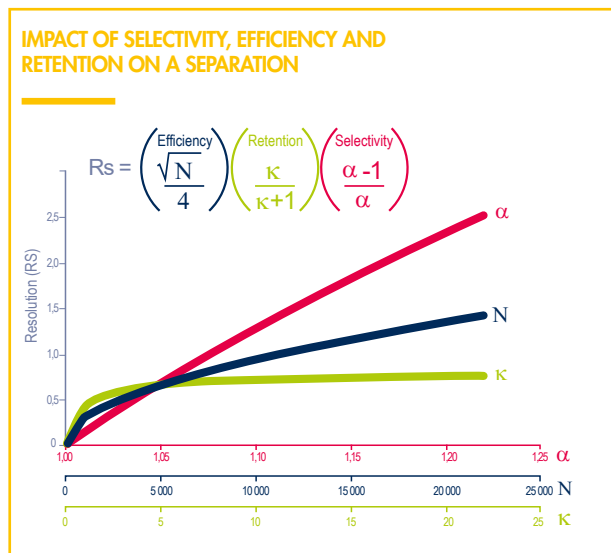
SPE sample preparation:

- The particle diameter is generally between 30 µm and 140 µm.
- Bed lengths are between 0.5 cm and 2 cm.

For the same stationary phase, if only the diameter of the particles change (for the same solutes, the same mobile phase, the same temperature, the same flow rate etc.):

- **Retention** and **selectivity** are not affected .
- The **resolution** will be modified (the length of the column determines the number of theoretical plates).

Typically, a 25 cm long HPLC column filled with 5 µm particles develops an efficiency of 20,000 plates. A SPE column with a bed length of 1.25 cm filled with 50 µm particles develops an efficiency of about 50 plates.

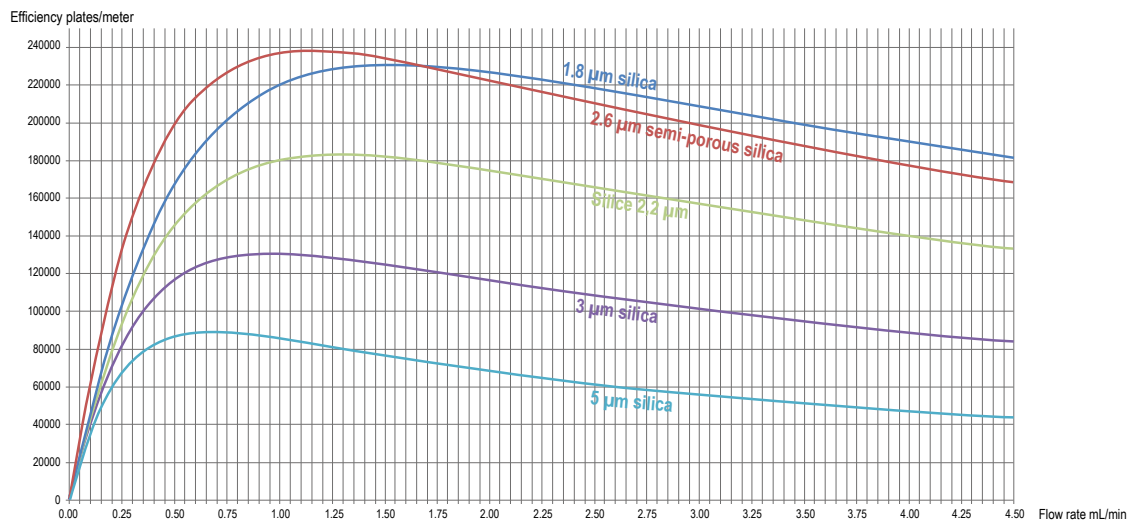


| Theoretical efficiency (plates/meter) | Particles diameter (µm) | Purpose |
|---------------------------------------|-------------------------|--------------------------------------|
| 5,000 | 50 | Flash purification SPE |
| 20,000 | 15 | Flash purification SPE Prep LC |
| 33,000 | 10 | Prep LC |
| 80,000 | 5 | Analysis |
| 130,000 | 3 | Analysis |
| 180,000 | 2.2 | Analysis UHPLC |
| 220,000 | 1.7 | UHPLC |



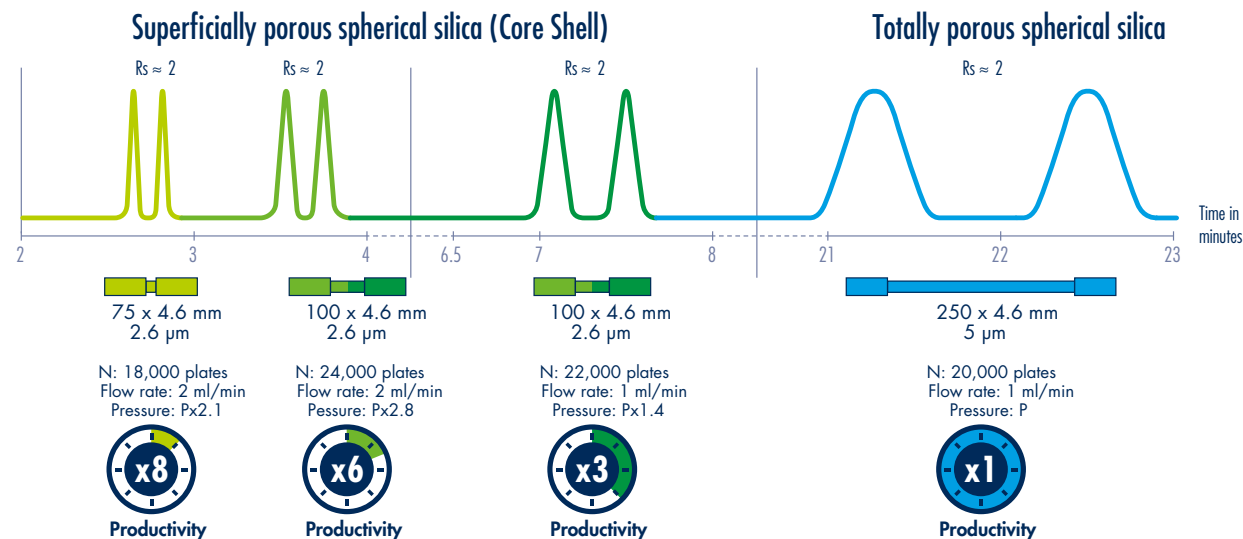


INFLUENCE OF FLOW RATE ON EFFICIENCY (INTERNAL COLUMN DIAMETER 4.6 MM)



PRODUCTIVITY COMPARISON OF CORE SHELL AND TOTALLY POROUS SILICA

Reducing the length of a column reduces the analysis time. A Core Shell Silica maintains the resolution.





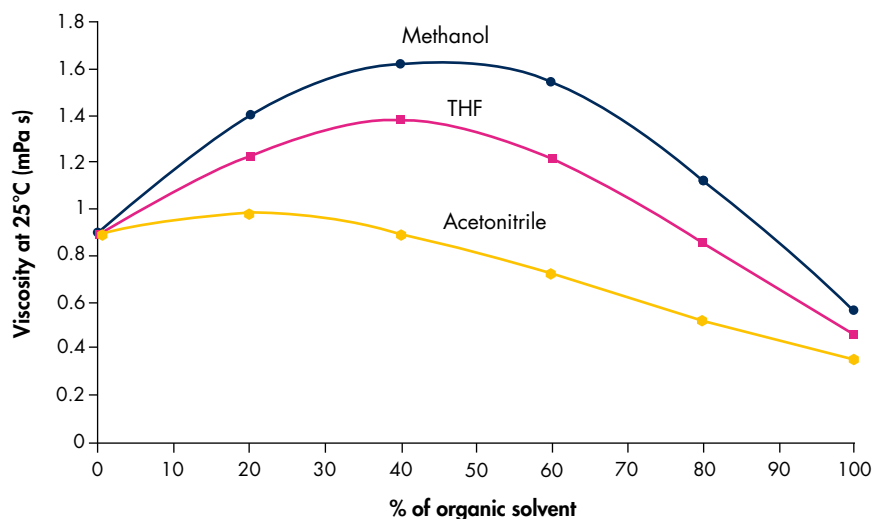
Common HPLC parameters according to column dimensions

| Dimensions mm | Analytical column dimensions | | | | Variable according to porosity and particle size of the silicas | | | |
|---------------|------------------------------|------------------------|----------------------------|-----------------------------|---|--|---|---|
| | Section area cm ² | Volume cm ³ | Dimension ratio / ø 4.6 mm | Dimension ratio / ø 21.2 mm | Conventional flow mL/min | t ₀ for 5 µm porous silica secondes | Dead volume cm ³ average 55% | Maximum injectable volume 1% of dead volume in analysis 1% to 5% dead volume in preparative |
| 50 x 0.5 | 0.00196 | 0.0098 | 0.012 | --- | 0.01 | --- | 0.0054 | 0.05 µL |
| 150 x 0.5 | 0.00196 | 0.0294 | 0.012 | --- | 0.01 | --- | 0.0162 | 0.15 µL |
| 250 x 0.5 | 0.00196 | 0.0490 | 0.012 | --- | 0.01 | --- | 0.0270 | 0.3 µL |
| 30 x 1.0 | 0.00785 | 0.0235 | 0.047 | --- | 0.05 | --- | 0.0129 | 0.1 µL |
| 50 x 1.0 | 0.00785 | 0.0392 | 0.047 | --- | 0.05 | --- | 0.0216 | 0.2 µL |
| 75 x 1.0 | 0.00785 | 0.0588 | 0.047 | --- | 0.05 | --- | 0.0323 | 0.3 µL |
| 100 x 1.0 | 0.00785 | 0.0784 | 0.047 | --- | 0.05 | --- | 0.0431 | 0.4 µL |
| 150 x 1.0 | 0.00785 | 0.1176 | 0.047 | --- | 0.05 | --- | 0.0647 | 0.6 µL |
| 250 x 1.0 | 0.00785 | 0.1960 | 0.047 | --- | 0.05 | --- | 0.1078 | 1 µL |
| 30 x 2.1 | 0.03460 | 0.104 | 0.208 | --- | 0.2 | --- | 0.057 | 0.6 µL |
| 50 x 2.1 | 0.03460 | 0.173 | 0.208 | --- | 0.2 | --- | 0.095 | 1 µL |
| 75 x 2.1 | 0.03460 | 0.260 | 0.208 | --- | 0.2 | --- | 0.143 | 1.5 µL |
| 100 x 2.1 | 0.03460 | 0.346 | 0.208 | --- | 0.2 | --- | 0.190 | 2 µL |
| 150 x 2.1 | 0.03460 | 0.519 | 0.208 | --- | 0.2 | --- | 0.285 | 3 µL |
| 250 x 2.1 | 0.03460 | 0.865 | 0.208 | --- | 0.2 | --- | 0.476 | 5 µL |
| 30 x 3.0 | 0.07065 | 0.212 | 0.425 | --- | 0.5 | --- | 0.12 | 1 µL |
| 50 x 3.0 | 0.07065 | 0.353 | 0.425 | --- | 0.5 | --- | 0.19 | 2 µL |
| 75 x 3.0 | 0.07065 | 0.530 | 0.425 | --- | 0.5 | --- | 0.29 | 3 µL |
| 100 x 3.0 | 0.07065 | 0.706 | 0.425 | --- | 0.5 | --- | 0.39 | 4 µL |
| 150 x 3.0 | 0.07065 | 1.060 | 0.425 | --- | 0.5 | --- | 0.58 | 6 µL |
| 250 x 3.0 | 0.07065 | 1.766 | 0.425 | --- | 0.5 | --- | 0.97 | 10 µL |
| 30 x 4.6 | 0.166 | 0.498 | 1 | 0.047 | 1 | --- | 0.27 | 3 µL |
| 50 x 4.6 | 0.166 | 0.831 | 1 | 0.047 | 1 | 27 | 0.46 | 5 µL |
| 75 x 4.6 | 0.166 | 1.246 | 1 | 0.047 | 1 | 41 | 0.69 | 7 µL |
| 100 x 4.6 | 0.166 | 1.661 | 1 | 0.047 | 1 | 55 | 0.91 | 9 µL |
| 150 x 4.6 | 0.166 | 2.492 | 1 | 0.047 | 1 | 82 | 1.37 | 14 µL |
| 250 x 4.6 | 0.166 | 4.153 | 1 | 0.047 | 1 | 137 | 2.284 | 23 µL |
| 50 x 7.8 | 0.478 | 2.39 | 2.88 | 0.135 | 3 | --- | 1.31 | 13-65 µL |
| 100 x 7.8 | 0.478 | 4.78 | 2.88 | 0.135 | 3 | --- | 2.63 | 25 - 125 µL |
| 150 x 7.8 | 0.478 | 7.16 | 2.88 | 0.135 | 3 | --- | 3.94 | 40 - 200 µL |
| 250 x 7.8 | 0.478 | 11.94 | 2.88 | 0.135 | 3 | --- | 6.57 | 65 - 325 µL |
| 30 x 10 | 0.785 | 2.4 | 4.73 | 0.223 | 5 | --- | 1.29 | 13 - 65 µL |
| 50 x 10 | 0.785 | 3.9 | 4.73 | 0.223 | 5 | --- | 2.16 | 20 - 100 µL |
| 100 x 10 | 0.785 | 7.8 | 4.73 | 0.223 | 5 | --- | 4.32 | 40 - 200 µL |
| 150 x 10 | 0.785 | 11.8 | 4.73 | 0.223 | 5 | --- | 6.47 | 65 - 325 µL |
| 250 x 10 | 0.785 | 19.6 | 4.73 | 0.223 | 5 | --- | 10.79 | 100 - 500 µL |
| 30 x 21.2 | 3.528 | 10.6 | 21.24 | 1 | 20 | --- | 5.82 | 60 - 300 µL |
| 50 x 21.2 | 3.528 | 17.6 | 21.24 | 1 | 20 | --- | 9.70 | 100 - 500 µL |
| 100 x 21.2 | 3.528 | 35.3 | 21.24 | 1 | 20 | --- | 19.40 | 0.2 - 1 mL |
| 150 x 21.2 | 3.528 | 52.9 | 21.24 | 1 | 20 | --- | 29.11 | 0.3 - 1.5 mL |
| 250 x 21.2 | 3.528 | 88.2 | 21.24 | 1 | 20 | --- | 48.51 | 0.5 - 2.5 mL |
| 50 x 28 | 6.157 | 31 | 37.07 | 1.75 | 35 | --- | 16.93 | 170 - 850 µL |
| 100 x 28 | 6.157 | 62 | 37.07 | 1.75 | 35 | --- | 33.86 | 0.35 - 1.75 mL |
| 150 x 28 | 6.157 | 93 | 37.07 | 1.75 | 35 | --- | 51.35 | 0.5 - 2.5 mL |
| 250 x 28 | 6.157 | 154 | 37.07 | 1.75 | 35 | --- | 84.67 | 0.85 - 4.25 mL |
| 50 x 30 | 7.065 | 35 | 42.56 | 2 | 40 | --- | 19.36 | 0.2 - 1 mL |
| 100 x 30 | 7.065 | 71 | 42.56 | 2 | 40 | --- | 38.83 | 0.4 - 2 mL |
| 150 x 30 | 7.065 | 106 | 42.56 | 2 | 40 | --- | 58.19 | 0.6 - 3 mL |
| 250 x 30 | 7.065 | 176 | 42.56 | 2 | 40 | --- | 97.02 | 1 - 5 mL |
| 250 x 40 | 12.566 | 314 | 75.65 | 3.56 | 75 | --- | 172.79 | 1.7 - 8.5 mL |
| 50 x 50 | 19.625 | 98 | 118.14 | 5.56 | 120 | --- | 53.97 | 0.55 - 2.75 mL |
| 100 x 50 | 19.625 | 196 | 118.14 | 5.56 | 120 | --- | 107.94 | 1.1 - 5.5 mL |
| 150 x 50 | 19.625 | 294 | 118.14 | 5.56 | 120 | --- | 161.91 | 1.6 - 8 mL |
| 250 x 50 | 19.625 | 491 | 118.14 | 5.56 | 120 | --- | 269.84 | 2.7 - 13.5 mL |
| 250 x 80 | 50.265 | 1256 | 302.59 | 14.25 | 300 | --- | 690.80 | 7 - 35 mL |
| 250 x 100 | 78.5 | 1962 | 472.77 | 22.3 | 450 | --- | 1079.10 | 10 - 50 mL |





VISCOSITY OF WATER/METHANOL, WATER/THF, WATER/ACETONITRILE MIXTURES AT 25°C



Injectable volume

It is preferable not to exceed 1% of the column dead volume. The dead volume or zero holdup volume of an analytical column is approximately 50% to 60% of the geometric volume.

Concentration of solutions

| % | exponent 10 | ppm | ppb | mg/mL or µg/µL |
|-----------|----------------------|--------|------------|----------------|
| 1 | 10 ² | 10,000 | 10,000,000 | 10 |
| 0.5 | 5 x 10 ⁻³ | 5,000 | 5,000,000 | 5 |
| 0.2 | 2 x 10 ⁻³ | 2,000 | 2,000,000 | 2 |
| 0.1 | 1 x 10 ⁻³ | 1,000 | 1,000,000 | 1 |
| 0.05 | 5 x 10 ⁻⁴ | 500 | 500,000 | 0.5 |
| 0.02 | 2 x 10 ⁻⁴ | 200 | 200,000 | 0.2 |
| 0.01 | 1 x 10 ⁻⁴ | 100 | 100,000 | 0.1 |
| 0.005 | 5 x 10 ⁻⁵ | 50 | 50,000 | 0.05 |
| 0.002 | 2 x 10 ⁻⁵ | 20 | 20,000 | 0.02 |
| 0.001 | 1 x 10 ⁻⁵ | 10 | 10,000 | 0.01 |
| 0.0005 | 5 x 10 ⁻⁶ | 5 | 5,000 | 0.005 |
| 0.0002 | 2 x 10 ⁻⁶ | 2 | 2,000 | 0.002 |
| 0.0001 | 1 x 10 ⁻⁶ | 1 | 1,000 | 0.001 |
| 0.00005 | 5 x 10 ⁻⁷ | 0.5 | 500 | 0.0005 |
| 0.00002 | 2 x 10 ⁻⁷ | 0.2 | 200 | 0.0002 |
| 0.00001 | 1 x 10 ⁻⁷ | 0.1 | 100 | 0.0001 |
| 0.000005 | 5 x 10 ⁻⁸ | 0.05 | 50 | 0.00005 |
| 0.000002 | 2 x 10 ⁻⁸ | 0.02 | 20 | 0.00002 |
| 0.000001 | 1 x 10 ⁻⁸ | 0.01 | 10 | 0.00001 |
| 0.0000005 | 5 x 10 ⁻⁹ | 0.005 | 5 | 0.000005 |
| 0.0000002 | 2 x 10 ⁻⁹ | 0.002 | 2 | 0.000002 |
| 0.0000001 | 1 x 10 ⁻⁹ | 0.001 | 1 | 0.000001 |

Standard buffers

| pKa | Buffer | Usual pH | LC/MS compatibility |
|------------|-----------------------|-------------|---------------------|
| 0.3 | TFA (0.1%) | 1.8 | Yes |
| 2.1 (pK1) | Phosphate | 1.1 - 3.1 | No |
| 3.1 (pK1) | Citrate | 2.1 - 4.1 | No |
| 3.8 | Ammonium Formate | 2.8 - 4.8 | Yes |
| 3.8 | Formic acid (0.1%) | 2.7 | Yes |
| 4.7 (pK2) | Citrate | 3.7 - 5.7 | No |
| 4.8 | Ammonium acetate | 3.8 - 5.8 | Yes |
| 4.8 | Acetic acid (0.1%) | 3.3 | Yes |
| 6.4 (pK3) | Citrate | 4.4 - 6.4 | No |
| 7.2 (pK2) | Phosphate | 6.2 - 8.2 | No |
| 7.6 | Ammonium bicarbonate | 6.6 - 11.3 | Yes |
| 8.3 | TRIS | 7.3 - 9.3 | No |
| 9.2 | Borate | 8.2 - 10.2 | No |
| 9.2 | Ammoniac 25% (0.1%) | 8.8 | Yes |
| 10.7 | Triethylamine acetate | 9.7 - 11.7 | Yes |
| 12.3 (pK3) | Phosphate | 11.3 - 13.3 | No |



Simple gradient transfer on the same HPLC system

| | Original column | New column |
|---|----------------------------|---|
| Dimensions | 150 x 4.6 mm | 50 x 2.1 mm |
| Flow rate | $D_1 : 1 \text{ mL/min}$ | $D_2 : 0.2 \text{ mL/min}$ |
| No retention time T_0 | 85 s | 29 s |
| No retention volume $V_0 = T_0 \times \text{flow rate}$ | $V_{01} : 1,42 \text{ mL}$ | $V_{02} : 0,1 \text{ mL}$ |
| Gradient time | $G_1 : 10 \text{ min}$ | $G_1 \times (V_{02}/V_{01}) \times (D_1/D_2) = 3.5 \text{ min}$ |

Warning: extra-column volumes in the system (mixing chamber, large diameter tubes or tubes that are too long) may shift the gradient.

Gradient shift, dwell volume

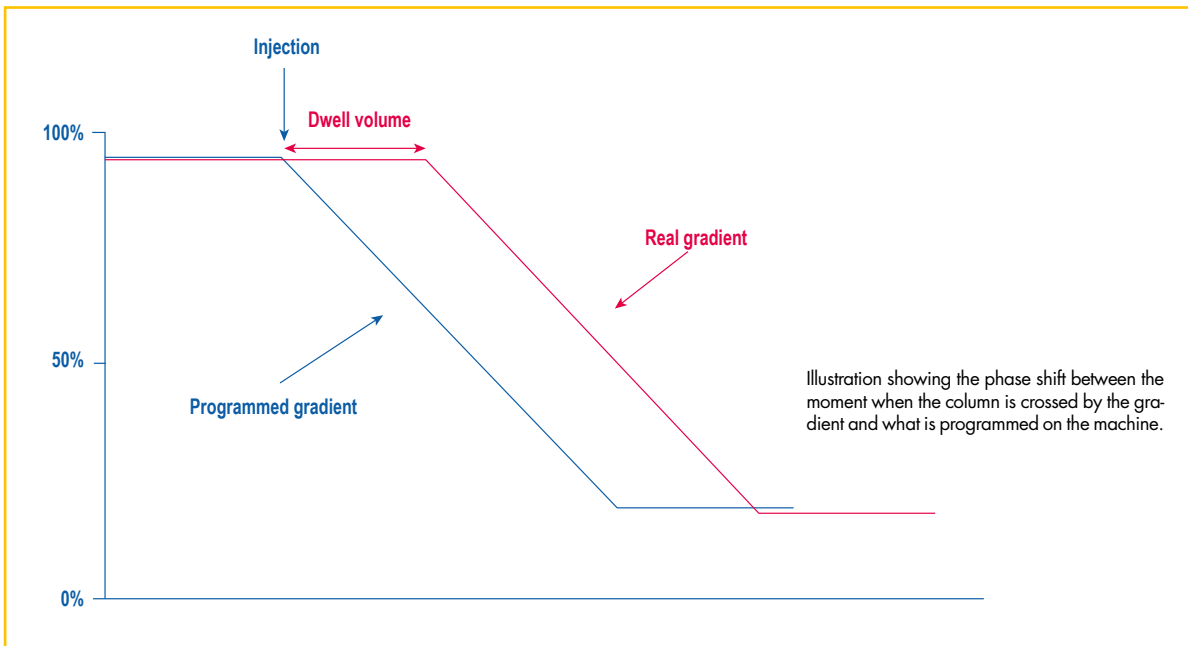
Instruments designed for UHPLC analysis (pressure above 400 bar) are configured to minimize dead volumes in the system and interfere with gradient shifts as little as possible.

Standard HPLC instruments (pressure below 400 bar) generally create significant gradient shifts when using columns of small length and diameter.

The total volume from where the solvents mix (often the mixing chamber), to where the sample is deposited for injection on the column, makes up the delay volume. It can be evaluated by programming a gradient and measuring the time needed to complete it compared to the method setup.

This delay volume represents the volume that will delay all programmed gradients.

It is generally accepted that the minimum volume of a gradient should correspond to the dead volume of the column plus the delay volume of the system.





Solvent miscibility table & cut-off

| UV (nm) Cutoff | Viscosity (CPoise) 20°C | Solvent | Acetone | Acetonitrile | Dimethylformamide | Diméthylsulfoxyde | 1,4-Dioxane | Ethanol | Isopropanol | Methanol | Tetrahydrofurane | Water | Benzene | n-Butanol | Carbone Tetrachloride | Chloroform | Cyclohexane | 1,2-Dichloroethane | Dichloromethane | Ethyl Acetate | Diethyl ether | Heptane | Hexane | Iso-octane | Methyl tert-butyl ether | Butanone | Pentane | Toluene | Xylene | |
|----------------|-------------------------|-------------------------|---------|--------------|-------------------|-------------------|-------------|---------|-------------|----------|------------------|-------|---------|-----------|-----------------------|------------|-------------|--------------------|-----------------|---------------|---------------|---------|--------|------------|-------------------------|----------|---------|---------|--------|--|
| 330 | 0.36 | Acetone | Green | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 190 | 0.38 (15°C) | Acetonitrile | Green | Green | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 268 | 0.92 | Dimethylformamide | Green | Green | Green | | | | | | | | | | | | | | | | | | | | | | | | | |
| 268 | 2.24 | Diméthylsulfoxyde | Green | Green | Green | Green | | | | | | | | | | | | | | | | | | | | | | | | |
| 215 | 1.37 | 1,4-Dioxane | Green | Green | Green | Green | Green | | | | | | | | | | | | | | | | | | | | | | | |
| 210 | 1.20 | Ethanol | Green | Green | Green | Green | Green | Green | | | | | | | | | | | | | | | | | | | | | | |
| 120 | 2.30 | Isopropanol | Green | Green | Green | Green | Green | Green | Green | | | | | | | | | | | | | | | | | | | | | |
| 205 | 0.59 | Methanol | Green | Green | Green | Green | Green | Green | Green | Green | | | | | | | | | | | | | | | | | | | | |
| 215 | 0.55 | Tetrahydrofurane | Green | Green | Green | Green | Green | Green | Green | Green | Green | | | | | | | | | | | | | | | | | | | |
| 200 | 1.00 | Water | Green | Green | Green | Green | Green | Green | Green | Green | Green | Green | | | | | | | | | | | | | | | | | | |
| 280 | 0.65 | Benzene | | | | | | | | | | | Green | | | | | | | | | | | | | | | | | |
| 254 | 0.73 | n-Butanol | | | | | | | | | | | | Green | | | | | | | | | | | | | | | | |
| 263 | 0.97 | Carbone Tetrachloride | | | | | | | | | | | | | Green | | | | | | | | | | | | | | | |
| 245 | 0.57 | Chloroform | | | | | | | | | | | | | | Green | | | | | | | | | | | | | | |
| 200 | 1.00 | Cyclohexane | | | | | | | | | | | | | | | Green | | | | | | | | | | | | | |
| 225 | 0.79 | 1,2-Dichloroethane | | | | | | | | | | | | | | | | Green | | | | | | | | | | | | |
| 235 | 0.44 | Dichloromethane | | | | | | | | | | | | | | | | | Green | | | | | | | | | | | |
| 260 | 0.45 | Ethyl Acetate | | | | | | | | | | | | | | | | | | Green | | | | | | | | | | |
| 220 | 0.32 | Diethyl ether | | | | | | | | | | | | | | | | | | | Green | | | | | | | | | |
| 200 | 0.42 | Heptane | | | | | | | | | | | | | | | | | | | | Green | | | | | | | | |
| 200 | 0.31 | Hexane | | | | | | | | | | | | | | | | | | | | | Green | | | | | | | |
| 215 | 0.50 | Iso-octane | | | | | | | | | | | | | | | | | | | | | | Green | | | | | | |
| 210 | 0.27 | Methyl tert-butyl ether | | | | | | | | | | | | | | | | | | | | | | | Green | | | | | |
| 329 | 0.45 | Butanone | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 0.23 | Pentane | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 285 | 0.59 | Toluene | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 290 | 0.61 | Xylene | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

■ Miscible with water
 Miscible
 ■ Immiscible

Rinsing procedures

Caution: Before starting each procedure, check miscibility with the solvent in the column. The volumes shown below are given for a 250 x 4.6 mm column.

Virgin silica:

Hexane: 30 mL
 Dichloromethane: 30 mL
 Isopropanol: 30 mL
 Dichloromethane: 30 mL
 Mobile phase
 Water removal: 20 mL of
 2,2-dimethoxypropane (5%)
 in hexane

Ion exchange (SAX, SCX, NH₂,...):

Distilled water: 30 mL
 Methanol: 30 mL
 Acetonitrile: 30 mL
 Dichloromethane: 30 mL
 Methanol: 25 mL
 Mobile phase

Reverse phase (C18, C8, C6, C1, CN, NH₂):

Distilled water + 15% Methanol: 30 mL
 Acetonitrile: 30 mL
 Dichloromethane: 30 mL
 Hexane: 30 mL
 Dichloromethane: 30 mL
 Acetonitrile: 30 mL
 Mobile phase

Polar phase (CN, NH₂, Diol, HiliC):

Chloroform: 30 mL
 Isopropanol: 30 mL
 Dichloromethane: 30 mL
 Mobile phase

Proteins (wide pores C18, C8, C4, phenyl):

Procedure #1
 Water: 50 mL TFA 0.1%:
 30 mL
 Isopropanol: 30 mL
 Acetonitrile: 30 mL
 Water: 30 mL
 Mobile phase
Procedure #2
 Solvent A: 0.1% TFA in water
 Solvent B: 0.1% TFA in Acetonitrile/Isopropanol (50/50)
 Then gradient from 25% to 100% of B

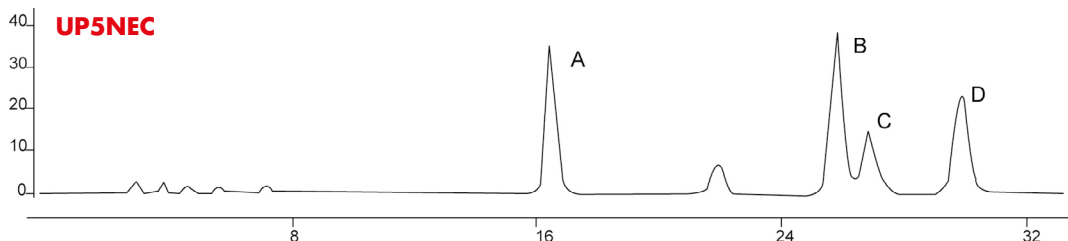


Optimization of an analysis

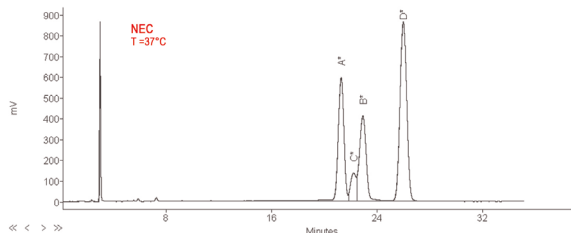
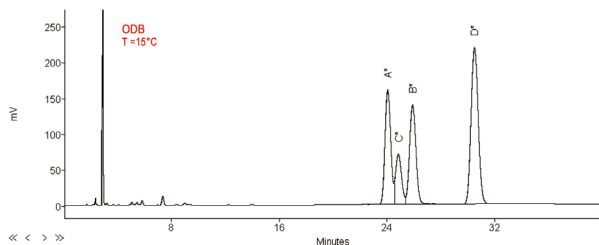
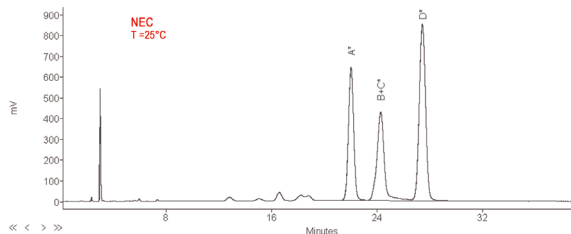
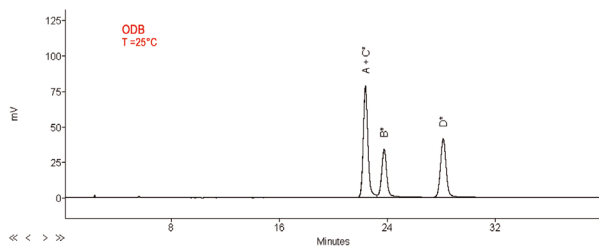
The development below refers to the separation of four sunscreen compounds. It shows how to improve separation by playing on:

- Choice of silica bonding
- Composition of the eluent
- Particle size of silica
- Column length
- Temperature

We show below the clear change in separation on the NEC phase at 25°C by playing on an 8% change in the composition of the mobile phase MeOH/H₂O compared to the initial conditions of the method development.



We show below the improvement in separation on the ODB phase decreasing from 25 to 15°C or increasing from 25°C to 37°C on the NEC phase in MeCN/H₂O media.

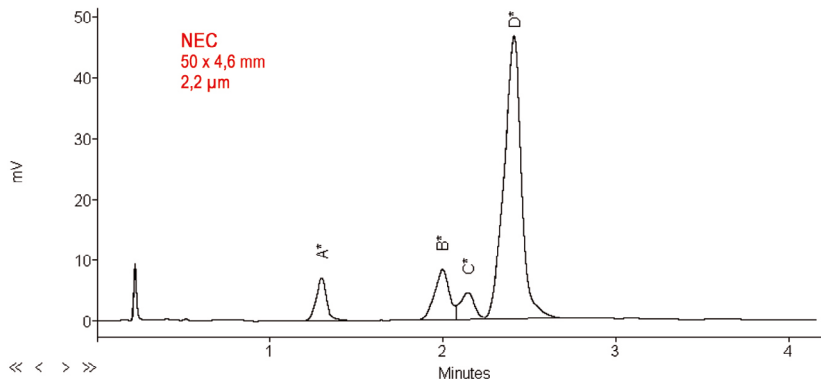
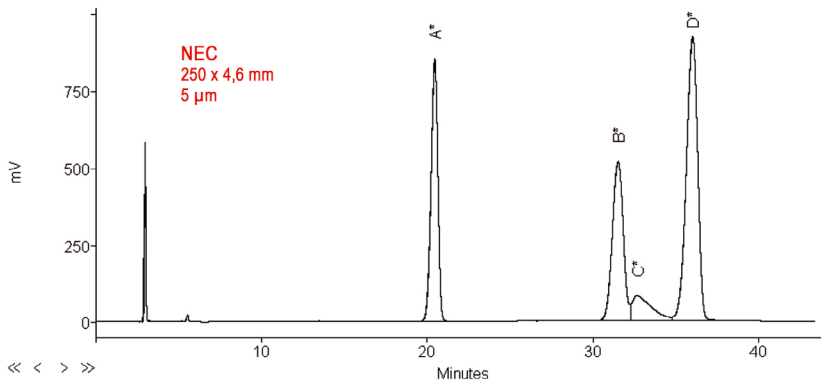
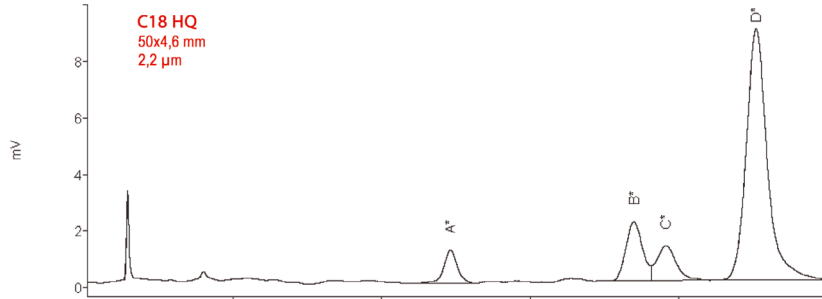
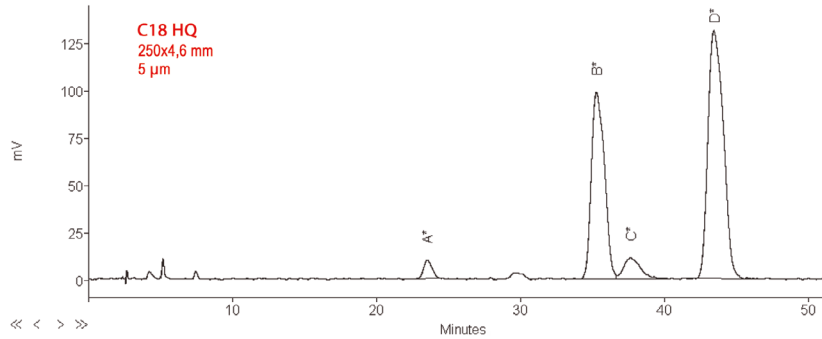


Let us recall that for a given stationary phase, if the pair of poorly separated solutes is not the same in the methanol-water mobile phase as in the acetonitrile-water mobile phase determined by our equivalence rules, it is possible to find a ternary mobile phase composition allowing the separation. Finally, if you want to save analysis time, as the thermodynamic parameters of each of our phases are identical when changing the diameter of the particles, you will obtain the same chromatogram five times faster by switching from a 250 mm 5 µm column to a 110 mm 2.2 µm column and by adapting the flow rate. By choosing a 50 mm 2.2 µm column, we lose a little resolution but decrease analysis time by half.



By using our transfer rule from the results obtained on the Kromasil C18 directly, we show below, the chromatograms obtained on 2 of our phases with 5 μm 250 x 4.6 mm and 2.2 μm 50 x 4.6 mm geometries.

Optimization of an analysis



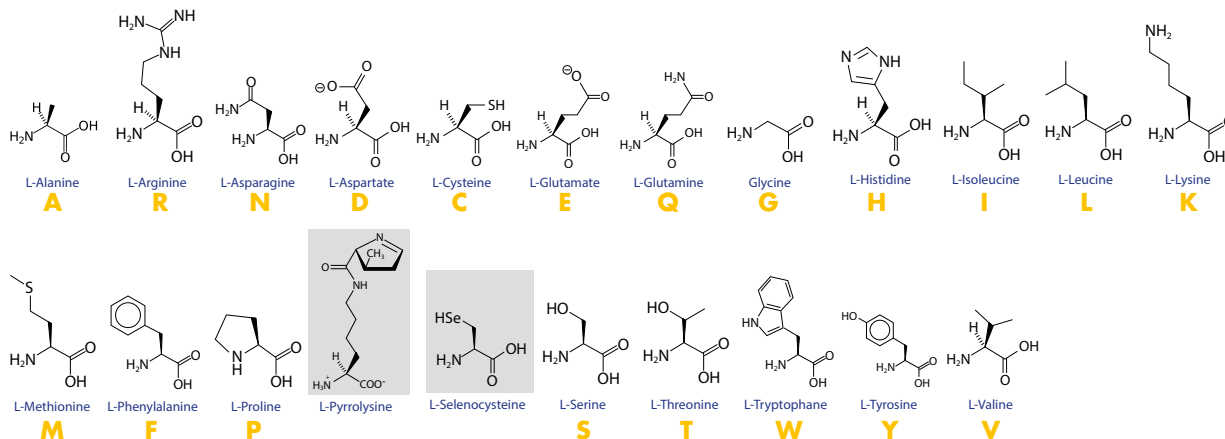


Biological compounds are made of different building blocks.

Amino acids: small molecules whose sequence makes up peptides and proteins.

Purine and pyrimidine bases: the sequence of which composes DNA and RNA nucleic acids.

The amino acids

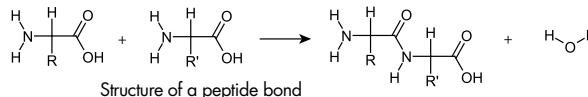


Peptides and Proteins

Peptides and proteins are composed of a sequence of amino acids (20 universally distributed + 2 specific to some species). Amino acids are linked together by peptide bonds (condensation of a carboxylic acid with an amine). The peptides vary from 2 to 10 amino acids approximately (oligopeptides resulting from enzymatic synthesis) and from 10 to 100 amino acids approximately (polypeptides generally resulting from a translation of mRNA). A protein is an assembly of one or more uniquely three-dimensionally structured polypeptides. The spatial structure of a protein (conformation) is sensitive to the environment (heat, pH, ionic strength, solvents, etc.) and it directly influences its biological function.

Structure of proteins

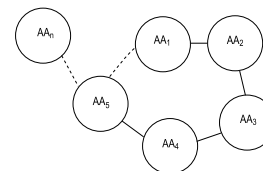
Primary structure: linear polypeptide chain in which amino acids are joined to each other by a peptide bond.



Secondary structure: local folding of the primary structure. These foldings are due to the weak hydrogen bondings between the amide and carbonyl groups of amino acids. These bondings are numerous.

The secondary structures are energetically stable and are specific to a sequence of amino acids.

Tertiary structure (three-dimensional or 3D structure): it is about the folding in space of the primary and secondary structures. These foldings are determined by weak links (hydrogens, hydrophobic interactions) and covalents.



It depends on:

- Its amino acid sequence: 2 proteins with 2 very similar sequences (more than 80% homology) will have very similar structures.
- Its environment: a protein will only adopt its conformation if its environment is favorable (aqueous medium for a water-soluble protein, for example).

The tertiary structure is responsible for:

- The protein function: Protein denaturation corresponds to the destruction of this tertiary structure.
- The hydrophobicity of the protein: a hydrophobic protein is a protein in which the hydrophobic (non-polar) amino acids are located outside the structure.

Conversely, a hydrophilic (water-soluble) protein has a hydrophobic core and a hydrophilic (polar) surface.

Quaternary structure: union of at least 2 peptide chains. Each subunit is called a monomer.



Protein size

The molecular weight is expressed in Daltons. The Dalton as a unit of mass is defined in relation to the Carbon12 atom, which is assigned a mass of 12 Daltons. Therefore, the Dalton has a mass of 1g/N, i.e. 1g/6.02.10²³ or 1.663.10⁻²⁴ g.

Molecular weight is defined as the ratio mass of the molecule/twelfth of the mass of a carbon atom. It is a dimensionless number.

The molar mass M is the mass of substance containing as many elementary units as there are atoms in 12 g of Carbon12. It is expressed in g/mole, and is numerically identical to a molecular mass expressed in Dalton.

The molecular weight of proteins ranges from 5,000 to over 1,000,000.

The polypeptide chain of most proteins consists of between 100 and 400 amino acids (molecular weight between 10,000 and 40,000).

Determination of the molar mass of a protein

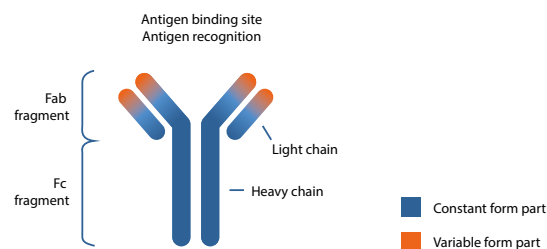
The relative mobility (r) is the ratio: migration distance of a band / migration distance of the migration front. To determine the molecular mass (M) of an unknown protein, we must draw the straight line: $\log(M) = f(r)$. In chromatography, relative mobility is replaced by elution volume.

The straight line is plotted without considering the compounds totally excluded from the gel (tag whose migration does not obey the relationship).

Antibodies: specific proteins

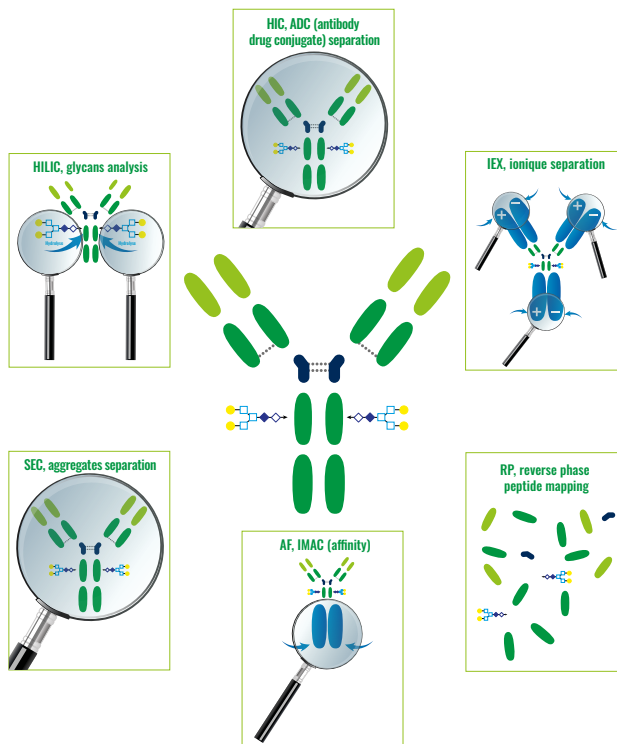
They are composed of a complex of glycoproteins in the form of Y-shaped letter containing so-called heavy (H) and light (L) chains. Disulphide bridges connect them to each other at the base and in the "arms" of the Y.

They have certain characteristics identical to all the antibodies of the same organism and variable parts at the end of the arms which allow the recognition of foreign bodies.



Analysis and purification techniques of proteins and antibodies

- IEX (SCX WCX SAX Ion Exchange)
- AC (affinity, protein A)
- HIC (hydrophobic interaction)
- RP (reverse phase, C4 C8 C18)
- HILIC (hydrophilic, amine, imine, amide interaction)
- GF SEC (gel filtration, size exclusion) (Molecule size)





Enzyme immunoassay by ELISA

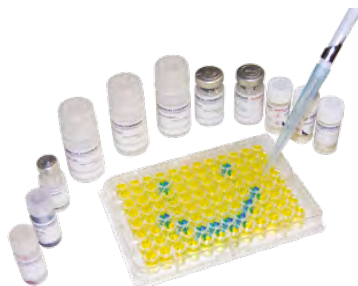
Reagents needed

- 1X phosphate (PBS) buffered saline solution.
- Coating buffer. (50 mM Sodium Carbonate, pH 9.5)
- Blocking buffer (10 mM Tris, pH 7.2, 10% (w/v) D-Gluconic Acid, 5% (w/v) Bovine serum albumin)
- Washing Buffer: (10 mM Tris, 1M Sodium Chloride, pH 7.2, 0.05% (v/v) Kathon)
- Capture and detection antibodies
- Substrates and stopping solutions

Possible options for capture and detection antibodies:

| | Capture: Ac Monoclonal Detection: Ac Polyclonal | Capture: Ac Monoclonal Detection: Ac Monoclonal | Capture: Ac Polyclonal Detection: Ac Polyclonal |
|--------------------|--|--|--|
| Capture antibody | 0.5 - 10 µg/mL | | 0.1 - 1 µg/mL |
| Detection antibody | 50 - 500 ng/mL | 0.2 - 2 µg/ml | 50 - 500 ng/mL |

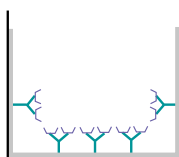
NB: Capture and detection antibodies must be matched for an ELISA. They must not bind to the same epitope or recognize epitopes in close proximity.



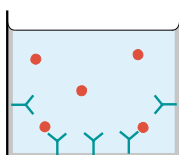
The steps to follow:

- = Capture antibody
- = Blocking proteins
- = Analyte
- = Detection antibody

Coating and Blocking

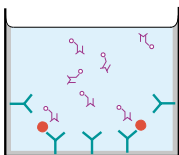


On a transparent ELISA-compatible plate (96 wells), distribute 100 µl of capture antibody solution (dilution to be made according to the manufacturer's recommendations) into the wells. Incubate the plate overnight at 4°C. Perform a cleaning step with wash buffer three times, allowing it to dry before blocking the wells (375 µl /well) with the blocking solution. Incubate the plate (2h at room temperature or 4h to 24 h at 4°C). Perform a new washing step. Do not forget to distribute 100 µl of coating buffer (Antigen free) to produce your negative controls.



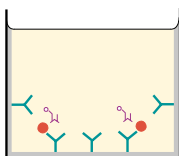
Deposit of standards and samples

To achieve your standard curve, reconstitute your standard. Then from a mother concentration carry out a series of dilutions. At least 6 calibration points are required and blank test is recommended. Add 100 µl of standard solution to each well. Each dilution must be carried out in triplicate. In the same way, put 100 µl of diluted samples in each remaining well. Once these steps are completed, cover up the plate. Incubate for 2 hours at room temperature. Aspirate each well and repeat a wash step.



Detection

Dispense 100 µl of detection antibody (diluted to the desired concentration in PBS) into each well. Incubate for 2 hours at room temperature and cover up the plate. After incubation, aspirate each well and repeat a washing step.



Revelation

Dispense 100 µl of the substrate solution into each well. Cover up the plate and incubate for 20-30 minutes at room temperature. After the color development, remove the lid and dispense the stop solution in each well to stop the enzymatic reaction. Immediately measure the absorbance of each well using a plate reader with the appropriate absorbance setting (450 nm for HRP).



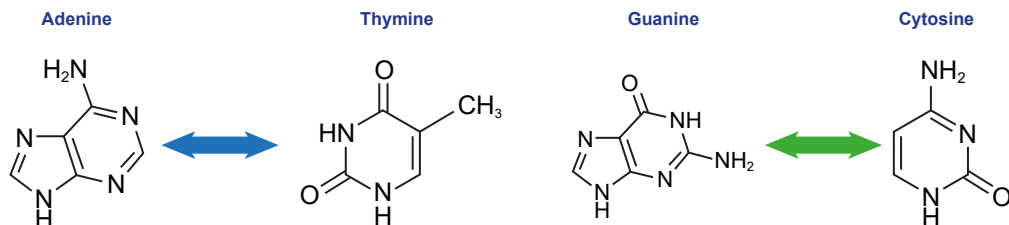
Purines, Pyrimidines, DNA and RNA

Five key compounds are the basis of DNA and RNA composition.

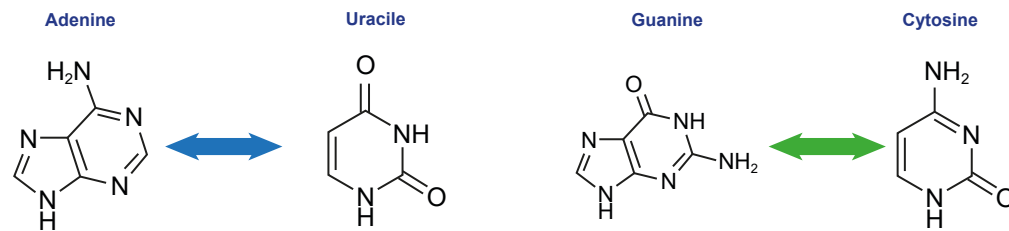
Purines: Adenine, Guanine

Pyrimidines: Cytosine, Thymine, Uracil

The four nitrated bases for **DNA**: adenine (A), thymine (T), guanine (G), cytosine (C).



The four nitrated bases for **RNA**: adenine (A), guanine (G), cytosine (C), uracil (U).

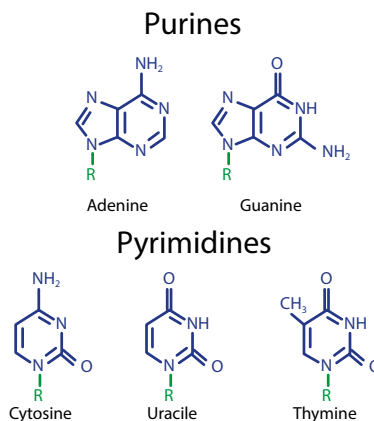
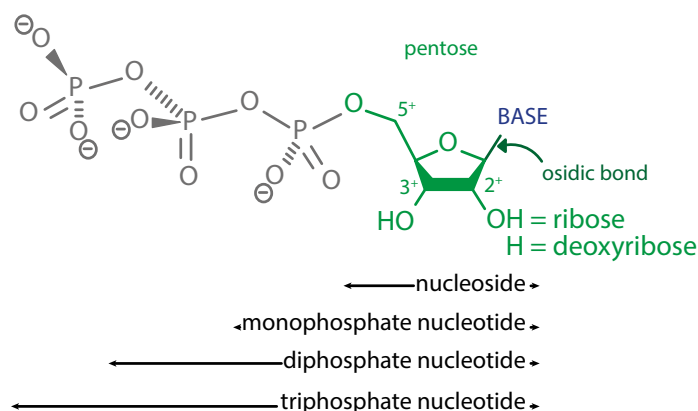


To form nucleic acids, each nitrated base is associated with at least one phosphate group and a 5-carbon sugar.

- Deoxyribose for DNA
- Ribose for RNA

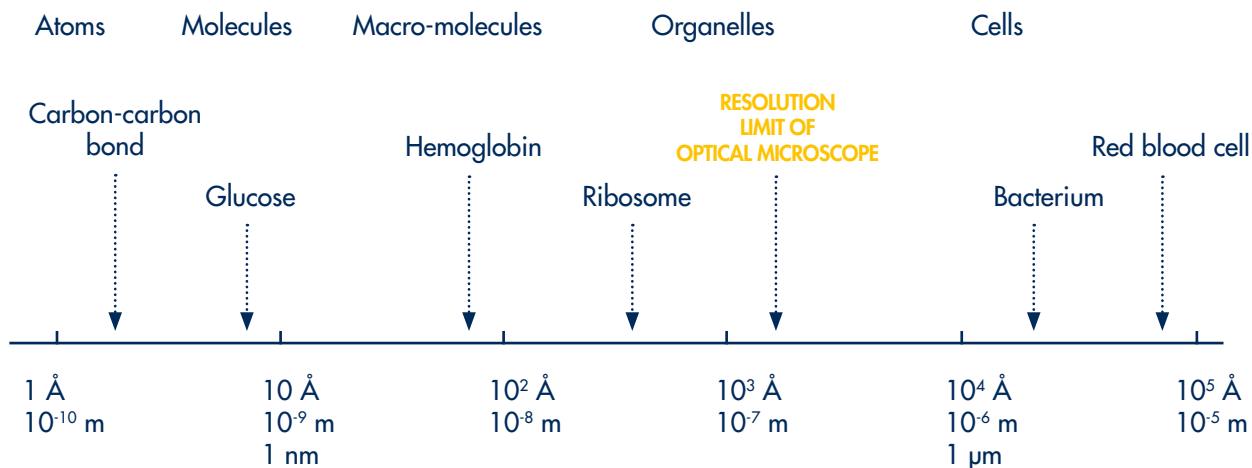
DNA is formed by nucleotides: adenosine, guanosine, cytidine, thymidine.

RNA is formed by nucleotides: adenosine, guanosine, cytidine, uridine.





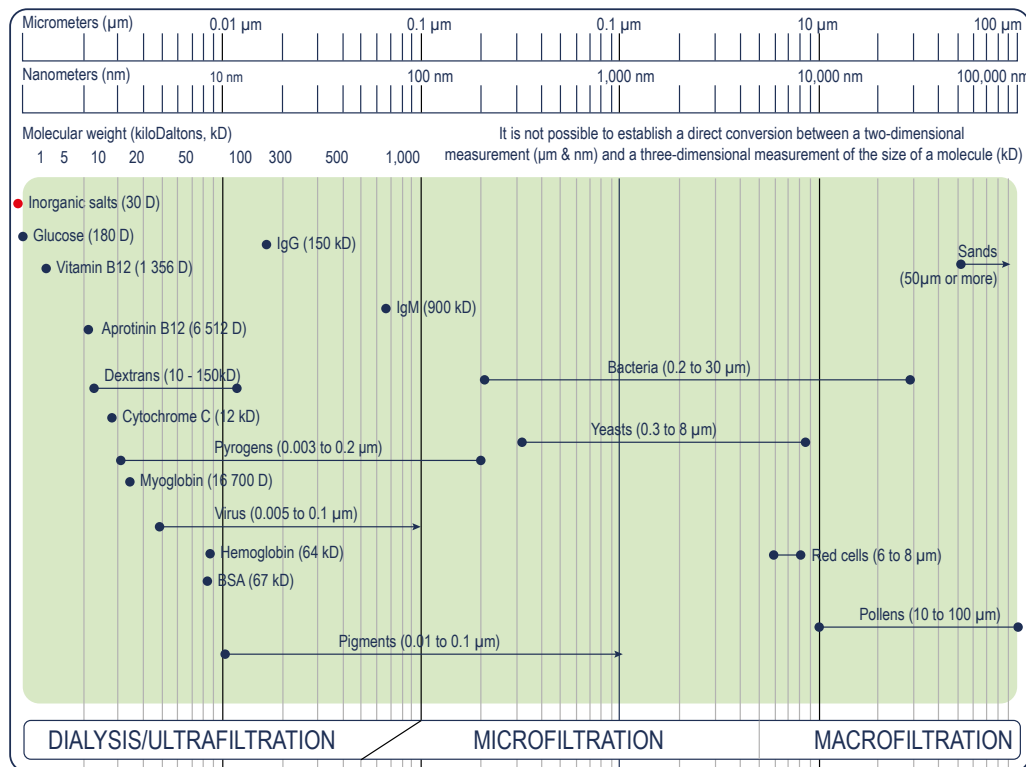
Dimensions of biological molecules



Usual exclusion limits on LC columns

| | |
|---------|---|
| 100 Å | 0-2 500 Daltons |
| 300 Å | 150-400 000 Daltons |
| 500 Å | Up to 1 million Daltons |
| 1 000 Å | Up to approximately 1.5 million Daltons |
| 4 000 Å | Several million Daltons |

Filtration : exclusion limits





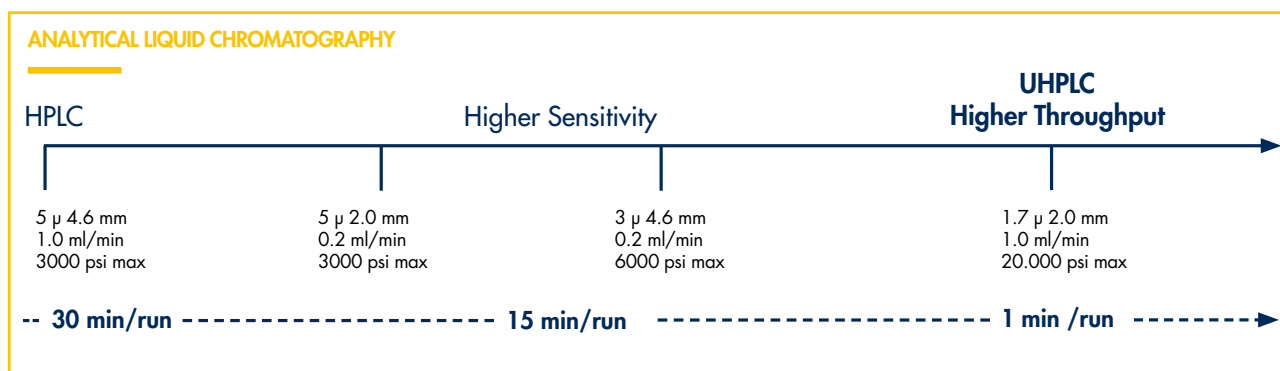
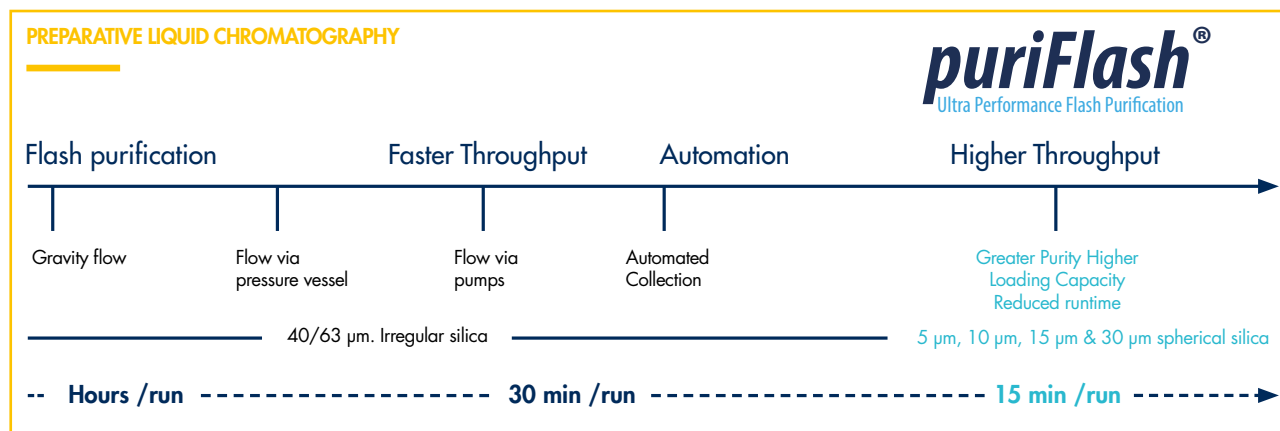
Origins & Evolution of Chromatography

The term "chromatography" originated in 1906 by Russian botanist Mikhail Tswett. In 1901, he washed an organic solution of plant pigments through a vertical glass column packed with an adsorptive metal. He discovered that the pigments separated into a series of colored bands in the column, divided by regions entirely free of color.

In 1930, chemists Richard Kuhn and Edgar Lederer used this technique to separate different biological materials. Since that time, the technique has advanced rapidly and column chromatography is now widely used in many different forms. The column itself has also been refined over the years, according to the type of chromatography, but fulfills the same essential separation function in all forms of column chromatography.

In 1964, an American Chemist, J. Calvin Giddings refined liquid chromatography to achieve separations of different molecules. This was the origin of the technique now known as High Performance Liquid Chromatography (HPLC), and relied on very small particles in small diameter columns.

From the mid 80's a number of scientists such as Verzele & Dewaele, Bildlingmeyer, Unger, ... published articles dedicated to Preparative Liquid Chromatography on the technique itself, the columns and instrumentation technology.



Since 1995, Advion Interchim Scientific is an essential player in the purification market.

In 2008, Interchim® launched puriFlash®, a range of advanced automated instruments and consumables supported by the Ultra Performance Flash Purification concept which has revolutionized purification practices.

Versatile, these systems allow chemists and bio-chemists to work with Flash cartridges and Preparative columns on a single device.





In combination with more than 50 different chemistries, 9 puriFlash® instruments are available to perform purification of small Organics Molecules, Natural Products, Peptides, and Proteins.

Chromatography principle

Liquid Chromatography is a separation technique.

It can be dedicated to identify and quantify compounds present in a mixture. This is the analytical mode. An attractive choice when the goal is to isolate pure product from a complex mixture, this preparative liquid chromatography technique is among the most popular purification methods today.

Liquid chromatography balances multiple parameters like primarily stationary phase, eluents and compounds of interest.

Compounds are eluted by a liquid mobile phase (eluent) in contact with a stationary phase (still). The migration speed of the species contained in the sample depends on the interactions with the stationary phase (adsorption or desorption phenomenon), the mobile phase or their solubility and polarity.

4 GROUPS OF PRODUCTS IN DIFFERENT QUANTITIES

Initially
00:00



Objective: separate the components of a mixture containing different molecules in order to qualify (identify, quantify) and/or purify them.

03:00



In the mixture or the raw sample, each group of molecules will have a particular behavior while going through the column. This behavior is related to their own interaction with the eluent & the stationary phase.

06:00



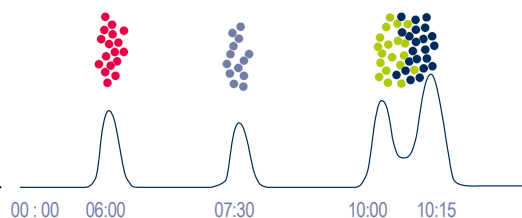
07:30



10:00



What we see at the end =>



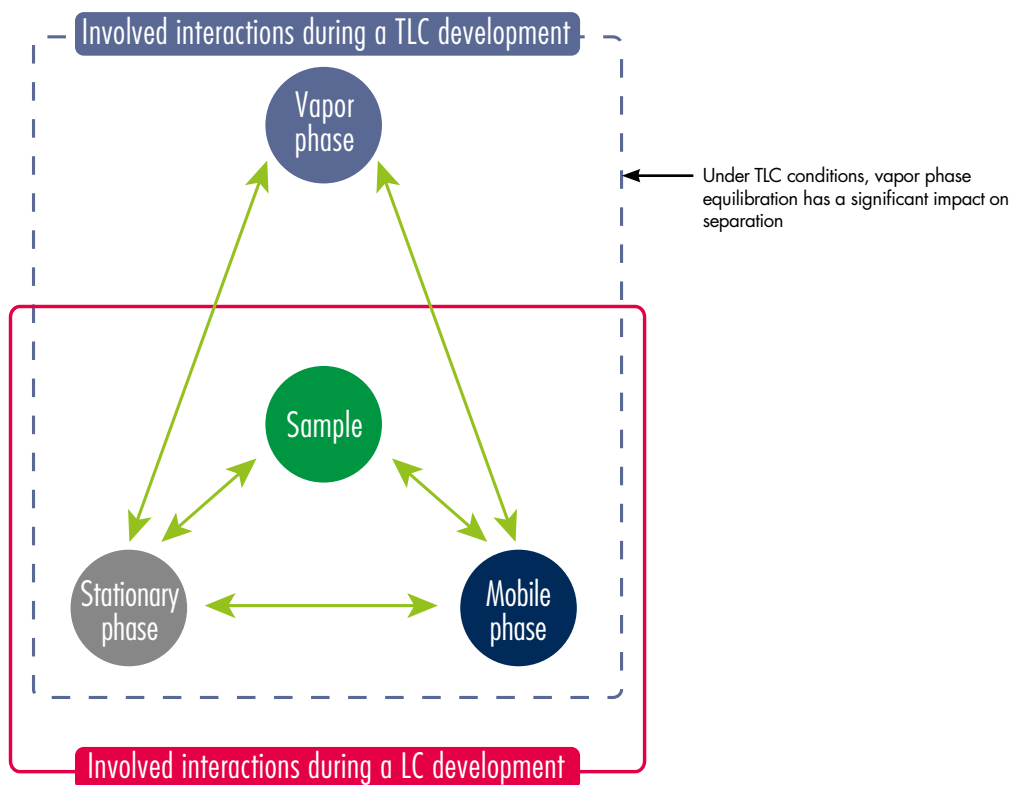


Definition

There are many different purification techniques: distillation, crystallization, filtration and chromatography. They all have the same goal: purify and recover samples-whether an organic or biochemistry synthesis step. Purification by liquid chromatography is always a challenge and there is often a compromise to obtain the desired purity, loading and throughput. To improve efficiency in delivering pure compounds, chemists may balance between purity, run time and environmental considerations. This delicate balance is often necessary for both crude and final purification.

Principle of purification by Preparative Liquid Chromatography

To begin, separation methods of the compound(s) of interest must be defined using analytical experimentation. Separation can be obtained if the compound(s) have very different affinities (polar, π - π , hydrophobic, ions exchange interactions) for the mobile phase and stationary phase. The chemist or biochemist has to define the level of purity for its compound(s) of interest. Depending on the characteristics of the sample, the "analytical" method development can be done either by TLC or HPLC.



What is purification?

The mobile phase composition follows eluent strength rules (Snyder scale) which are involved in the whole liquid chromatography principle: TLC, HPLC column, Flash/Prep column. Only TLC has an additional parameter called "vapor phase equilibration" involving a correct migration.

Beyond these interactions, other factors are required in order to obtain quality purifications. As such, the quality of your purifications will depend on the column geometry and the injection technique (liquid injection or solid deposition).

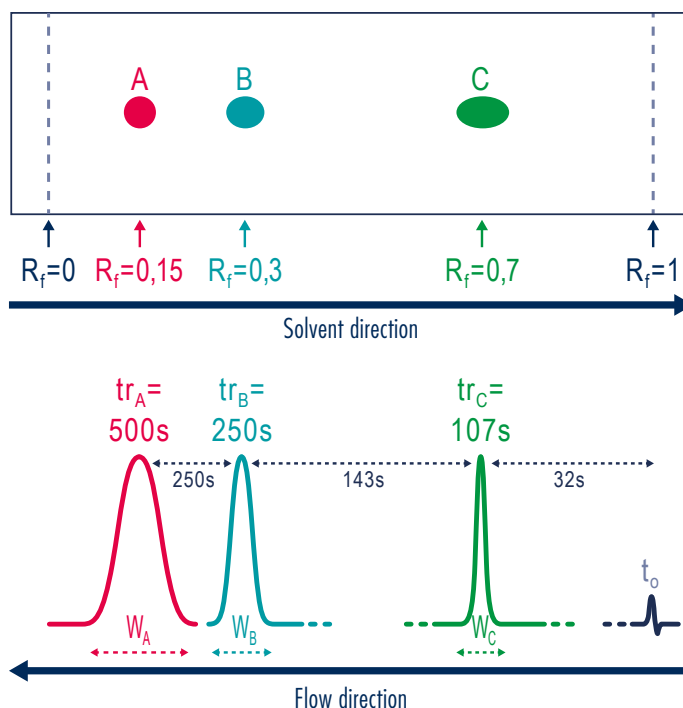
Transfer TLC to Purification:

The TLC can be used as a predictive tool for purification methods, but users have to take care of the adsorbent feature differences between the plate and the column (the difference of the eluent migration capillarity for TLC vs. dynamic for LC, the TLC silica binder).

The ΔR_f must be optimized to achieve the best possible transposition.

The purification column size must be linked to the crude sample mass.

Advion Interchim Scientific TLC mobile app, coupled to Genius, our artificial intelligence system, generates a fully automated process, from TLC plate image and definition of software parameters, to a ready-to-use purification method.



The ΔR_f (frontal ratio) optimization allows the best transposition on the Flash/Prep column.

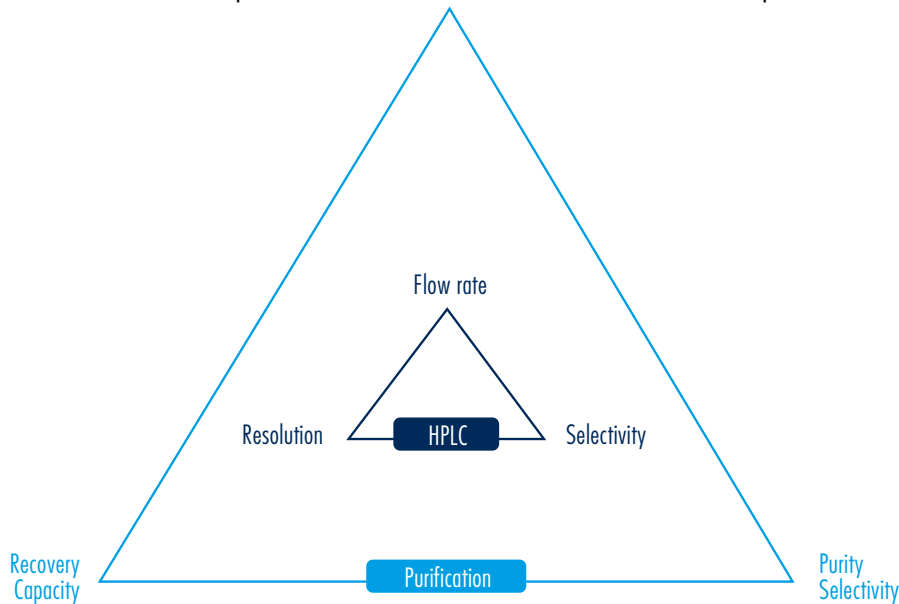
In all cases, there must be interactions between the compounds and the adsorbent to initiate a separation. They are mainly the following:

- **Adsorption chromatography:** separation is created by the adsorption differences of the molecules (hydrogen bonds, electrostatic interactions) on the stationary phase and desorption by the mobile phase.
- **Partition chromatography:** separation is created by the interaction differences of the molecules with the grafts of the stationary phase and desorption by the mobile phase.
- **Ion exchange chromatography:** separation is created by the exchangeability of the ions of the graft with those of the solutes in the mobile phase.
- **Exclusion chromatography:** separation is created by the sizes differences of the molecules. The molecules that are larger than the adsorbent pores are excluded and eluted very quickly. Molecules entering the pores are then eluted gradually from the largest to the smallest.

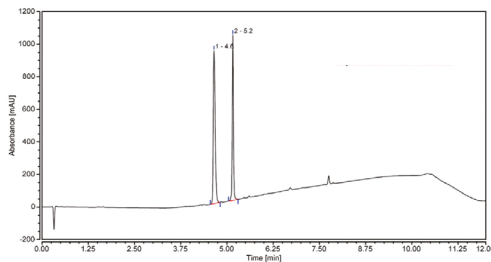


HPLC to Purification Transfer:

The transposition HPLC to Purification is direct if the adsorbent features and the elution conditions of the HPLC column are aligned with those of the purification column. The purification column size must be linked to crude sample mass.

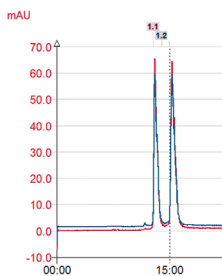


HPLC

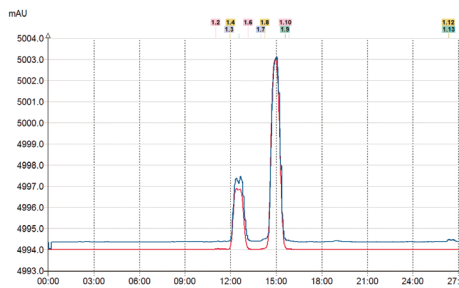


Analytical conditions
HPLC Column: Core-Shell C18
50 x 2.1 mm 2.6 μ m
Liquid injection 5 μ l

PURIFICATION



Purification
puriFlash® 15 μ m
C18AQ - F0025
Liquid injection 900 μ l



Overload
puriFlash® 15 μ m
C18AQ - F0025
Liquid injection 2 mL

Advantages of Preparative Liquid Chromatography

This technique is highly selective and can lead to a collection of a 100% pure compounds in one run.

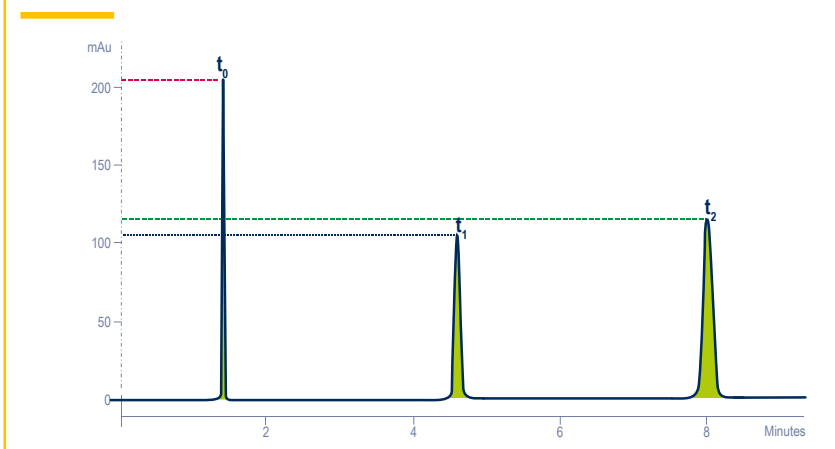
Versatile, it matches a large number of applications, applications and compound classes.

It combines numbers of detection techniques to maximize the detection of all compounds inside the sample, the control of their purity and their identification.





TYPICAL CHROMATOGRAM



Retention time

This is the time between injection and the appearance of the peak maximum. It corresponds to the time needed by the compound to interact with the stationary phase and the eluent.

t_0 = The elution time of an unretained peak (corresponding to the void volume of the column).

t_1 = Retention time of the compound 1

t_2 = Retention time of the compound 2

Adjusted retention time

$$t'_1 = t_1 - t_0$$

$$t'_2 = t_2 - t_0$$

Retention factor

$$k_1 = \frac{t_1 - t_0}{t_0}$$

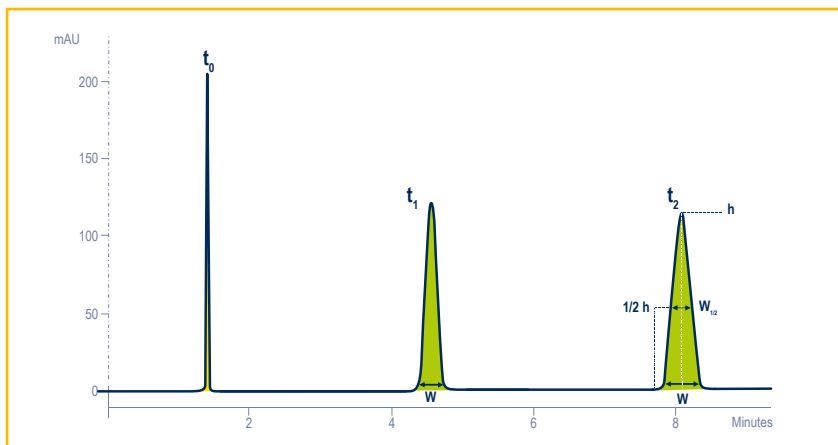
$$k_2 = \frac{t_2 - t_0}{t_0}$$

The retention factor, or capacity factor, k is the degree of retentivity of a peak compare to an unretained peak.

Selectivity

$$\alpha = \frac{k_2}{k_1}$$

The relative retention value, α , compares the degree of retentivity of one peak with another.





Efficiency

N: Theoretical plate number

$$N = 16 \left(\frac{t_1}{W} \right)^2 \quad N = 5,54 \left(\frac{t_1}{W_{1/2}} \right)^2$$

The width (W) of the chromatographic band during elution from the column is usually measured at the baseline by drawing tangents to the inflection points on the sides of the Gaussian curve that represents the peak.

H: Height equivalent to a theoretical plate

L: Column length

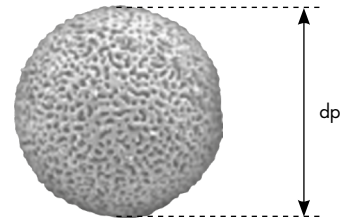
$$H = L/N$$

$$h = H/d_p$$

h: reduced plate height

(this value can give an idea of the packing quality of the column)

d_p: particle diameter of the stationary phase



Stationary phase particle

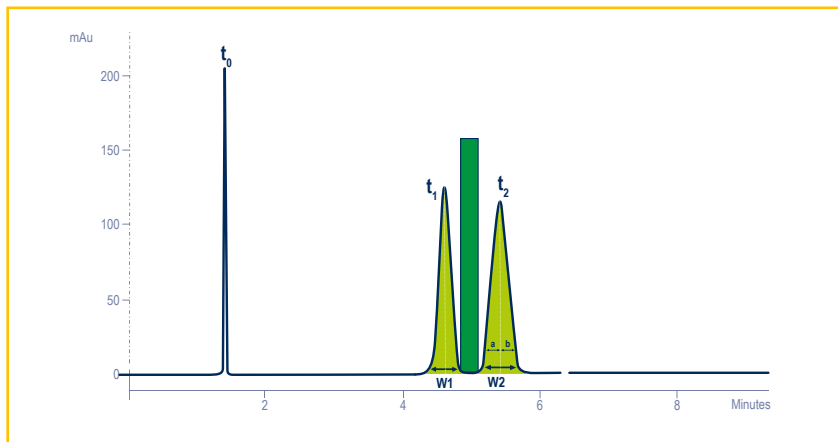
Asymmetry

Asymmetry: $A_s = \frac{b}{a}$ at 10% of the peak height

Tailing Factor : $T_f = \frac{a+b}{2a}$ at 5% of the peak height

Resolution

$R_s = 2 \left(\frac{t_2 - t_1}{W_1 + W_2} \right)$ This value characterizes the baseline width from the end of the 1st peak to the beginning of the 2nd. A value of 1.5 is considered sufficient for baseline resolution for 2 peaks of equal height, but in that case the purity is not 100%.





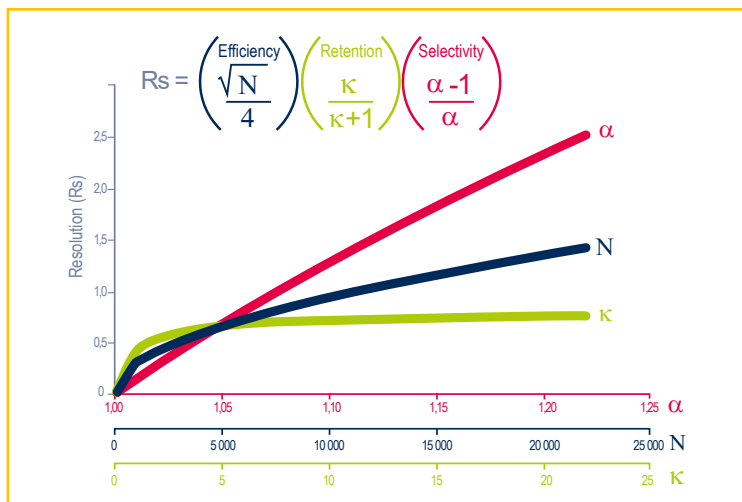
For 2 close peaks $w_1 \approx w_2$

$$R_s = \frac{1}{4} \cdot \sqrt{N} \cdot \frac{(\alpha - 1)}{\alpha} \cdot \frac{K_2}{1 + K_2}$$

Increasing efficiency by using a smaller particle size.

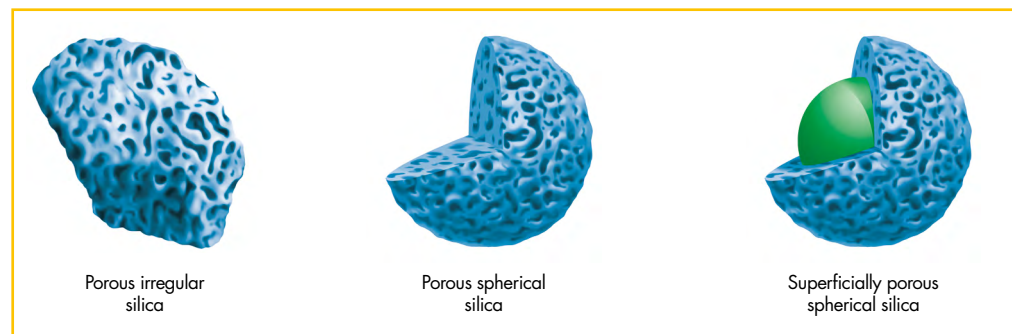
Enhance selectivity by modifying elution conditions and adapting stationary phase.

Keep this value between 2 and 10 by adjusting the retention time.

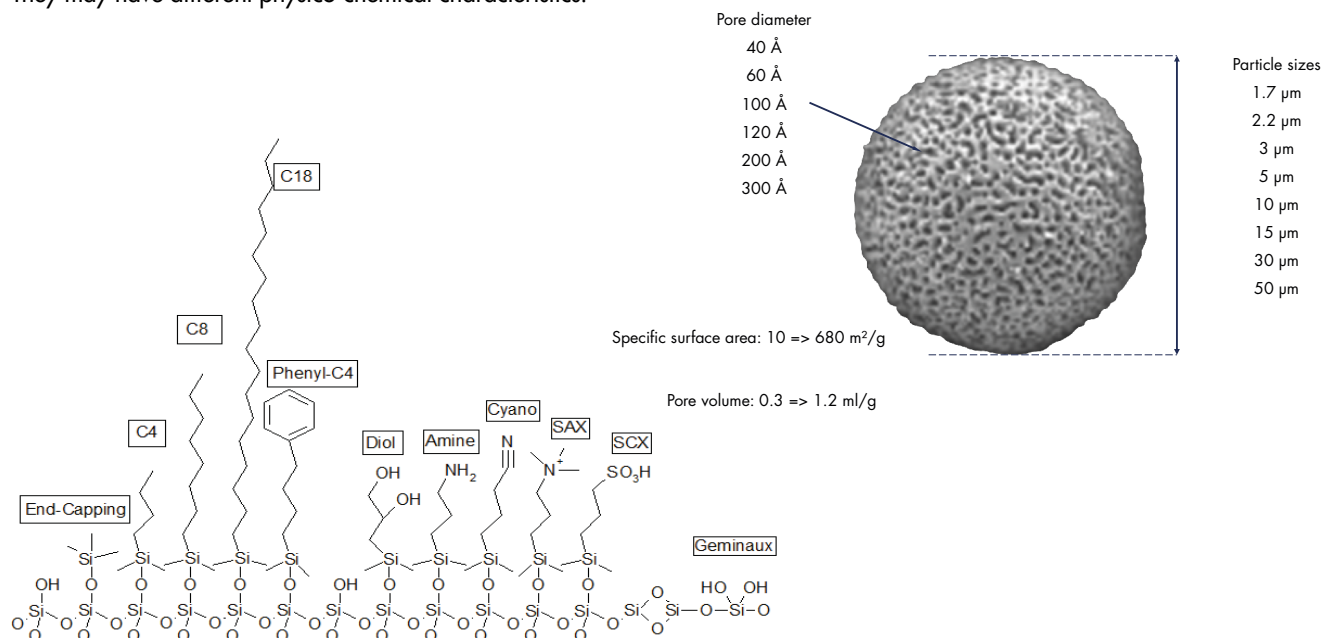


Characteristics of silicas

The structure of the silica contained in the column also influences the ability to separate compounds. The three common types of silica are:



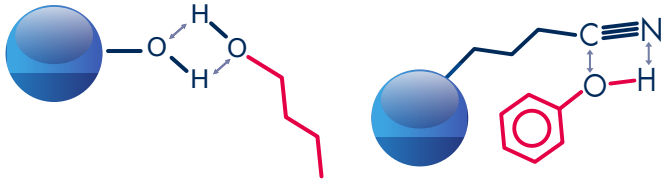
They may have different physico-chemical characteristics.





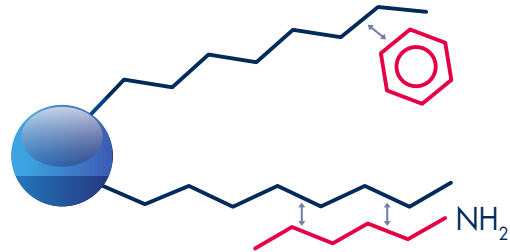
Interaction mechanisms

Polar interactions



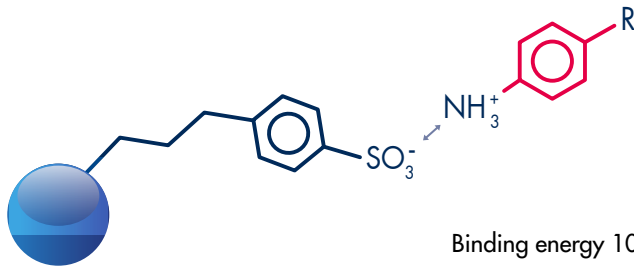
Binding energy 20 to 50 KJ/mole

Non polar interactions

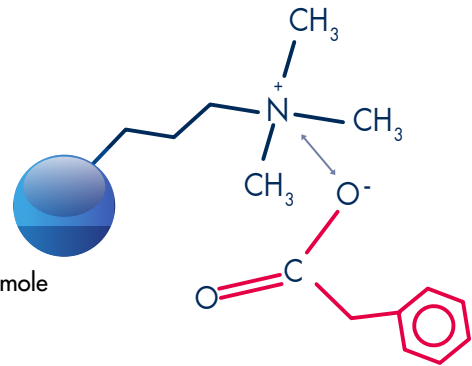


Binding energy 2 to 10 KJ/mole

Electrostatic interactions

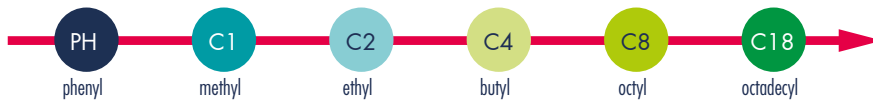


Binding energy 100 to 400 KJ/mole



GRAFT POLARITIES

Reverse phase mode (decreasing polarity)



Normal phase mode (increasing polarity)



Polarity, solubility & solvent strength



This chapter was conceived and written in collaboration with, Professor A.Tchapla (*IUT Orsay - University Paris Sud*).

Purpose:

- Determine the chromatographic conditions for the purification of a sample.
- Understand how to choose the solvent which completely solubilizes a sample (for solution or liquid-liquid extraction).

This requires the knowledge of the parameters that lead to the notion of "polarity of molecules". The polarity is the molecular property that evaluates how and with which intensity one molecule attracts another (molecular interactions), and thus to choose the solvent for sample and the chromatographic conditions for the purification.

Polarity

Purpose:

- Predicting the polarity of a substance from its molecular structure.

The polarity of an organic molecule is the property that either predicts or to evaluates the nature and the strength of the molecular interactions occurring between two molecules; whether they are identical (pure material) or different (in mixture) from one to another.

Polarity is the consequence of the development, accessibility and intensity of the total number of partial electrical charges developing on the surface of organic molecules.

Under which molecular conditions do partial electrical charges develop between the covalently bonded atoms?

First, we have to define the molecular structure of the analytes and in which molecular conditions partial electrical charges develop themselves at the surface of a molecule.

Organic molecules mainly contain a hydrocarbon skeleton at which functionalized groups may be added. This corresponds to two kinds of atoms:

- Major atoms (C, H)
- Heteroatoms (O, N, S, P, Halogens)

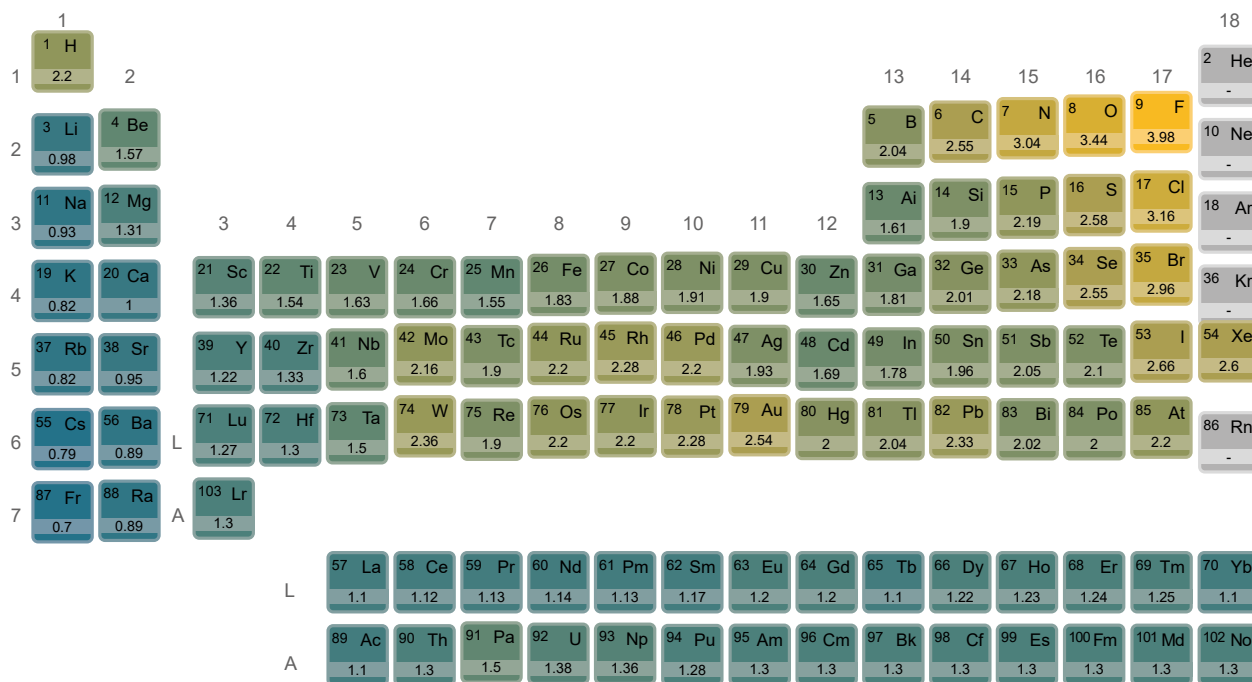
When 2 atoms are covalently linked, their relative electronic attraction of bonding electrons leads to equal (symmetrical molecular bond) or unequal arrangement of partial charges in the molecule. The charge distribution is marked with the symbols δ^+ and δ^- . Thus, for each covalent bond, a dipole is associated to which correspond a dipolar moment. The vectorial sum of all dipolar moments leads to the molecular dipolar moment of a given structure.

Predict the nature of partial electric charges which respectively appear on two covalently bonded atoms refers to Pauling Electronegativity Scale.

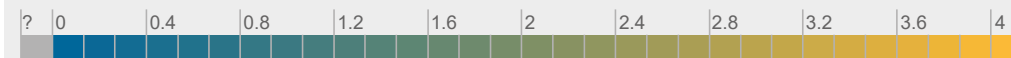
The electronegativity (χ) is defined as the attraction power of an atom for an electron. Due to their specific structure, the atomic nucleus and electronic cloud of atoms generate their electronegativity.



In the periodic table of elements, the electronegativity increases from left to right and from bottom to top.



Electronegativity (Pauling)



There are four different ways for developing partial electric charges on a covalent bond. They lead to four different kinds of dipoles.

a) Instantaneous dipole δ_i

For linked atoms with the same electronegativity, binding electrons move quickly from one linked atom to the other and no unbalanced permanent charge occurs. However, instantaneously asymmetrical partial electric distribution appears which is immediately reversed.

The emergence of two reciprocal partial electric charges on each of the bonded atoms forms an instantaneous dipole which changes direction at every instant. In the case of organic molecules, these instantaneous partial charges develop on each C-C bond; more particularly in the case of alkanes, but also along the hydrocarbon chains of the functionalized molecules. Their intermolecular attraction potential is characterized by the partial dispersion solubility parameter δ_d which will be defined in the next chapter: solubility.

b) Permanent dipole δ_p

For two different bonded atoms (C-O; C=O; C-N; C-X...), due to their different electronegativity, a permanent unequal repartition of partial electrical charge is created. However, the global environment in which the heteroatom is inserted must be considered: it must not be located in a system of symmetrical links with respect to a center (for example, CO₂ does not have a permanent dipole because it is a linear molecular structure, whereas H₂O or Et-O-Et develop a permanent dipole because they are non-linear molecular structures). In the midst of the classes of molecules corresponding to this property are the ketones, the esters, the halogenated compounds, the tertiary amides, the nitriles...

Their potential intermolecular attraction is characterized by the partial dipolar parameters δ_p .



Polarity



c) Peculiar case: notion of dipole causing hydrogen bonding

These interactions appear when in a structure OH, NH or SH functions are present. The very large difference in electronegativity between the heteroatom (O, N or S) and hydrogen, leads to the creation of a permanent dipole. The power of attraction between the charge δ^+ on the hydrogen and the charge δ^- on the heteroatom is so strong that it leads to the creation of an intermolecular interaction between the H of a molecule with the heteroatom of the neighboring molecule to form the so-called hydrogen bond. Their intermolecular attraction potential is characterized by the partial hydrogen bond solubility parameter δ_H , which will be defined in the following chapter: solubility. Among the classes of molecules corresponding to this property are the alcohols, phenols, carboxylic acids, amines I and II, amides I and II, thiol...

d) Induced dipole δ_d

When a polar molecule showing a permanent dipole is close to a neutral but polarizable molecule, its electric field is creating an induced dipole moment on this molecule, leading to an unequal repartition of the electric charge.

This case occurs for molecules with multiple bonds C = C and C \equiv C or a carbon bonded to a large polarizable heteroatom, for example C-I in interaction with a polar molecule.

Among the molecule classes corresponding to this property, we can find aromatic acetylenic or ethylenic unfunctionalized hydrocarbons.

Their potential molecular attraction is integrated in the partial solubility parameter of dispersion δ_d .

Total resulting dipole δ_r

The total polarity of a molecule is the sum of all the contributions of the partial polarities described above. (Vectorial sum of all the dipole moments of each bond of a molecule). Their intermolecular attraction potential is included in the total solubility parameter δ_r , which will be defined in the next section: solubility.

It should be noted that, according to the small difference in electronegativity between hydrogen and carbon, each C-H bond has a very weak dipole moment. In space, thanks to the free rotation around the C-C bonds, this effect is canceled out overall. This implies that, instantly, the longer the chain is, the greater the influence of these instantaneous intermolecular attractions becomes stronger. Now, the alkanes, non-polar solutes, can possess a permanent molecular attraction power because they are liquid at atmospheric pressure from 5 carbons of linear chain up to 15 carbons and then solids above 16 carbons of chain.

For a good interpretation of physical properties of the molecular species, it is necessary to consider 2 types of interactions:

- Van Der Waals interactions: rely on molecule polarity and polarizability.
- The interactions linked to the intermolecular and some intra molecular hydrogen binding.

| Interaction | Mecanism | Molecules types | Involved compounds |
|------------------|---|-----------------------------------|------------------------------|
| Van der Waals | Debye + Keesom + London | Apolar molecules | Alkyl chains, aromatic rings |
| Dipolar Debye | Permanent dipole - instantaneous dipole | Polar molecules and any molecules | |
| Dipolar Keesom | Permanent dipole - permanent dipole | 2 polar molecules | |
| Dipolar London | Instantaneous dipole - instantaneous dipole | 2 any molecules | |
| Hydrogen binding | | Proton acceptor - proton donor | Alcohols, amines, acids |



Purpose:

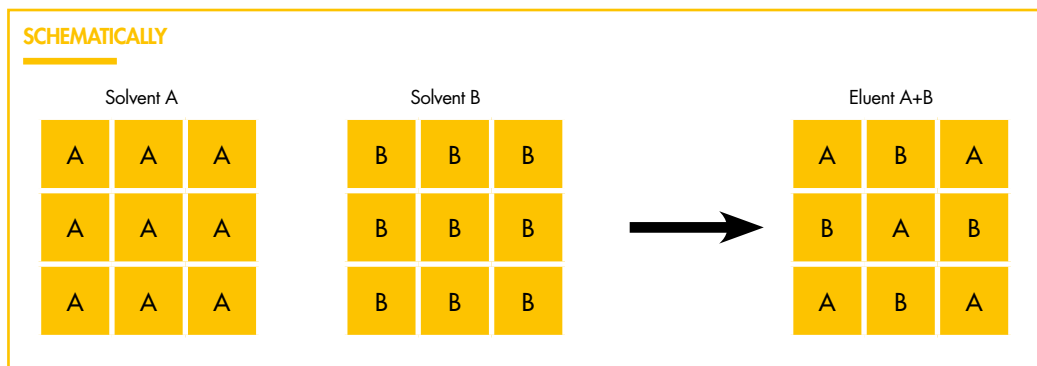
- Understand how to choose the solvent that completely solubilizes a sample.

In a simplified manner in the majority of situations, two non-electrolyte substances are totally miscible one in the other if:

- They have roughly the same molecular size and polarity.

That means that the ratio between the energies of molecular interactions and the molar volume of the two substances is similar. From the theoretical point of view that has been modeled by Hildebrand, it shows that:

- Their total solubility parameters δ_T must be approximately identical (+/- 2)
- The nature of their main partial solubility parameter, partial dispersion solubility parameter δ_d or dipolar δ_p , or hydrogen bonds δ_H must be identical.



In contrast, two solutes with very different total solubility parameters ($\Delta \delta_T > 3$) separate into two distinct phases (demixing). However, in each phase, low concentrations of the other component of the biphasic system are found.

Universal solvents are solvents having total solubility parameters between 10 and 12 and each fractional polarity is close to 33%. They are therefore able to solubilize the majority of the products whatever their polarity. They belong to class E and to a lesser extent to class B as defined in the table and figure below.

The table below shows the values of the total solubility (δ_T) and partial (δ_d , δ_p , δ_H) parameters of solvents and their fractional polarity parameters (f_d, f_p et f_H) with:

$$f_d = (\delta_d / (\delta_d + \delta_p + \delta_H)) \times 100$$

$$f_p = (\delta_p / (\delta_d + \delta_p + \delta_H)) \times 100$$

$$f_H = (\delta_H / (\delta_d + \delta_p + \delta_H)) \times 100$$

(Particular polymer case: PEG is miscible in water because the molecular interaction energy (binding hydrogen) is the same albeit the molecular volume is very different).





Example of total solubility and partial parameter values of some solvents.

| Solvent | δ_T^* | δ_d^* | δ_p^* | δ_H^* | fd ** | fp ** | fH ** | Classe |
|--------------------|--------------|--------------|--------------|--------------|-------|-------|-------|--------|
| MTBE | 6.90 | 6.90 | 0.50 | ? | --- | --- | --- | A |
| Heptane | 7.40 | 7.40 | 0.00 | 0.00 | 100 | 0 | 0 | A |
| Diethylether | 7.62 | --- | --- | --- | 67 | 23 | 10 | A |
| Toluene | 8.90 | 8.67 | 1.00 | 2.00 | 74 | 9 | 17 | A |
| THF | 9.08 | 8.22 | 3.25 | 3.50 | 55 | 22 | 23 | B |
| Ethyl Acetate | 9.10 | 7.44 | 4.60 | 2.50 | 51 | 32 | 17 | D |
| Chloroform | 9.21 | --- | --- | --- | 67 | 10 | 23 | A |
| Acetone | 9.77 | 7.58 | 5.70 | 2.00 | 50 | 37 | 13 | D |
| Dichloromethane | 9.93 | 8.91 | 3.00 | 3.10 | 59 | 20 | 21 | B |
| Octanol | 10.30 | --- | --- | --- | 53 | 6 | 41 | C |
| Acetic acid | 10.35 | --- | --- | --- | 40 | 19 | 41 | C |
| Butanol | 11.30 | 7.81 | 2.50 | 7.80 | 43 | 14 | 43 | C |
| Isopropanol | 11.50 | --- | --- | --- | 39 | 17 | 44 | C |
| Acetonitrile | 11.75 | --- | --- | --- | 41 | 43 | 16 | D |
| Ethanol | 12.92 | 7.73 | 4.00 | 9.70 | 36 | 19 | 45 | C |
| Methanol | 14.30 | 7.42 | 5.50 | 11.20 | 31 | 23 | 46 | C |
| Water | 23.50 | 7.00 | 8.00 | 20.90 | 19 | 22 | 58 | --- |
| Methylcellosolve | 12.06 | 7.90 | 4.50 | 7.90 | 39 | 22 | 39 | E |
| Dimethylformamide | 12.14 | 8.52 | 6.70 | 5.50 | 41 | 32 | 27 | E |
| Formique acid | 12.15 | --- | --- | --- | 33 | 20 | 47 | C |
| Dimethyl sulfoxyde | 12.93 | --- | --- | --- | 37 | 33 | 30 | E |

*Hansen solubility parameters from J.Roire "Les solvants" EREC (Issy les Moulinwaterx) 1989

** Fractional polarity parameters from J.Roire "Les solvants" EREC (Issy les Moulinwaterx) 1989

Depending on their fractional polarity, the solvents are distributed in 6 different areas of the planar space. Thus, they can be grouped into 5 distinct classes plus water which is alone in an area of this space:

Class A corresponds to solvents developing mainly nonspecific interactions (f_d majority > 80%).

Class B corresponds to intermediate solvents between the three previous classes (f_d majority with f_H and f_p close to 20%).

Class C corresponds to solvents developing in addition to the dispersion interactions ($f_d \sim 40\%$) some interactions by H bond ($f_H > 40\%$).

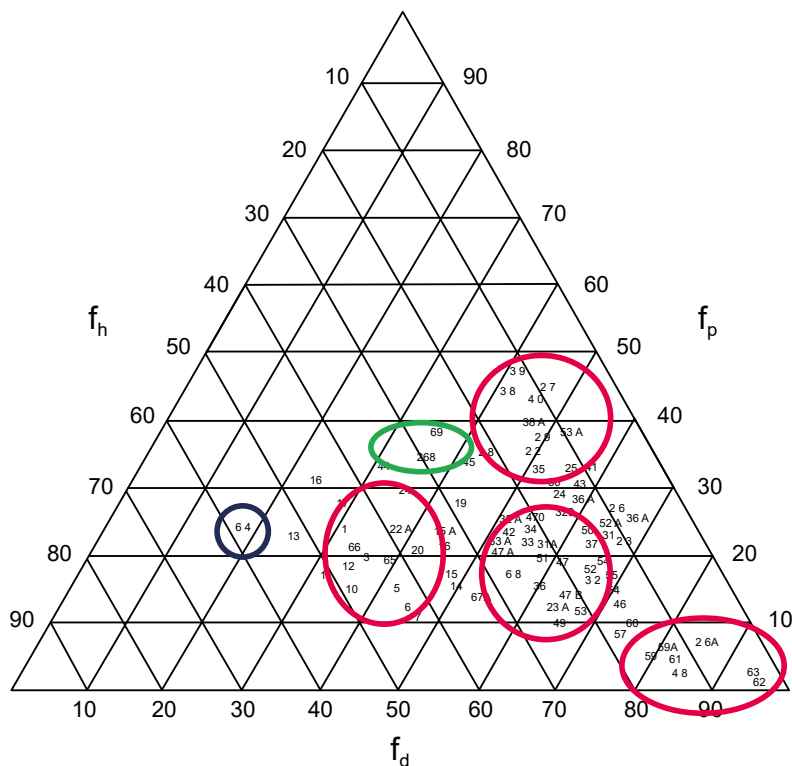
Class D corresponds to solvents developing in addition to dispersion interactions ($f_d \sim 50\%$) mainly dipolar interactions ($f_d > 30\%$).

Class E corresponds to solvents developing in the same way (between 30% and 40%) the three types of interactions.

Finally the water which is aside.



It is shown in the following figure where the zones of solvents of **classes A, B, C and D** are materialized by red circles or ovals; those of **class E** by a green oval and **water** is marked by a small blue circle.



Three-dimensional distribution of some solvents according to their fractional polarity parameter (from J.Roire "Les solvants" EREC (Issy les Moulineaux) 1989).

The total solubility parameter is determined either experimentally or by calculation from the partial solubility parameters. These are obtained from the measurement of the refractive index, the permittivity, the density and the molecular mass of each solvent.

Particular case of the polymers: although their molar volumes are very different, PEG is totally miscible in water because their fractional hydrogen bonding polarities $(\delta_H/\delta_T)^2$ (or their fractional hydrogen bonding polarity parameters f_H) are close.



Solubility



Liquid-Liquid Extraction of non Electrolytes

Purpose:

- finding the solvent's pair allowing the extraction of a non-electrolyte solute in one of the two solvents of the pair with minimal steps

Generally, water is one component of a solvent's pair. Since water is polar, the other solvent will necessarily be a non-polar solvent (very different δ_T) in order to obtain two distinct layers. Most often the non-polar solvent will be diethyl ether, chloroform, dichloromethane, ethyl acetate or a hydrocarbon. This choice is made with the knowledge of the total solubility parameters. When one considers, for example, a plant sample in its solid form (leaf, stem, root, bark, fruit, etc.) from which one wants to extract the "active" molecules, it is the water contained in the organism to extract which constitutes one of the two liquid phases of the extraction system. Thus, it is the same theoretical case as above.

Now consider a pure solute. If the solute is polar it will solubilize in water and its concentration in the organic phase will be very small. If the solute is apolar it will solubilize preferentially in the organic phase and its concentration in water will be very low. On the other hand, if it is moderately polar, it will partition between the water and the organic phase. The concentration in each of the two phases will depend on its difference in polarity with water and that of the organic solvent.

This has been theoretically described and this equilibrium is characterized by the partition coefficient K_i (ratio of the concentrations of solute i in the two phases). It is expressed mathematically from the three total solubility parameters of solute i , water and the organic solvent chosen, by the following formula.

$$\ln K_i = 1/RT \times (V_i [(\delta_{Ti} - \delta_{Twater})^2 - (\delta_{Ti} - \delta_{Torga})^2]) \text{ where } V_i (=M_i/r_i) \text{ is the molecular volume of the analyte } \delta_H \text{ must be identical.}$$

Thanks to this formula it is easy to understand that a solute of intermediate polarity between that of the water and that of the chosen organic solvent will lead to the fact that $(\delta_{Ti} - \delta_{Twater}) = (\delta_{Ti} - \delta_{Torga})$ so $\ln K_i = 0$ and $K_i = 1$. Therefore, the concentrations of the solute in the two phases are the same. By making two successive extractions with the same volume of organic solvent, 75% of the solute will be extracted, while making 3 extractions 87.5% will be extracted and by making 4 extractions 93.75% etc.

If the polarity of the solute leads to a partition of 90% in the organic phase and 10% in the aqueous phase after 2 extractions, 99% of the solute "i" will be extracted and after three extractions the result will reach 99.9% (the aqueous solution will be "exhausted").

Finally, in the case of the extraction of plant matrix; since there is not only one compound in this type of matrix and the compounds polarities, their total solubility parameters are different. They will each be extracted according to its difference $(\delta_{Ti} - \delta_{Twater}) = (\delta_{Ti} - \delta_{Torga})$. Therefore, their concentration in each organic solvent is not the same. This explains why, when extracting a plant matrix with hexane, chloroform or ethyl acetate, the same solutes extracted in the three different organic fractions are qualitatively found; only the relative concentrations are changed.

In such a system, one cannot make selective extraction of a single class of solutes. In this case, each extract must be reprocessed by another separation technique.



Solvent polarity scale in chromatography

Purpose:

- Determining the chromatographic conditions for the purification of a sample.

During the chromatographic process, the solvents that interacts with the stationary phase, enters into competition of interactions with the solute. In order for the solute to be retained, it must develop stronger molecular interactions with the stationary phase than those developing between the mobile and stationary phase. Next steps for it to be eluted, the mobile phase must develop molecular interactions slightly less strong than those which the solute develops with the stationary phase.

The chromatographic system is thus composed of a stationary phase of opposite polarity of the mobile phase. If the stationary phase is polar ($\sum f_p + f_H$ majority) the mobile phase will be rather apolar.

A very apolar solvent will be named "weak".

A very polar solvent will be named "strong" (liquid chromatography with normal phase polarity).

If the stationary phase is apolar ($f_d > 80\%$) the mobile phase will be rather polar. In this case the polar solvents will be named "weak" and the apolar solvent will be named "strong" (liquid chromatography with reversed phase polarity).

Theoretical studies have determined the total solubility parameter of the stationary phases of liquid chromatography, which allows us to understand their operating modes. We report them in the following chart:

EXAMPLE OF TOTAL SOLUBILITY AND PARTIAL PARAMETER VALUES OF SOME STATIONARY PHASES.

| Stationary phase | d_t | f_d | f_p | f_H |
|-------------------------------|------------|-------|-------|-------|
| Alumina | ~16.0 | 38 | 31.0 | 36.0 |
| Silica | ~16.0 | --- | --- | --- |
| Pyrocarbon | ~14.0 | 100 | 0.0 | 0.0 |
| Alkyl bonded silica | ~7.0 à 8.0 | 100 | 0.0 | 0.0 |
| Perfluoro-alkyl bonded silica | ~6.0 | 100 | 0.0 | 0.0 |
| Cn* bonded silica | ~10.5 | 45 | 40.5 | 14.5 |
| Diol* bonded silica | ~20.0 | 26 | 22.0 | 52.0 |
| Phenyl* bonded silica | ~9.0 | 80 | 5.0 | 15.0 |

Solubility parameters from P.J. Schoenmakers "Optimization of chromatographic selectivity" J. of chromatography Library vol 35 Elsevier Amsterdam 1986. *Solubility parameters evaluated on the of the silane δ_i

The silica data is partial and it should be noted that they must be close to those of alumina. These two supports are polar, however, alumina, a basic support, is a hydrogen-binding acceptor whereas silica, an acidic support, is a donor of hydrogen binding. This leads to notable differences in selectivity between these two supports when analyzing mixtures of acidic or basic polar solutes.

In fact, the silica, the alumina and the bonded silicas diol are polar stationary phases. The grafted silicas alkyl, perfluoroalkyl, phenyl and, to a lesser extent the cyano, grafted silicas are non-polar stationary phases.

In order for the chromatographic phenomenon to be initiated, it is necessary for the solute to partition neighboringly between the stationary phase and the mobile phase. Therefore, it must have a polarity placed in between that of the stationary phase and that of the mobile phase.

According to the same principle, as in liquid-liquid extraction described above §A3.3, the solute "i" is divided between the stationary phase and the mobile phase as a function of its polarity.

On the other hand, if the solute develops very strong interactions with the stationary phase and the mobile phase develops less interactions with the stationary phase, the solute remains blocked on the stationary phase and the mobile phase does not elute it. By changing the polarity of the mobile phase by steps, the solutes are selectively eluted by class according to their polarities. If the mobile phase develops very strong interactions with the stationary phase, the solutes are not retained and not separated regardless of their polarities.

These last two cases correspond to the liquid-solid extraction working conditions (SPE) and relate to the step of fixing the solutes and then that of their elution.

Solvent strength, Normal Phase Chromatography (NPLC)



In this chromatographic process, the solvent and the solute interact with a polar stationary phase (SiOH, AlOH, MgOH, ZrOH, TiOH).

- The more polar the solute is, the more it will be retained and the more it will be necessary to use a polar mobile phase to elute it.
- If the solute is weakly polar, the mobile phase must be of low polarity.

A experimental scale of relative polarity of the solvents with the adsorption supports was developed by Snyder (in this scale the order of the pure solvents is the same whatever the adsorbent is : Si-OH, Al-OH, Mg-OH, Zr-OH, Ti-OH). This scale classifies the solvents by increasing polarity as well as that of the total solubility parameters. The sequence is substantially identical, although a few inversions occur since the solubility parameters define the polarity of a pure body and the scale of eluting force of the same body in interaction with a polar adsorbent.

Thus, by definition, a zero eluting force ϵ_0 has been assigned to the least polar solvent. This does not mean that this solvent is not eluting, in particular for nonpolar solutes, but no solvent having a lower eluent power is known. In the same way, in this scale, the strongest solvent is the most polar solvent: water. This eluent develops very intense interactions (so strong that it is not possible to quantify the eluting force of the water.) By taking water as a mobile phase, no electrolyte solute is retained on these hydroxylated supports, even goes so far as to create irreversible interactions which deactivate these supports for any subsequent chromatography unless they are subjected to drastic reactivation treatments.

Due to their interactions with the stationary phase, the relative positioning of the solvents in this scale is slightly different from that described by the scale of the total solubility parameters. The Snyder scale is given in the following chart:

Solvent strength, Normal Phase Chromatography (NPLC)



Eluting strength values of solvents for Non-Polar

| Solvent | δ_T | ϵ_0 (Al ₂ O ₃) | ϵ_0 (SiO ₂) | ϵ_0 20°C ϵ_0 (florisil) | ϵ_0 (magnesia) | ϵ_0 (diol) |
|--------------------------------|------------|--|----------------------------------|--|-------------------------|---------------------|
| Perfluoroalkanes | 5.6 - 5.8 | -0.25 | -0.19 | -0.13 | -0.15 | -0.06 |
| N-Pentane | 6.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| N-Hexane | 7.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Isooctane | 6.90 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 |
| Petroleum ether | 7.85 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 |
| N-Decane | 7.80 | 0.04 | 0.03 | 0.02 | 0.02 | 0.01 |
| Cyclohexane | 8.21 | 0.04 | 0.03 | 0.02 | 0.02 | 0.01 |
| Cyclopentane | 8.10 | 0.05 | 0.04 | 0.03 | 0.03 | 0.01 |
| Diisobutylene | | 0.06 | 0.05 | 0.03 | 0.03 | 0.01 |
| 1-Pentene | | 0.08 | 0.06 | 0.04 | 0.05 | 0.02 |
| 1,1,2-Trichlorotrifluoroethane | | 0.14 | 0.11 | 0.07 | 0.08 | 0.03 |
| Carbon disulfide | 9.97 | 0.15 | 0.12 | 0.08 | 0.09 | 0.03 |
| Carbon tetrachloride | 8.80 | 0.18 | 0.14 | 0.09 | 0.10 | 0.04 |
| 1,1,1-Trichloroethane | 7.72 | 0.19 | 0.15 | 0.10 | 0.11 | 0.04 |
| Tert-Butyl methyl ether | 6.90 | 0.20 | 0.15 | 0.10 | 0.12 | 0.05 |
| 1-Chloropentane | | 0.26 | 0.20 | 0.14 | 0.15 | 0.06 |
| 1-Chlorobutane | | 0.26 | 0.20 | 0.14 | 0.15 | 0.06 |
| Xylene | 8.90 | 0.26 | 0.20 | 0.14 | 0.15 | 0.06 |
| Diisopropyl ether | 7.00 | 0.28 | 0.22 | 0.15 | 0.16 | 0.06 |
| 2-Chloropropane | | 0.29 | 0.22 | 0.15 | 0.17 | 0.07 |
| Toluene | 8.90 | 0.29 | 0.22 | 0.15 | 0.17 | 0.07 |
| 1-Chloropropane | | 0.30 | 0.23 | 0.16 | 0.17 | 0.07 |
| Chlorobenzene | | 0.30 | 0.23 | 0.16 | 0.17 | 0.07 |
| Benzene | 9.14 | 0.32 | 0.25 | 0.17 | 0.19 | 0.07 |
| 1-Bromoethane | | 0.37 | 0.28 | 0.19 | 0.21 | 0.09 |
| Diethyl ether | 7.62 | 0.38 | 0.29 | 0.20 | 0.22 | 0.09 |
| Diethyl sulfide | | 0.38 | 0.29 | 0.20 | 0.22 | 0.09 |
| Chloroform | 9.21 | 0.40 | 0.31 | 0.21 | 0.23 | 0.09 |
| Dichloromethane | 9.93 | 0.42 | 0.32 | 0.22 | 0.24 | 0.10 |
| Isobutyl methyl ketone | 9.04 | 0.43 | 0.33 | 0.22 | 0.25 | 0.10 |
| Tetrahydrofuran | 9.08 | 0.45 | 0.35 | 0.23 | 0.26 | 0.10 |
| 1,2-Dichloroethane | 9.43 | 0.49 | 0.38 | 0.25 | 0.28 | 0.11 |
| Ethyl methyl ketone | 9.63 | 0.51 | 0.39 | 0.27 | 0.30 | 0.12 |
| 1-Nitropropane | | 0.53 | 0.41 | 0.28 | 0.31 | 0.12 |
| Acetone | 9.77 | 0.56 | 0.43 | 0.29 | 0.32 | 0.13 |
| 1,4-Dioxane | 8.90 | 0.56 | 0.43 | 0.29 | 0.32 | 0.13 |
| Ethyl acetate | 9.10 | 0.58 | 0.45 | 0.30 | 0.34 | 0.13 |
| Methyl acetate | | 0.60 | 0.46 | 0.31 | 0.35 | 0.14 |
| 1-Pentanol | | 0.61 | 0.47 | 0.32 | 0.35 | 0.14 |
| Dimethyl sulfoxide | 11.78 | 0.62 | 0.48 | 0.32 | 0.36 | 0.14 |
| Aniline | | 0.62 | 0.48 | 0.32 | 0.36 | 0.14 |
| Diethylamine | | 0.63 | 0.49 | 0.33 | 0.37 | 0.15 |
| Nitromethane | 12.71 | 0.64 | 0.49 | 0.33 | 0.37 | 0.15 |
| Acetonitrile | 11.75 | 0.65 | 0.50 | 0.34 | 0.38 | 0.15 |
| Pyridine | 10.61 | 0.71 | 0.55 | 0.37 | 0.41 | 0.16 |
| 2-Butoxyethanol | | 0.74 | 0.57 | 0.38 | 0.43 | 0.17 |
| Isopropanol | 11.50 | 0.82 | 0.63 | 0.43 | 0.48 | 0.19 |
| 1-Propanol | 11.88 | 0.82 | 0.63 | 0.43 | 0.48 | 0.19 |
| Ethanol | 12.92 | 0.88 | 0.68 | 0.46 | 0.51 | 0.20 |
| Methanol | 14.30 | 0.95 | 0.73 | 0.49 | 0.55 | 0.22 |
| Ethylene glycol | 17.06 | 1.11 | 0.85 | 0.58 | 0.64 | 0.26 |
| Acetic acid | 10.35 | High | High | High | High | High |
| Water | 23.46 | Very high | Very high | Very high | Very high | Very high |



Solvent strength, Normal Phase Chromatography (NPLC)



The best polarity of a mobile phase for a separation problem on these supports is determined experimentally by choosing the solvents one by one of increasing eluting force and by evaluating each time the retention of all the compounds of a mixture and their separation. This can be done by TLC. In this case, it will be necessary to find a mobile phase placing all the solutes with R_f ranging between 0.09 and 0.3. This can also be done in HPLC by finding the mobile phase composition placing all the solutes in the range of retention factors between 2 and 10 (1.5, strictly speaking). If no mobile phase composition allows this, it will be necessary to work in gradient of elution or to find another chromatographic support.

The differences in polarity (eluting force) between two successive pure solvents are sometimes sufficiently important that, in switching from one to the other, the elution becomes too fast. Therefore, Snyder has proposed a progressive polarity scale of various binary mixtures of solvents which can be used to overcome this drawback. In order to choose the mobile phase of good composition, given that the eluting force variation of the solvent binary mixtures is not linear, it is necessary to use the Snyder nomogram which proposes the successive use of binary mixtures:

| | | |
|---|----------------|------------------------------|
| CH ₂ Cl ₂ -hexane | (3.5% to 100%) | (0.05 < ϵ_0 < 0.30) |
| MTBE-hexane | (0.2% to 84%) | (0.10 < ϵ_0 < 0.45) |
| Ethyl acetate-hexane | (0.3% to 75%) | (0.10 < ϵ_0 < 0.45) |
| MTBE-CH ₂ Cl ₂ | (30% to 88%) | (0.35 < ϵ_0 < 0.45) |
| MeCN-CH ₂ Cl ₂ | (12% to 88%) | (0.10 < ϵ_0 < 0.5) |
| MeOH-CH ₂ Cl ₂ | (3.5% to 95%) | (0.40 < ϵ_0 < 0.9) |

On the other hand, although all the solutes are eluted between $0.09 < R_f < 0.3$ so $2 < k < 10$, two or more solutes are poorly separated.

When two solutes are poorly separated in the mobile phase of a given composition (ϵ_0 fixed), we must choose, for the new mixture, a solvent having a total solubility parameter (δ_t) equivalent or very close to the most polar solvent of the mixture used, but having a different dominant solubility partial parameter (these binary mixtures therefore consist of a weak solvent belonging to class A mixed with a strong solvent chosen either in class B or C or D).

This leads to subtly modify the solute-solvent molecular interactions in order to increase the separation while keeping the retention close to the same value. This notion led Snyder to define eluotropic series composed of solvents of different polarities (Snyder's eluotropic series) (see, for example, LR Snyder, Chapter 6, JJ Kirkland, "Modern Practice of Liquid Chromatography," J Wiley and Sons, New York 1971).

Based on Rohrschneider's work on the polarity of gas chromatography stationary phases, Snyder has developed an empirical model for the expression of the solvent polarity by a value called polarity parameter P' which unfortunately does not use the concept of solubility parameter. The polarity P' index isn't sufficient enough to evaluate the total interactions in a liquid state.

This model is built on the determination of the chromatographic behavior of three control solutes of very different polarities:

- Ethanol (as representative of a molecule which predominantly gives hydrogen binding interactions when considering the binding donor power H).
- Para dioxane (as representative of a molecule which predominantly gives rise to hydrogen binding interactions by considering the binding acceptor strength H).
- Nitromethane (as representative of a molecule that predominantly gives dipolar interactions).

Having determined P' as the sum of these three properties exactly as it was done by Hildebrand to define for the fractional polarity parameter of the solvents, Snyder then makes the ratio of a property on the sum of the three to define the proton (XE) acceptor polarity parameter, proton donor (Xd) and dipole-dipole interaction (Xn) of each of the pure solvents tested. The mixtures of solvents showing similar retention but giving different selectivities are composed of a weak solvent of the group I to which a solvent from the group II or group VI or group VII is mixed (because the solvents of these 3 groups have different fractional polarities parameters) and keeping in mind that chloroform gives particular selectivities but, nowadays, often gets removed from labs for environmental concerns.

Solvent strength, Normal Phase Chromatography (NPLC)



Example of Snyder total polarity and fractional parameters values of some solvents

| Solvent | P ^t * | X _e ** | X _d ** | X _n ** | Groupe |
|--------------------|------------------|-------------------|-------------------|-------------------|------------------|
| Heptane | -0.09 | | | | not classifiable |
| Mtbe | ~2.30 | 0.41 | 0.19 | 0.40 | I |
| Diethylether | 2.80 | 0.53 | 0.14 | 0.33 | I |
| Octanol | 3.23 | 0.58 | 0.17 | 0.25 | II |
| Isopropanol | 3.92 | 0.57 | 0.17 | 0.26 | II |
| Ethyl acetate | 4.24 | 0.34 | 0.23 | 0.43 | VI |
| Thf | 4.28 | 0.38 | 0.20 | 0.42 | III |
| Dichloromethane | 4.29 | 0.27 | 0.33 | 0.40 | VII |
| Chloroform | 4.31 | 0.31 | 0.35 | 0.34 | isolated |
| Ethanol | 4.40 | 0.52 | 0.19 | 0.29 | II |
| Acetone | 5.10 | 0.35 | 0.23 | 0.42 | VI |
| Methanol | 5.10 | 0.48 | 0.22 | 0.31 | II |
| Acetonitrile | 5.64 | 0.31 | 0.27 | 0.42 | VI |
| Acetic acid | 6.13 | 0.41 | 0.30 | 0.30 | IV |
| Water | 10.20 | 0.37 | 0.37 | 0.25 | VIII |
| Toluene | 68.00 | 0.25 | 0.28 | 0.47 | VII |
| Methylcellosolve | 5.71 | 0.41 | 0.22 | 0.36 | III |
| Dimethylformamide | 6.31 | 0.40 | 0.21 | 0.39 | III |
| Formic acid | | | | | IV |
| Dimethyl sulfoxide | 7.29 | 0.39 | 0.22 | 0.39 | III |

* Snyder polarity parameters from V.R. Meyer "Practical High Performance Liquid Chromatography" J,WILEY and Sons (Chichester) 1988.

** Snyder fractional polarity parameters from V.R. Meyer "Practical High Performance Liquid Chromatography" J,WILEY and Sons (Chichester) 1988.

Each of the three values is then plotted on a ternary diagram and the solvents are distributed in this plane space in 10 different zones where the solvents are separated into 8 groups of partial polarity.

Each group gathers solvents according to their own relative specificities described by three fractional polarity parameters:

- X_e for their hydrogen bond acceptor power
- X_d for hydrogen bonding
- X_n for the dipolar interactions



Solvent Strength, Normal Phase Chromatography (NPLC)



G I: aliphatic ethers (MTBE, diethyl ether, etc.)

G II: aliphatic alcohols (Methanol, isopropanol, etc.)

G III: Pyridine derivatives, methyl cellosolve, THF, N,N-Dimethylformamide...

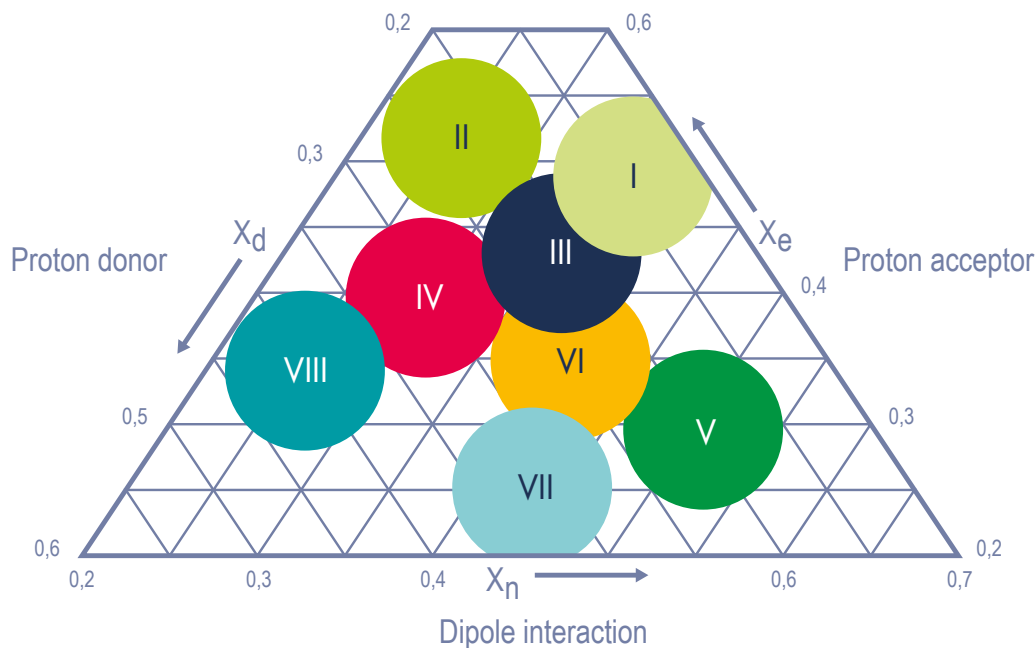
G IV: acetic acid, glycols, (propylen glycol...)

G V: dichloromethane, 1-2 dichloroethane

G VI: (a) aliphatic ketones (Acetone, MEK), esters (ethyl acetate), dioxane, nitriles (acetonitrile)

G VII: aromatic hydrocarbons, aromatic compounds, nitromethane

G VIII: water, tetrafluoropropanol And: isolated chloroform (surrounded on the figure by a green circle) non-classifiable saturated hydrocarbons



The space occupation is different from that of the partial parameters of solubility triangle insofar as the solvents are not classified by the same properties.

Here, the interaction power due to the instantaneous dipoles is not considered (thus, characterizing the very important non-specific interactions due to the hydrocarbon skeleton of the molecules). On the other hand, the interactions due to the hydrogen bond are divided into acceptor (X_e) and donor (X_d) of Hydrogen links, which is globally evaluated in the δ_H parameter of Hildebrand.

Solvent Strength, Reverse Phase Chromatography (RPLC)

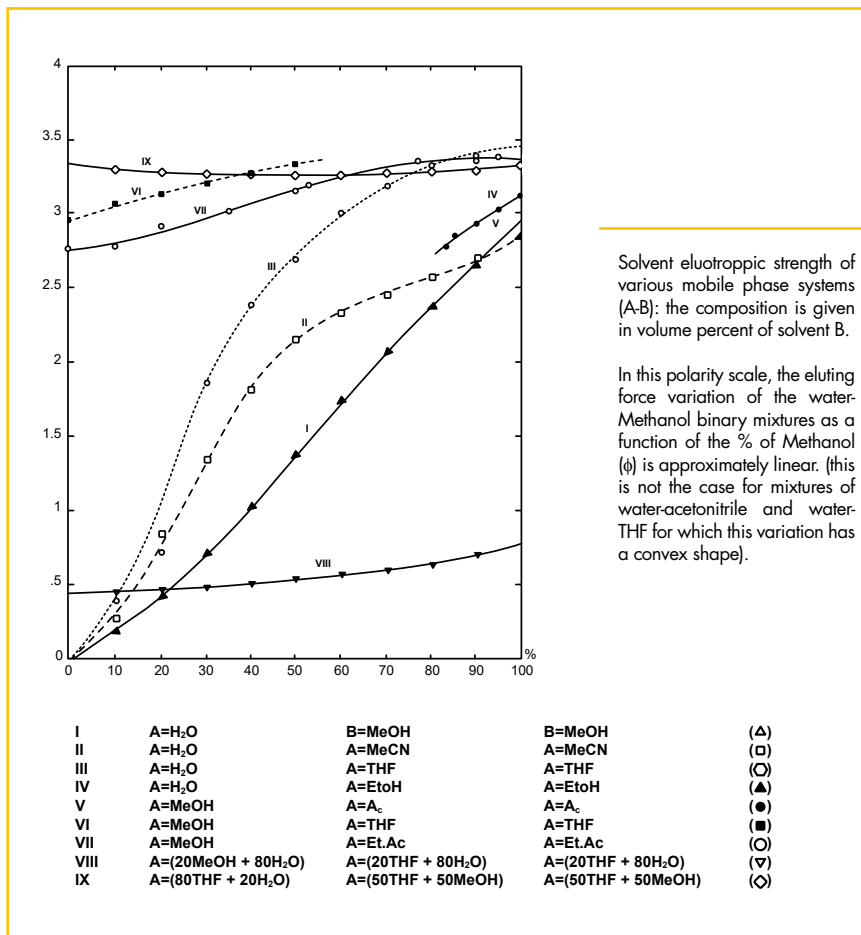


In this chromatographic process, the solvent and the solute interact with a non-polar stationary phase (alkyl bonded silicas, hydrocarbon coated supports, porous graphitized carbon, and aromatic polymers).

- The more the solute apolar is, the more it will be retained and the more it will be necessary to use an apolar mobile phase to elute it.
- If the solute is "weakly apolar" the mobile phase must be also weakly apolar. The more polar the solute is, the more polar the eluent must be.

In this chromatographic mode, water, the most polar solvent, is the weak or most retentive solvent. The strong or most eluting solvents used must be totally miscible with water and show a different dominant partial polarity (the respective partial solubility parameters or fractional dominant Snyder polarity parameters are different). This leads to the selection of three solvents: Methanol, Acetonitrile and THF which belong to classes (D, C and B) or groups (II, VI and III) in each of the two 3-dimensional polarity spaces.

By analogy, with the phenomena of molecular interactions developing in NPLC, Snyder proposed a progressive polarity scale of the various Methanol-water binary mixtures based on the measurement of methylene selectivity (selectivity between two homologous solutes whose length's difference of the alkyl chain is one carbon). By definition, he gave the eluent strength value $\epsilon_0=0$ to the methylene selectivity in pure water because no other pure solvent has lower eluting power than water in this chromatographic mode. In this scale, pure Methanol has an eluting force $\epsilon_0 = 2.9$. This is shown in the Colin-Guiochon eluent force diagram below:



Solvents strength, Reverse Phase Chromatography (RPLC)

The best composition of a mobile phase for a separation problem on these RP sorbents is experimentally established by choosing the solvents of decreasing eluting force (increase of water % by step of 10%) and by evaluating each time the retention of all the compounds of a mixture and their separation. This is achieved in HPLC by finding the mobile phase composition placing all the solutes in the range of retention factors included between 2 and 10 (15, strictly speaking). If no mobile phase composition allows this, it will be necessary to work in gradient of elution or to find another chromatographic support.

The weak and medium polar solutes will be eluted with mobile phases of intermediate composition. The polar solutes ($\delta_T > 13$) will be eluted with high ratio of weak solvent mobile phases (high water ratio). The non-polar solutes ($\delta_T < 8$) will be eluted with very eluting mobile phases composed of high ratio organic solvents (NonAqueousRP mode).

When two solutes are poorly separated with a Methanol-water mobile phase of given composition (fixed ϵ_0), it is necessary to replace the Methanol with acetonitrile or THF, while keeping the solutes retention near the same values. The change of organic modifier most often leads to selectivity modification of the poorly separated peak pairs in a given binary mixture.

The simplest equivalence rules (iso-elution) are as follows:

By using solubility parameters, we find:

$$\begin{aligned}\phi_{\text{MeCN}} &= 0.78 \phi_{\text{MeOH}} \\ \phi_{\text{THF}} &= 0.62 \phi_{\text{MeOH}} \\ \phi_{\text{THF}} &= 0.80 \phi_{\text{MeCN}}\end{aligned}$$

By using the Snyder polarity parameters, we find:

$$\begin{aligned}\phi_{\text{MeCN}} &= 0.82 \phi_{\text{MeOH}} \\ \phi_{\text{THF}} &= 0.58 \phi_{\text{MeOH}}\end{aligned}$$

Therefore, these two very similar results lead substantially to the same equivalences and one can use either one or the other or the average of the two estimates without being detrimental from the point of view of the method and of the final result.

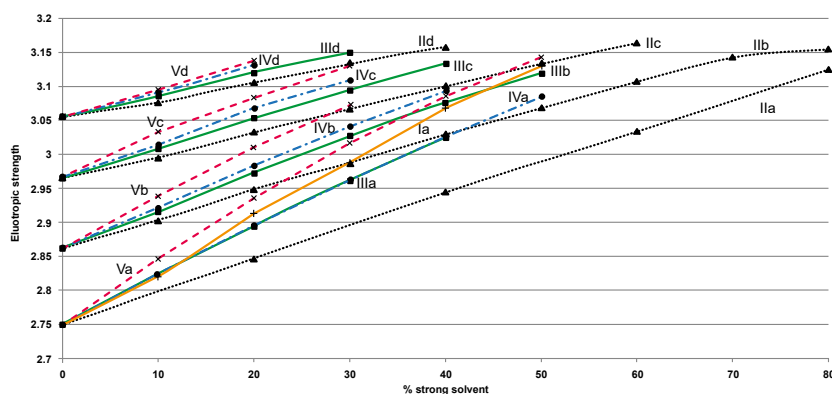
Non Aqueous RP mode

For non-polar solutes ($\delta_T < 8$ to 9) (triglycerides, ceramides, hydrocarbons, carotenoids, anthraquinoides, PAH...) which are insoluble in water or water-organic mixtures, binary mixtures are made of:

- as weak solvents: acetonitrile or much more rarely Methanol
- as strong solvents: the solvents most often having an $f_d > 50\%$, then chloroform, dichloromethane, Acetone, ethyl acetate, THF, diethyl ether, MTBE or a saturated hydrocarbon, making sure they are completely miscible with the weak solvent.

Considering their respective values of f_p and f_H or their belonging to different classes in the Hildebrand polarity representation, these strong solvents will give different selectivities for poorly separated pairs of solutes in a given binary composition.

Their similar eluting strength was recently reported by the following Heron-Tchapla diagram, at 4 different temperatures, for the "green" binary blends Acetonitrile- CH_2Cl_2 , Acetonitrile-Acetone, Acetonitrile-isoPropanol, Acetonitrile-Ethyl Acetate and Acetonitrile-Butanol.



1. Solvent eluotropic strength of various mobile phase systems (MeCN/Strong solvent). The composition is given in volume percent of strong solvent. (I) MeCN/ CH_2Cl_2 (in orange); (II) MeCN/AcMe (in black); (III) MeCN/iPrOH (in green); (IV) MeCN/AcOEt (in blue); (V) MeCN/BuOH (in red). (a) T = 25°C; (b) T = 43°C; (c) T = 63°C; (d) T = 85°C



Miscibility chart with polarity and solubility parameters

| Solvant | Classe d | Famille polarité | e0 20°C | | | | | Perfluoroalkanes | n-Pentane | n-Hexane | Isooctane | Petroleum ether | n-Decane | Cyclohexane | Cyclopentane | Diisobutylene | 1-Pentene | 1,1,2-Trichlorotrifluoroethane | Carbon disulfide | Carbon tetrachloride |
|--------------------------------|----------|------------------|------------|-----------|---------------|---------------|-----------|------------------|-----------|----------|-----------|-----------------|----------|-------------|--------------|---------------|-----------|--------------------------------|------------------|----------------------|
| | | | e0 (Al2O3) | e0 (SiO2) | e0 (florisil) | e0 (magnésie) | e0 (diol) | | | | | | | | | | | | | |
| | | | A | A | A | A | A | | | | | | | | | | | | | |
| Perfluoroalkanes | A | NC | -0.25 | -0.19 | -0.13 | -0.15 | -0.06 | | | | | | | | | | | | | |
| n-Pentane | A | NC | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | |
| n-Hexane | A | NC | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | |
| Isooctane | A | NC | 0.01 | 0.01 | 0.01 | 0.01 | 0 | | | | | | | | | | | | | |
| Petroleum ether | A | NC | 0.01 | 0.01 | 0.01 | 0.01 | 0 | | | | | | | | | | | | | |
| n-Decane | A | NC | 0.04 | 0.03 | 0.02 | 0.02 | 0.01 | | | | | | | | | | | | | |
| Cyclohexane | A | NC | 0.04 | 0.03 | 0.02 | 0.02 | 0.01 | | | | | | | | | | | | | |
| Cyclopentane | A | NC | 0.05 | 0.04 | 0.03 | 0.03 | 0.01 | | | | | | | | | | | | | |
| Diisobutylene | A | | 0.06 | 0.05 | 0.03 | 0.03 | 0.01 | | | | | | | | | | | | | |
| 1-Pentene | A | | 0.08 | 0.06 | 0.04 | 0.05 | 0.02 | | | | | | | | | | | | | |
| 1,1,2-Trichlorotrifluoroethane | A | | 0.14 | 0.11 | 0.07 | 0.08 | 0.03 | | | | | | | | | | | | | |
| Carbon disulfide | A | NC | 0.15 | 0.12 | 0.08 | 0.09 | 0.03 | | | | | | | | | | | | | |
| Carbon tetrachloride | A | VII | 0.18 | 0.14 | 0.09 | 0.1 | 0.04 | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | A | | 0.19 | 0.15 | 0.1 | 0.11 | 0.04 | | | | | | | | | | | | | |
| tert-Butyl methyl ether | A | I | 0.2 | 0.15 | 0.1 | 0.12 | 0.05 | | | | | | | | | | | | | |
| 1-Chloropentane | A | | 0.26 | 0.2 | 0.14 | 0.15 | 0.06 | | | | | | | | | | | | | |
| 1-Chlorobutane | A | | 0.26 | 0.2 | 0.14 | 0.15 | 0.06 | | | | | | | | | | | | | |
| Xylene | A | VII | 0.26 | 0.2 | 0.14 | 0.15 | 0.06 | | | | | | | | | | | | | |
| diisopropyl ether | A | I | 0.28 | 0.22 | 0.15 | 0.16 | 0.06 | | | | | | | | | | | | | |
| 2-Chloropropane | B | | 0.29 | 0.22 | 0.15 | 0.17 | 0.07 | | | | | | | | | | | | | |
| Toluene | A | VII | 0.29 | 0.22 | 0.15 | 0.17 | 0.07 | | | | | | | | | | | | | |
| 1-Chloropropane | B | | 0.3 | 0.23 | 0.16 | 0.17 | 0.07 | | | | | | | | | | | | | |
| Chlorobenzene | A | VII | 0.3 | 0.23 | 0.16 | 0.17 | 0.07 | | | | | | | | | | | | | |
| Benzene | A | VII | 0.32 | 0.25 | 0.17 | 0.19 | 0.07 | | | | | | | | | | | | | |
| 1-Bromoethane | A | | 0.37 | 0.28 | 0.19 | 0.21 | 0.09 | | | | | | | | | | | | | |
| Diethyl ether | A | I | 0.38 | 0.29 | 0.2 | 0.22 | 0.09 | | | | | | | | | | | | | |
| Diethyl sulfide | A | NC | 0.38 | 0.29 | 0.2 | 0.22 | 0.09 | | | | | | | | | | | | | |
| Chloroform | A | peculiar | 0.4 | 0.31 | 0.21 | 0.23 | 0.09 | | | | | | | | | | | | | |
| diChloroMethane | A | VII | 0.42 | 0.32 | 0.22 | 0.24 | 0.1 | | | | | | | | | | | | | |
| Isobutyl methyl ketone | B | VI | 0.43 | 0.33 | 0.22 | 0.25 | 0.1 | | | | | | | | | | | | | |
| Tetrahydrofuran | B | III | 0.45 | 0.35 | 0.23 | 0.26 | 0.1 | | | | | | | | | | | | | |
| 1,2-Dichloroethane | B | V | 0.49 | 0.38 | 0.25 | 0.28 | 0.11 | | | | | | | | | | | | | |
| Ethyl methyl ketone | D | VI | 0.51 | 0.39 | 0.27 | 0.3 | 0.12 | | | | | | | | | | | | | |
| 1-Nitropropane | D | VII | 0.53 | 0.41 | 0.28 | 0.31 | 0.12 | | | | | | | | | | | | | |
| Acetone | D | VI | 0.56 | 0.43 | 0.29 | 0.32 | 0.13 | | | | | | | | | | | | | |
| 1,4-Dioxane | B | VI | 0.56 | 0.43 | 0.29 | 0.32 | 0.13 | | | | | | | | | | | | | |
| Acétate d'Ethyle | D | VI | 0.58 | 0.45 | 0.3 | 0.34 | 0.13 | | | | | | | | | | | | | |
| Methyl acetate | D | | 0.6 | 0.46 | 0.31 | 0.35 | 0.14 | | | | | | | | | | | | | |
| 1-Pentanol | C | II | 0.61 | 0.47 | 0.32 | 0.35 | 0.14 | | | | | | | | | | | | | |
| Dimethyl sulfoxyde | E | III | 0.62 | 0.48 | 0.32 | 0.36 | 0.14 | | | | | | | | | | | | | |
| Aniline | B | VI | 0.62 | 0.48 | 0.32 | 0.36 | 0.14 | | | | | | | | | | | | | |
| Diethylamine | B | | 0.63 | 0.49 | 0.33 | 0.37 | 0.15 | | | | | | | | | | | | | |
| Nitromethane | D | VI | 0.64 | 0.49 | 0.33 | 0.37 | 0.15 | | | | | | | | | | | | | |
| Acetonitrile | D | VI | 0.65 | 0.5 | 0.34 | 0.38 | 0.15 | | | | | | | | | | | | | |
| Pyridine | B | III | 0.71 | 0.55 | 0.37 | 0.41 | 0.16 | | | | | | | | | | | | | |
| 2-Butoxyethanol | C | | 0.74 | 0.57 | 0.38 | 0.43 | 0.17 | | | | | | | | | | | | | |
| isopropanol | C | II | 0.82 | 0.63 | 0.43 | 0.48 | 0.19 | | | | | | | | | | | | | |
| 1-Propanol | C | II | 0.82 | 0.63 | 0.43 | 0.48 | 0.19 | | | | | | | | | | | | | |
| Ethanol | C | II | 0.88 | 0.68 | 0.46 | 0.51 | 0.2 | | | | | | | | | | | | | |
| Methanol | C | II | 0.95 | 0.73 | 0.49 | 0.55 | 0.22 | | | | | | | | | | | | | |
| Ethylene glycol | C | II | 1.11 | 0.85 | 0.58 | 0.64 | 0.26 | | | | | | | | | | | | | |
| Acetic acid | E | IV | high | high | high | high | high | | | | | | | | | | | | | |
| Water | peculiar | VIII | very high | very high | very high | very high | very high | | | | | | | | | | | | | |
| N,N-Dimethylformamide | E | III | | | | | | | | | | | | | | | | | | |

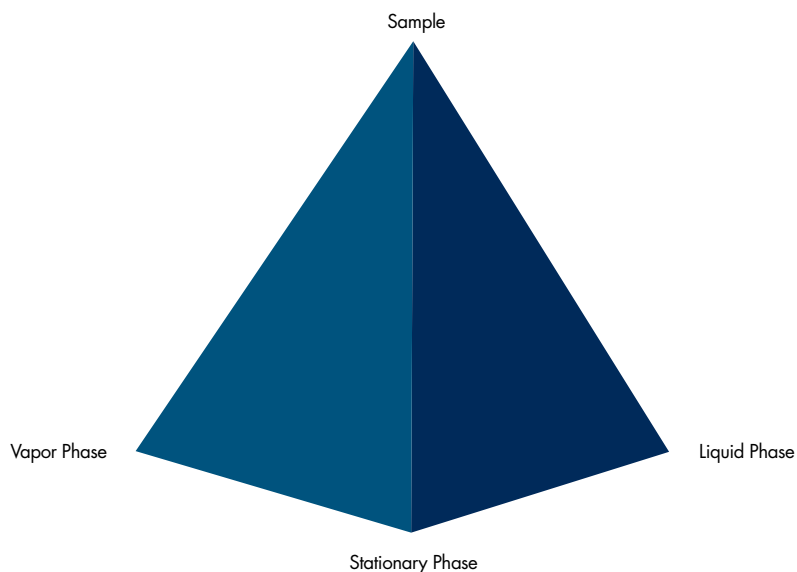


Basic principle:

TLC, compared to liquid chromatography on column, shows differences:

The mobile phase discovers the stationary phase while moving through the plate layer. The thin layer is not in equilibrium with the elution solvent, as it is the case in a column, but with the solvent vapors contained in the development chamber.

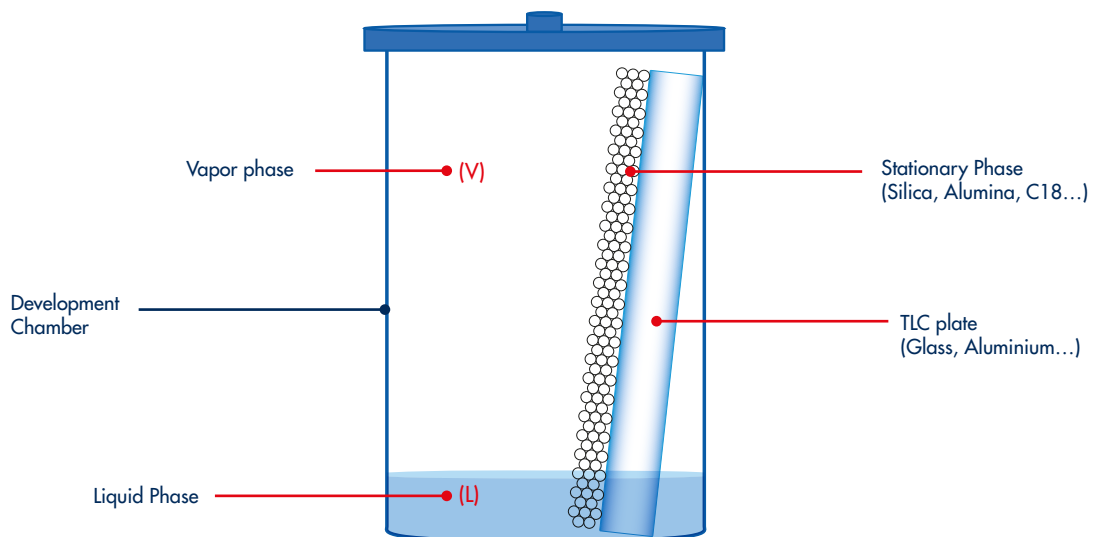
To set up a TLC analysis, 4 parameters have to be considered.



TLC is a chromatography technique where each of the solutes remains in contact with the mobile and the stationary phases simultaneously. They cover different migration distances according to their interactions with the phases, whereas in an HPLC column, solutes go through the same total distance. They express a different residence time.

In TLC, the retention of each of the solutes is then characterized by the frontal ratio R_f , whereas on column it is characterized by the retention factor k .

(In the case of a preparative column, the volume of retention of the mobile phase required to elute the solute, is a considered value.)

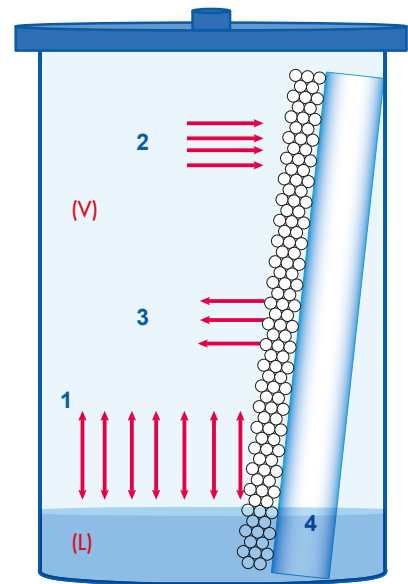




Interactions description :

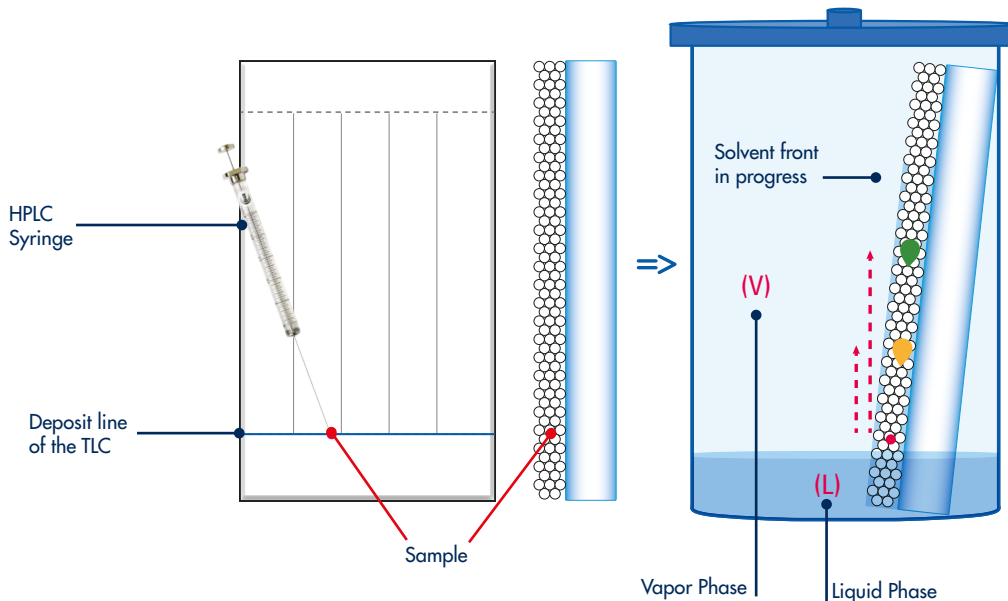
Specificity of the TLC related to evaporation phenomena.

- 1: At the liquid (L) - vapor (V) balance, the mobile phase and the vapor phase compositions are not similar because the vapour pressure of the solvents used are generally not the same.
At the liquid (L) - vapor (V) balance, according to the composition of the development phase and the respective vapor pressure of its components, the composition of the vapor phase is not the same as the development phase.
- 2: The dry stationary phase equilibrates with the vapor phase (V) (adsorption saturation). The vapors of polar solvents are more adsorbed than apolar solvents. The composition of the adsorbed phase is different from the vapor phase (V) and the development phase (L).
- 3: During migration, the wet stationary phase is re-equilibrated with the vapor phase (V). This concerns the less polar solvents and the more volatile of the migrating liquid.
- 4: During the migration, the components of the mobile phase can be separated by the stationary phase which leads to secondary fronts.



Basic principle:

The sample is put with a capillary on the deposit line of the TLC plate, which is then immersed in the tank containing the mobile phase. This one ascends through the stationary phase by capillarity carrying each compound, which moves at their own velocity behind the solvent front, according to their affinity for the stationary and the mobile phases.

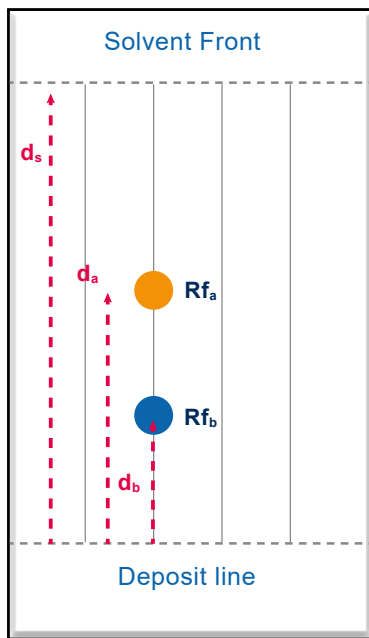


Thin layer chromatography (TLC) - TLC Fundamentals



Basic principle:

In TLC, the "retention factor" (Rf) is defined by the ratio of the distance covered by the analyte (d_a) to the distance covered by the solvent front (d_s).



$$Rf_a = d_a / d_s$$

$$Rf_b = d_b / d_s$$

In practice, it is necessary to think in terms of the amount of mobile phase used to elute the solute out of the column. To take account of their different geometries, this retention volume is expressed relative to the void volume of the column used. It is a dimensionless number identified by the acronym CV (also called V_s).

$$V_{s_a} = CV_a = 1/Rf_a = 1 + k_a$$

$$V_{s_b} = CV_b = 1/Rf_b = 1 + k_b$$

$$\Rightarrow \Delta CV = CV_b - CV_a$$

There is a mathematical relation between CV and the retention factor k in liquid HPLC.

$$k = K_{tr} \times (1/Rf - 1) \text{ and with } K_{tr} = \text{cste} = 1$$

$$\Rightarrow \Delta k = K_{tr} \times [(1/Rf_b - 1) - (1/Rf_a - 1)]$$

$$\Rightarrow CV = \Delta k$$

In practice, it is necessary to control the experimental conditions to obtain reproducible TLC analysis.

Operational modes:

Different operational modes are commonly used to make a TLC plate \Rightarrow Unsaturated, Saturated, Pre-Conditioning & Sandwich
For all of those a double tray chamber is recommended.

The equilibration of the stationary phase with the mobile phase has a strong influence on the repeatability of a thin-layer chromatography.

1. Unsaturated mode:

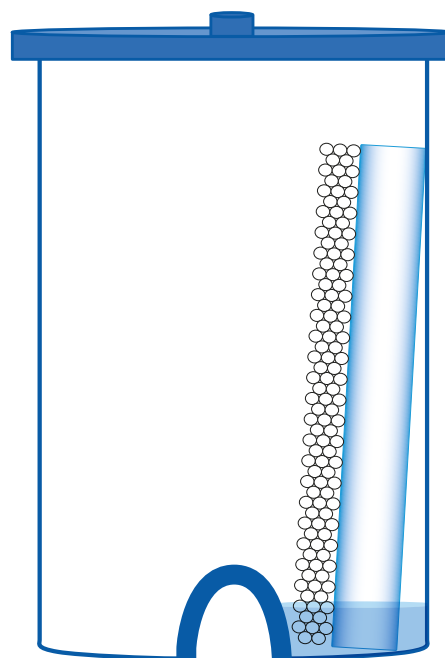
Compared to other modes, no equilibration leads to thinner spots (bands) and larger Rf's.

However there are secondary fronts due to mobile phase de-mixing.

One tray is filled with the mobile phase.

Just after, TLC plate with "dropped off" compounds is placed as vertically as possible in the same tray.

This technique leads to low repeatability vs. others mode.





2. Saturation mode:

Equilibration of the development chamber with saturation by the solvent vapors.

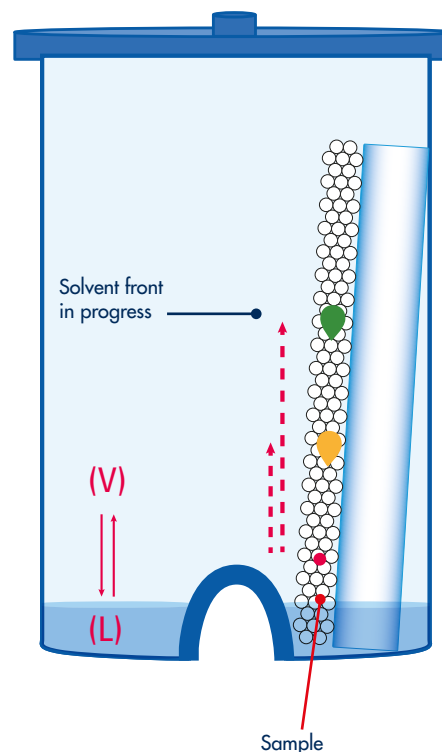
Both trays are filled with the development phase.

A sheet of paper, vertically placed, dips into the mobile phase of one of the trays. Wait 20/30 minutes for the mobile phase to go up by capillarity on the paper and homogenize in vapor concentration.

By liquid-vapor equilibrium, the gas phase recondense on the plate and wets it throughout its height.

After moving the lid laterally, the TLC plate is placed as vertically as possible in the second tray. Driven by the mobile phase, from the bottom of the chamber, solutes travel through the stationary phase in equilibrium with the adsorbed mobile phase.

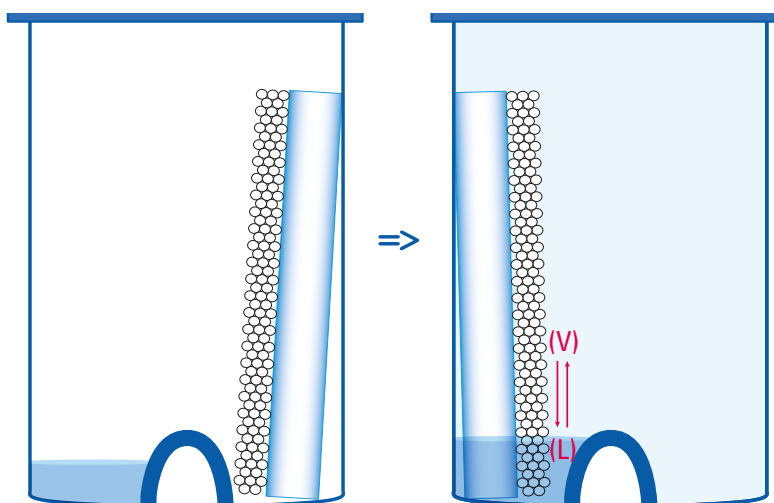
This technique gives better reproducibility and with closer HPLC conditions vs. other modes.



3. Pre-conditioning mode:

The development phase is introduced into one of the tray of the chamber. Simultaneously, TLC plate is placed as vertically as possible in the second empty tray. 20 to 30 min are necessary to saturate the chamber and homogenize vapor and liquid phase in concentration. At vapor equilibrium, the gas phase recondenses over the plate and wets it throughout its length. Then, the plate is switched from the tray to the other one.

This technique leads to more diffuse spots and weaker R_f compared to the unsaturated mode. However, it provides reproducible analysis with close HPLC conditions.





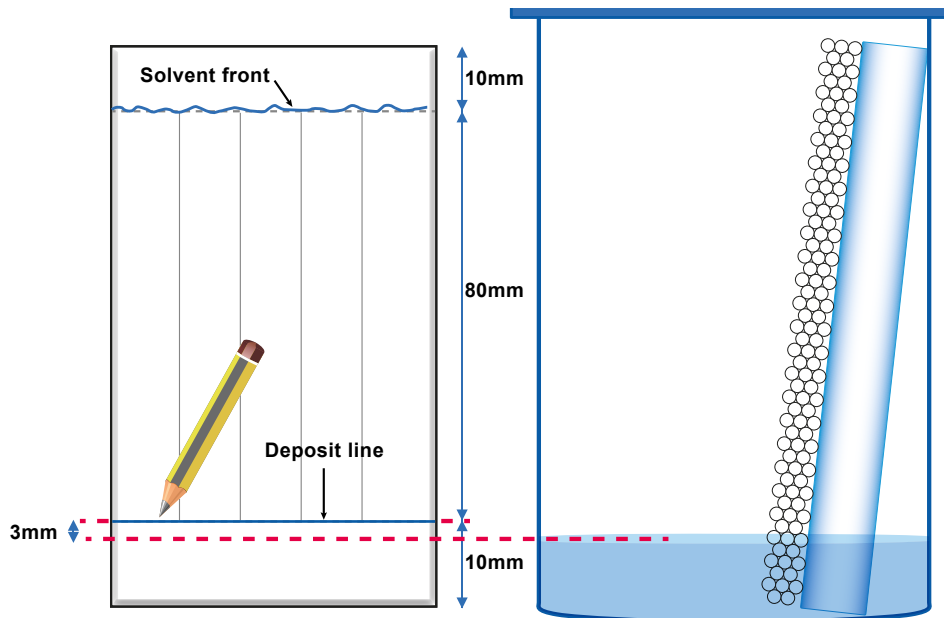
How to make a successful TLC plate?

1. Deposit line & Solvent front

Plot the deposit line with a pencil at 3 mm above the mobile phase level.

Recommended migration height is at least 8 cm.

Make the solvent front migrate at up to 1 cm from the top edge of the TLC plate.



2. How to make the deposit?

a) Sample concentration is necessary to avoid over-loading

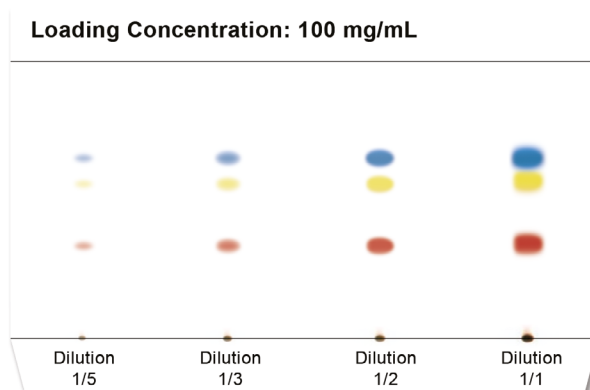
State of the art

- For a standard: concentration of 0.1 mg/L
- For the sample: concentration must not exceed 2%

b) Deposit size

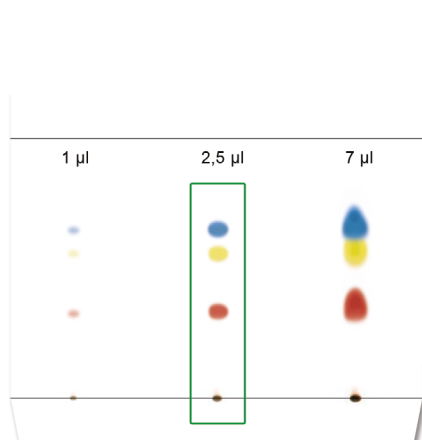
The deposit must be spread at the smallest possible volume otherwise there is a loss of separation.

If the chemist wants to make several deposits, it is necessary to dry the plate between the successive deposits. The plate must be left to dry for 10 minutes at room temperature before development.

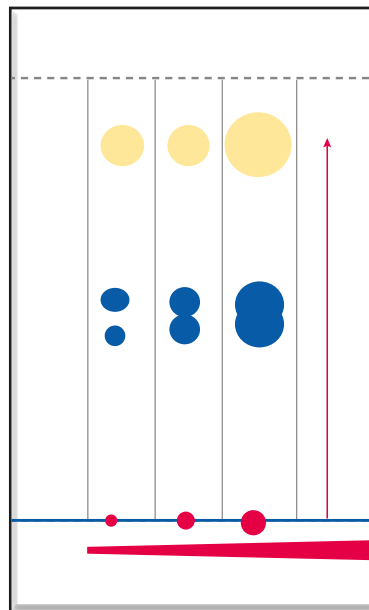




Influence of the size of the deposit on the separation - Dimensions of the spots according to their Rf.



TLC calibration study in concentration is important to achieve the best optimization.



- a) Spot \varnothing increase with Rf
- b) if the height of development is too important => significant dilution, detection difficulties

a large deposit => a loss in separation.

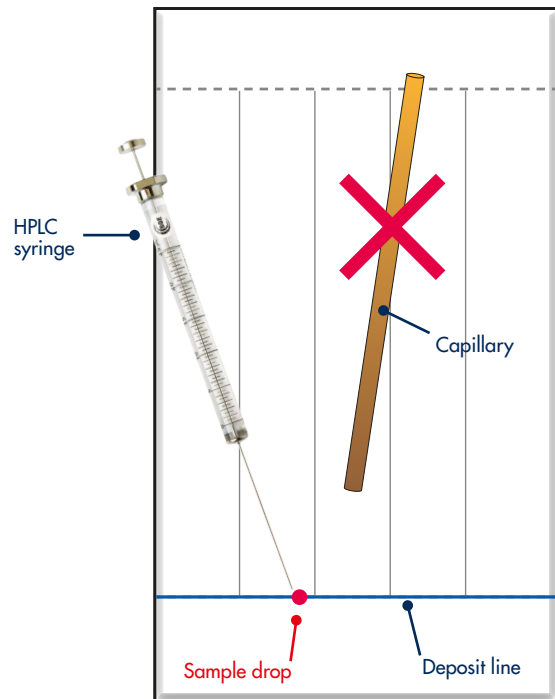
3. Deposit of the raw sample

a) Spot mode:

By capillarity using an HPLC syringe or a capillary. There is a more or less deep penetration of the solute in the adsorbent layer. Finest deposit spots are obtained with a syringe rather than a capillary.

Using this mode of deposition, spots are more or less deformed.

Load the smallest drop as possible to avoid dispersion caused by overloading which could affect the compounds resolution. Avoid touching the TLC plate with the deposit tool to limit compounds penetration deep in the layer of the plate. Spot density and dispersion may vary with solvent polarity. Do not place the spot too close to the edges of the plate.





3. Deposit of the raw sample

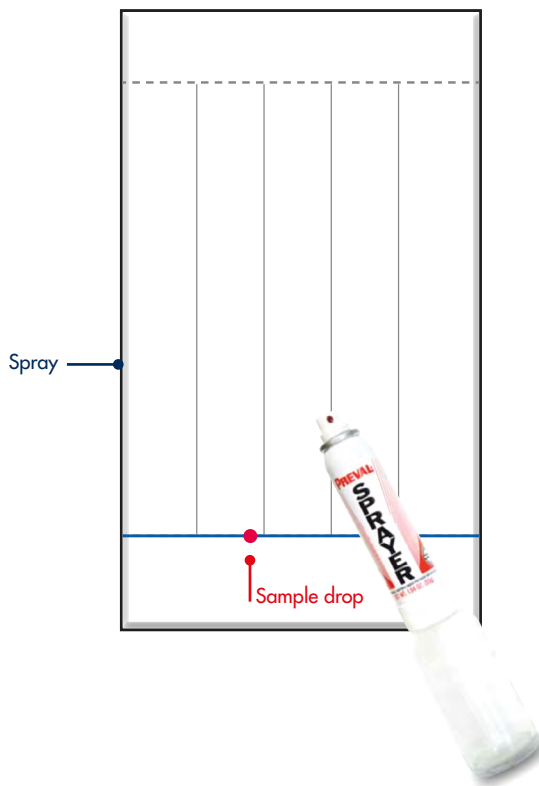
b) Spray mode:

Using a sprayer, the spray speed must be slower than the evaporation velocity to avoid any projection.

Using this mode, there is little penetration of the solute into the adsorbent layer staying on the surface.

The eluted spots are less spread out.

Using this spray mode the separation of the spots is optimal.



Solvent of dilution

It must have a weak elution force and be very pure.

It must be sufficiently polar to dissolve the sample, but not too much to be easily eliminated.

The use of bases and acids should be limited.

Avoid viscous and high-boiling solvents (N,N-Dimethylformamide, DMSO, BuOH, water), as the migration time of the solvent will be longer.

It is necessary to dry the plate between two successive deposits.

Solvent of elution

Adapt the elution strength according to the compounds polarity to keep R_f in the optimal zone (0.15 - 0.35).

The mobile phase velocity is not constant over the entire length of the plate.

Use the same mobile phase for TLC & Flash purification.

Preparation of the mobile phase to ensure a perfect transfer to Flash purification:

- Solvents must be measured precisely in volume using separated flask (check the precision of the flask).
- Low volume in % can be measured using a syringe to ensure greater precision.



Stationary phase choice:

The choice of sorbent depends on the nature of the compounds to purify:

- Polarity, functional groups.

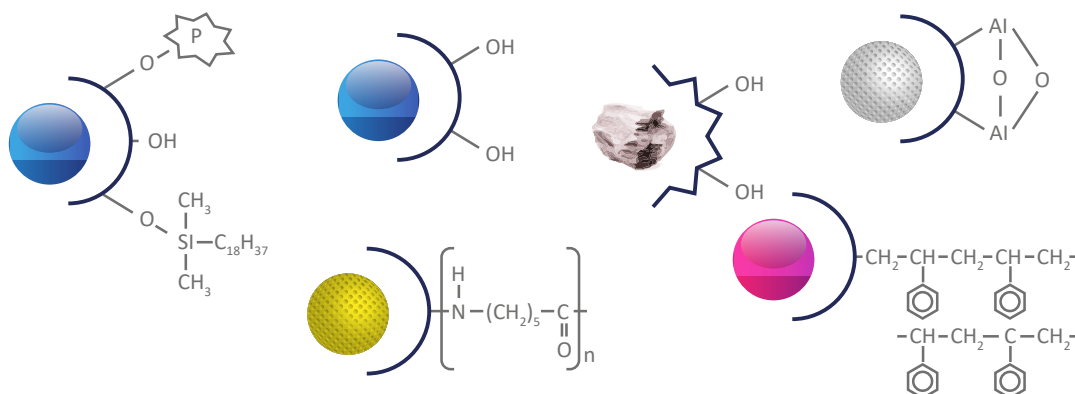
The retention of compounds is very different depending on the sorbent used.

To avoid stain deformations, silica is generally chosen for acidic compounds & alumina for basic compounds.

Non-bonded polar stationary phases: silica, alumina, etc. are extremely water consumptive materials.

If kept in the open air, they become less active (50% in less than 3 min) by quickly absorbing atmospheric water. This can lead to completely different separations in between two plates from the same batch that have been left at ambient air and carried out at different times.

It is recommended to keep the plates in a desiccator, preferably under vacuum, in the presence of a desiccant.

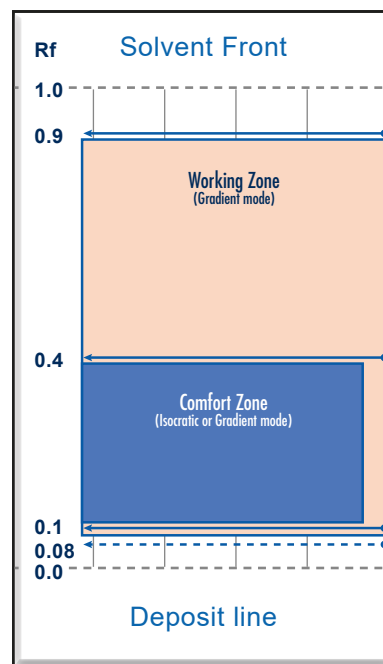


Mobile Phase choice

What is the ideal distribution of stains on a plate?

To get good location accuracy of the center of the spots and to calculate the Rf it is necessary that they are regularly distributed in the Rf range from 0.08 to 0.9. The best is a spot distribution between 0.1 and 0.4 with a minimal ΔCV .

With silica and alumina the more the mobile phase is polar, the more the solutes are eluted towards the front of the solvent, towards large values of Rf ($Rf \geq 0.6$). Conversely, the more the mobile phase is non-polar, the less the solutes are entrained and the closer they stay to the deposit line with low values of Rf ($Rf \leq 0.1$).



Thin layer chromatography (TLC) - TLC Fundamentals



Mobile Phase choice:

The mobile phase has the following role:

- Dissolution of the sample
- Desorption of the sample from the stationary phase
- Transport of the sample at an acceptable migration distance

In general, the mobile phase must be:

- As simple as possible (maximum 3/4 components)
- Non-toxic
- From a chromatographic quality
- Specific to not generate side reactions
- Selected to avoid demixing (vapor pressures, equivalent polarities)
- Having a low viscosity

Polarity of mobile phases:

- The concept of polarity of the chemical species and the different scales of polarity are described in the purification chapter.

How to control retention:

Two solvents with total miscibility parameter values δT , eluent force ϵ° or polarity P 'equal or very close will lead, for the same compound, to neighboring or equal retention parameters (even k, or even Rf).

How to change the separation by keeping the retention with same magnitude:

By cons for a pair of solutes with a slightly different polarity, the selectivity or separation of spots, will not be the same for two solvents with identical polarity (δT ou ϵ° identical or similar) as they express different partial dominant polarity. Partial polarities of solvents must be taken into account.

ELUENT STRENGTH ON DIFFERENT STATIONNARY PHASES:

ϵ_0 silica = 0.77 ϵ_0 alumina
 ϵ_0 diol = 0.3 ϵ_0 silica = 0.23 ϵ_0 alumina
 ϵ_0 florisil = 0.52 ϵ_0 alumina
 ϵ_0 magnesie = 0.58 ϵ_0 alumina

See Snyder's classification on page A.39 of this catalog.



The classification of solvents according to Trappe is expressed in eluotropic series classified by increasing eluent force:

- Based on the adsorption energy per unit area of the stationary phase
- Depends on the stationary phase
- The classification uses pentane as a reference.
- Eluotropic series on different adsorbents:

| Solvents List | ξ_0 Silica Virgin | ξ_0 Alumina | ξ_0 Silica Diol | ξ_0 Silica CN | ξ_0 Silica NH ₂ | ξ_0 Silica C18.C4.C8.PH.RPAQ | ξ_0 Magnesie | ξ_0 Florisil |
|-------------------------|-----------------------|-----------------|---------------------|-------------------|--------------------------------|----------------------------------|------------------|------------------|
| Acetone | 0.470 | 0.560 | 0.141 | 0.470 | 0.470 | | 0.325 | 0.291 |
| Acetonitrile | 0.501 | 0.650 | 0.150 | 0.501 | 0.501 | 0.577 | 0.377 | 0.338 |
| Benzene | 0.246 | 0.319 | 0.074 | 0.246 | 0.246 | | 0.185 | 0.166 |
| Butanol | 0.550 | 0.714 | 0.165 | 0.550 | 0.550 | | 0.414 | 0.371 |
| Carbon tetrachloride | 0.139 | 0.180 | 0.042 | 0.139 | 0.139 | | 0.104 | 0.094 |
| Chloroform | 0.260 | 0.400 | 0.078 | 0.260 | 0.260 | | 0.232 | 0.208 |
| Cyclohexane | 0.030 | 0.0400 | 0.000 | 0.000 | 0.000 | | 0.023 | 0.021 |
| Cyclopentane | 0.000 | 0.05 | 0.000 | 0.000 | 0.000 | | 0.029 | 0.026 |
| 1,2-Dichloroethane | 0.339 | 0.490 | 0.102 | 0.339 | 0.339 | | 0.284 | 0.255 |
| Dichloromethane | 0.323 | 0.420 | 0.097 | 0.323 | 0.323 | | 0.244 | 0.218 |
| Diethylamine | 0.485 | 0.630 | 0.146 | 0.485 | 0.485 | | 0.365 | 0.328 |
| Diethyl ether | 0.385 | 0.380 | 0.115 | 0.385 | 0.385 | | 0.220 | 0.198 |
| Diisopropyl ether | 0.223 | 0.280 | 0.067 | 0.223 | 0.223 | | 0.162 | 0.146 |
| N,N-Dimethylformamide | 0.640 | 0.831 | 0.192 | 0.640 | 0.640 | | 0.482 | 0.432 |
| Dimethyl sulfoxide | 0.470 | 0.620 | 0.141 | 0.470 | 0.470 | | 0.360 | 0.322 |
| Dioxane | 0.490 | 0.560 | 0.147 | 0.490 | 0.490 | | 0.325 | 0.291 |
| Ethanol | 0.677 | 0.879 | 0.203 | 0.677 | 0.677 | | 0.510 | 0.457 |
| Ethyl acetate | 0.380 | 0.580 | 0.114 | 0.380 | 0.380 | | 0.336 | 0.302 |
| Heptane | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 |
| Hexane | 0.000 | 0.010 | 0.000 | 0.000 | 0.000 | | 0.006 | 0.005 |
| Hexanol | 0.385 | 0.500 | 0.115 | 0.385 | 0.385 | | 0.290 | 0.260 |
| Isooctane | 0.000 | 0.010 | 0.000 | 0.000 | 0.000 | | 0.006 | 0.005 |
| Isopropanol | 0.590 | 0.820 | 0.177 | 0.590 | 0.590 | | 0.476 | 0.426 |
| Isopropyl chloride | 0.223 | 0.290 | 0.067 | 0.223 | 0.223 | | 0.168 | 0.151 |
| Methanol | 0.732 | 0.950 | 0.219 | 0.732 | 0.732 | 0.450 | 0.551 | 0.494 |
| Methyl acetate | 0.393 | 0.510 | 0.118 | 0.393 | 0.393 | | 0.296 | 0.265 |
| Methyl ethyl ketone | 0.393 | 0.510 | 0.118 | 0.393 | 0.393 | | 0.296 | 0.265 |
| Methyl tert-butyl ether | 0.470 | 0.610 | 0.141 | 0.470 | 0.470 | | 0.354 | 0.317 |
| Pentane | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 |
| Petroleum ether | 0.000 | 0.010 | 0.000 | 0.000 | 0.000 | | 0.006 | 0.005 |
| Propanol | 0.631 | 0.819 | 0.189 | 0.631 | 0.631 | | 0.475 | 0.426 |
| Pyridine | 0.550 | 0.714 | 0.165 | 0.550 | 0.550 | | 0.414 | 0.371 |
| Tetrahydrofuran | 0.346 | 0.449 | 0.104 | 0.346 | 0.346 | 0.726 | 0.261 | 0.234 |
| Toluene | 0.223 | 0.290 | 0.067 | 0.223 | 0.223 | | 0.168 | 0.151 |
| Water | | | | | | 0.000 | | |



Thin layer chromatography (TLC) - TLC Fundamentals



Method for experimental determination of mobile phase composition:

1st stage:

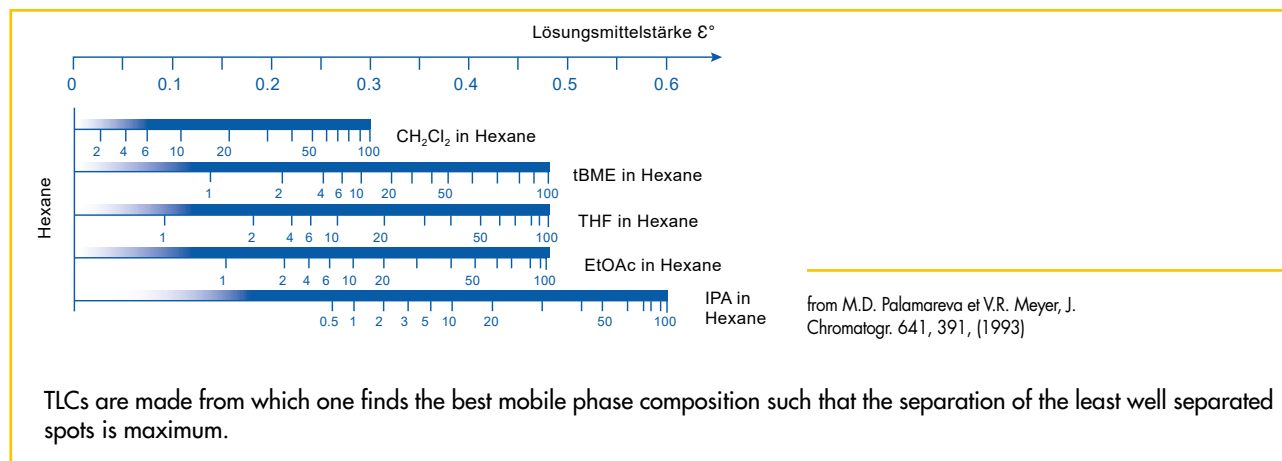
- Make TLCs with 8 (10) pure solvents of increasing polarity.

A solvent for which all the solutes are in the expected R_f range ($0.1 \leq R_f \leq 0.4$ (comfort Zone) or $0.08 \leq R_f \leq 0.9$ (working zone)).

- If separation is considered correct: it is done.
- If separation is considered to be incorrect: start the 2nd step.
- If with this first pure solvent, the solutes are not all in the expected R_f range : Find the solvent such that the 1st spot has the expected minimum R_f .
- Look for the solvent such that the last spot has an R_f equal to the maximum desired R_f .
- Once these two solvents are fixed: start the 3rd stage.

2nd stage:

- The ϵ° value of the solvent which placed all the solutes in the right zone but with a bad selectivity is known. Use abacuses to find different mobile phase of binary compositions with the same ϵ° value.



Method for experimental determination of mobile phase composition:

3rd stage:

- You know the domain $\Delta\epsilon^\circ$ which places all the solutes in the expected R_f domain and you look for the value of eluent force ϵ° which actually places all the solutes in the expected domain.

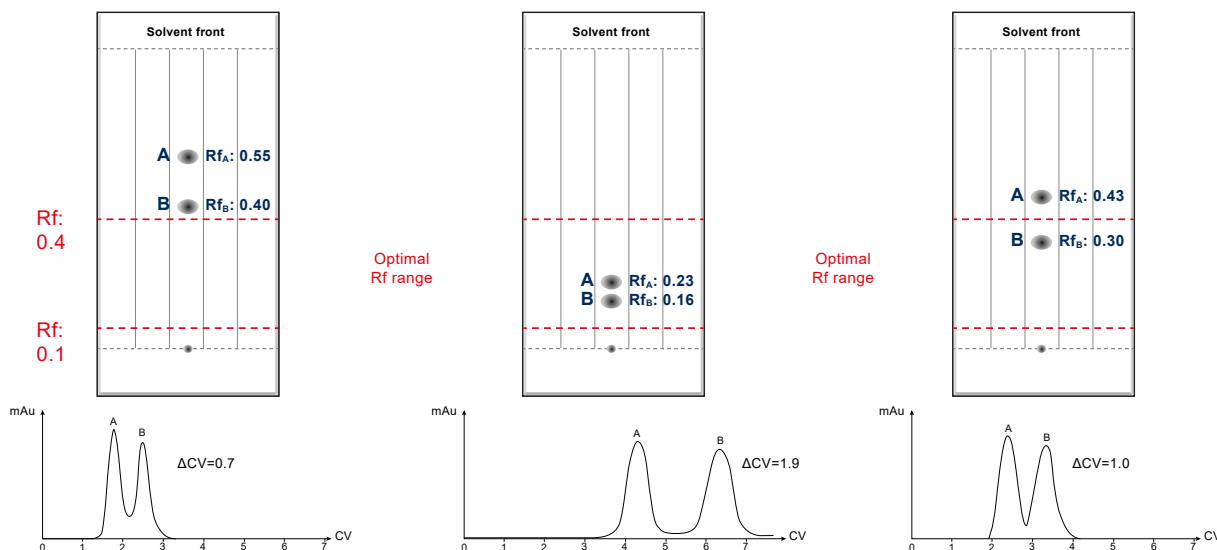
Make mixtures of the two mobile phases:

| Less eluent | More eluent |
|-------------|-------------|
| 95% | 5% |
| 90% | 10% |
| 85% | 15% |
| 80% | 20% |

By iteration determine the good (better) composition and return to the 1st stage.



Impact of mobile phase selection:



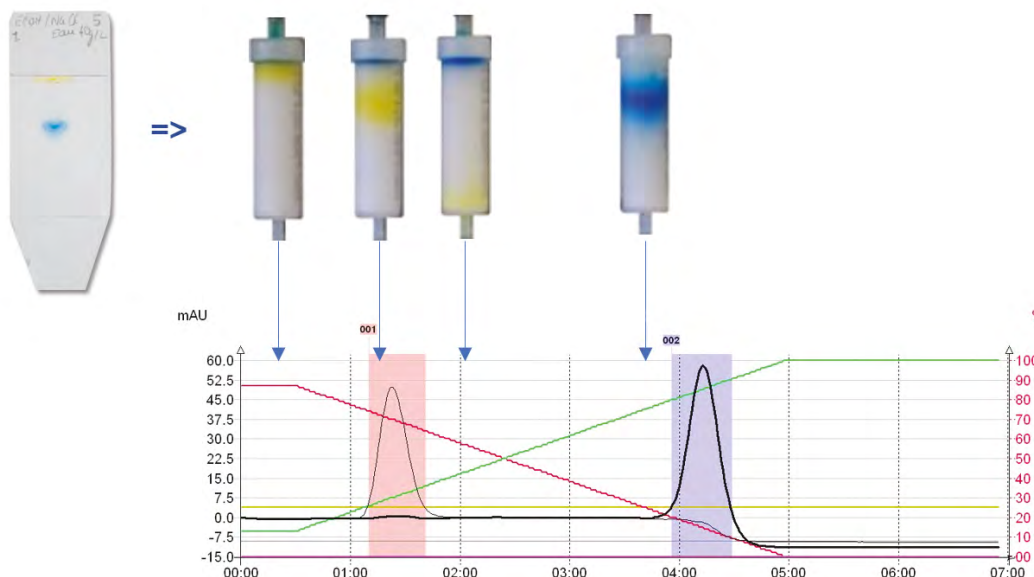
First the TLC shows two compounds which are not in the optimal Rf range, the separation is not achieved.

With the second TLC, two compounds are in the optimal Rf range and the resolution is better than the first TLC. ΔCV is higher (1.9).

With the third TLC, Cyclohexane/Ethyl Acetate replaced by Cyclohexane/Dichloromethane (both 0.31 solvent strength). For a same eluent strength, the selectivity is different and the resolution is better but less important than the second TLC.



Transfer method from TLC to Purification



To transition from one chromatography mode (i.e. TLC, Open column, SPE, HPLC) to another one (i.e. Flash, preparative LC) without the need to do any method adjustment, it is mandatory that:

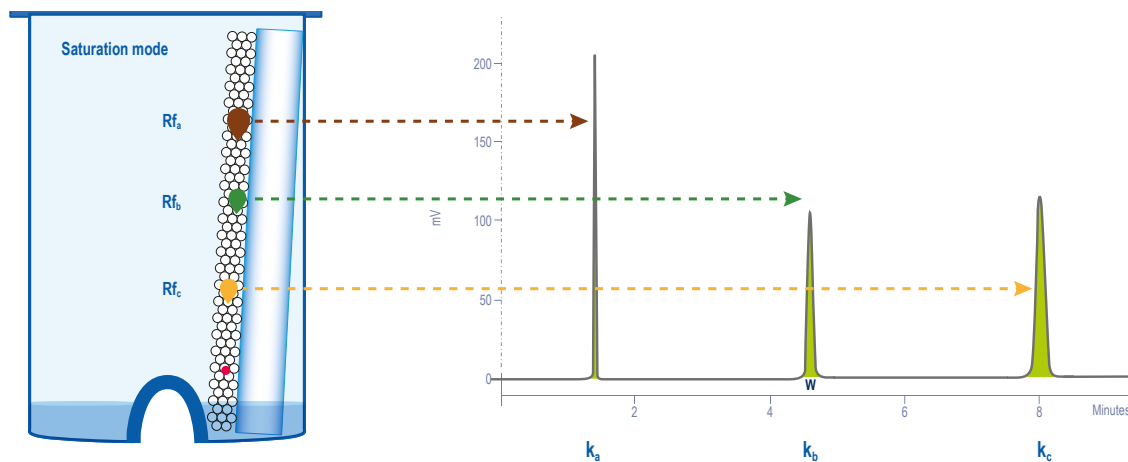
- Media of the two chromatographic modes must have the same surface chemistry.
- Plates or columns must be stored under the same conditions to ensure the same degree of humidity.

As it is never the case, transfer laws are a guide but never 100% reliable.

In chromatography, a mathematical relationship links the R_f to k and the needed mobile phase volume to elute the solute.

It is only valid for the same system:

- The same solute eluted at the same working temperature, by the same mobile phase, on the same stationary phase and with a saturation mode deposit (TLC)!



$$k = K_{tr} \times [1/R_f - 1]$$

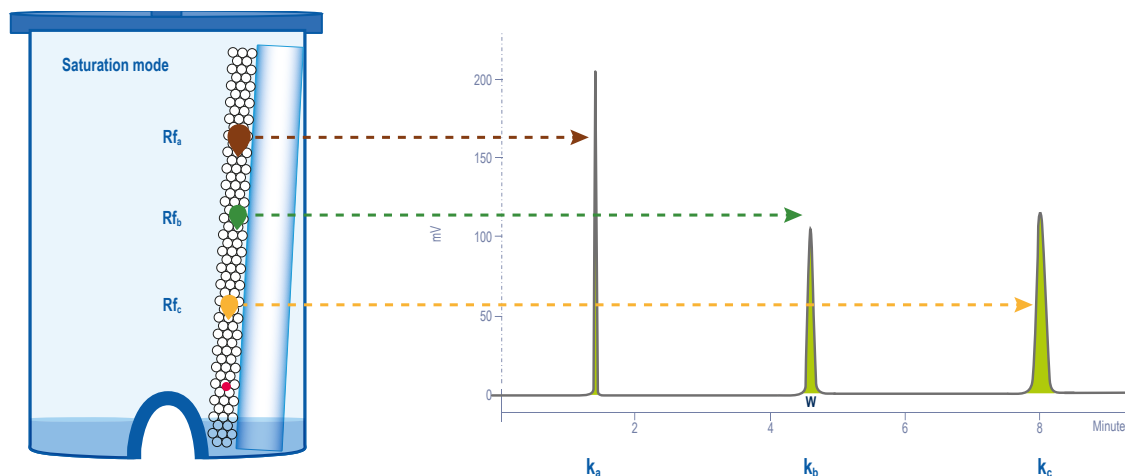
$K_{tr} \approx 1$ if medias are alike.

(what is actually not exactly the case between silica from TLC and HPLC due to the binder and other modifiers.)



Pragmatically, the chemist determines the amount of mobile phase necessary to elute the solute from the preparative column. To consider the different geometries of the preparative columns, this retention volume is expressed relative to the void volume of the column used.

It is a dimensionless number identified by the acronym V_s (also called CV).



$$V_r = V_0 \times [1 + k]$$

$$V_s = V_r / V_0 = 1/Rf = [1 + k]$$

V_s = mobile phase volume needed to elute a solute (expressed in V_0 units of the flash column).

• The R_f ratio does not correspond to the ratio of k

$$\text{if } K_r \approx 1 \quad \alpha = k_b / k_a = [1 - R_{fb} / 1 - R_{fa}] \times [R_{fa} / R_{fb}]$$

• The resolution R is maximum for $R_f = 0.3$

$$R_{TLC} = .(2) \left[\left(\frac{R_{fb} - R_{fa}}{\omega_B + \omega_A} \right) \right]$$

$$R_{TLC} = \left[\sqrt{\frac{N_A}{4}} \right] \left[\left(\frac{R_{fa} - R_{fb}}{R_{fb}} \right) \right] = \left[\sqrt{\frac{N_B}{4}} \right] \left[\left(\frac{R_{fa} - R_{fb}}{R_{fa}} \right) \right]$$

$$R_{TLC} = .(2) \left[\left(\frac{R_{fb} - R_{fa}}{\omega_B + \omega_A} \right) \right] \quad R_{flash} = .(2V_0) \left[\left(\frac{V_{SB} - V_{SA}}{\omega V_B + \omega V_A} \right) \right]$$

For the same ΔR_f :

1. the smaller the R_f s, the smaller the ω ,
2. the greater ΔV_s will be for the HPLC and flash, the higher the resolution will be in LC and flash.





Method transfer from TLC's to Purification

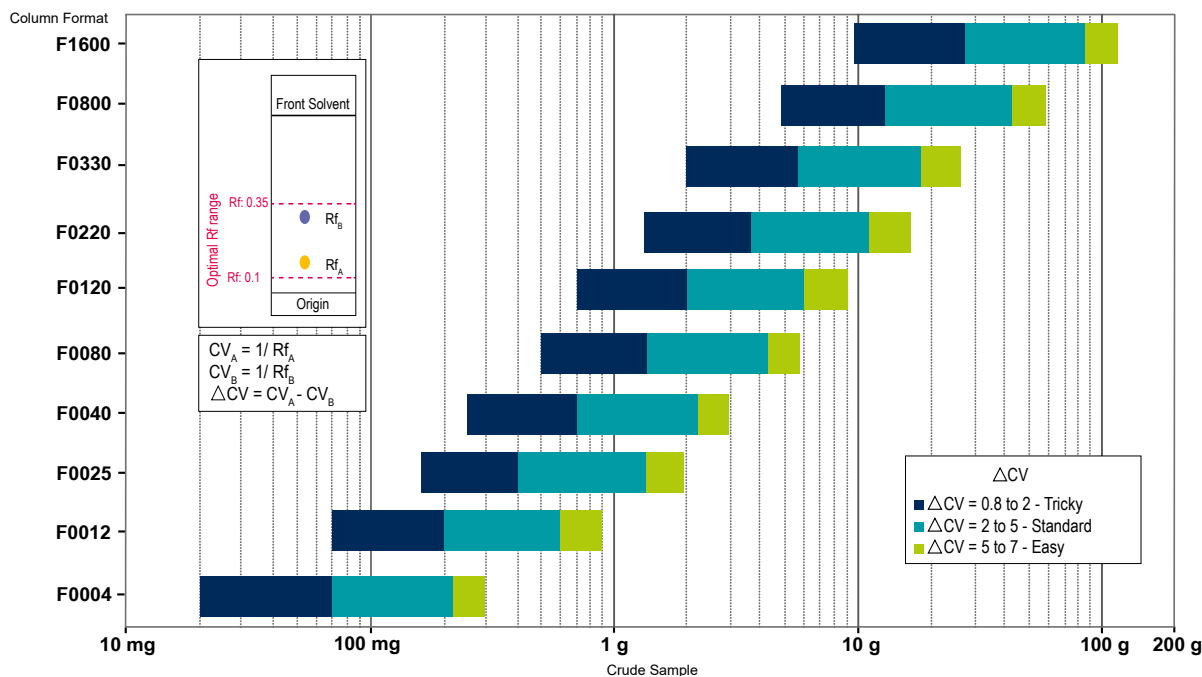
In practice, to transpose a TLC on a flash or a preparative column, algorithms calculate from the R_f on the plate the retention factors of the solutes on the column in isocratic elution condition.

The minimal Δk which means the least well separated pair of peaks, identical to the ΔV_s , evaluate whether the separation is easy or difficult.

| | |
|---------------------------|--------------------------|
| $\Delta V_s < 1.5$ | : difficult purification |
| $1.5 \leq \Delta V_s < 4$ | : standard purification |
| $4 \leq \Delta V_s < 10$ | : easy purification |

For the same Δk , the separation is not the same, as a function of the numerical value of k . Advion Interchim Scientific algorithms built-in the puriFlash® instrument automatically give the greater elution gradient program for each column from their V_0 .

NORMAL PHASE COLUMN SECTION GUIDE, LOADING CHART BASED ON 50 μm IRREGULAR SILICA (IR-50SI)

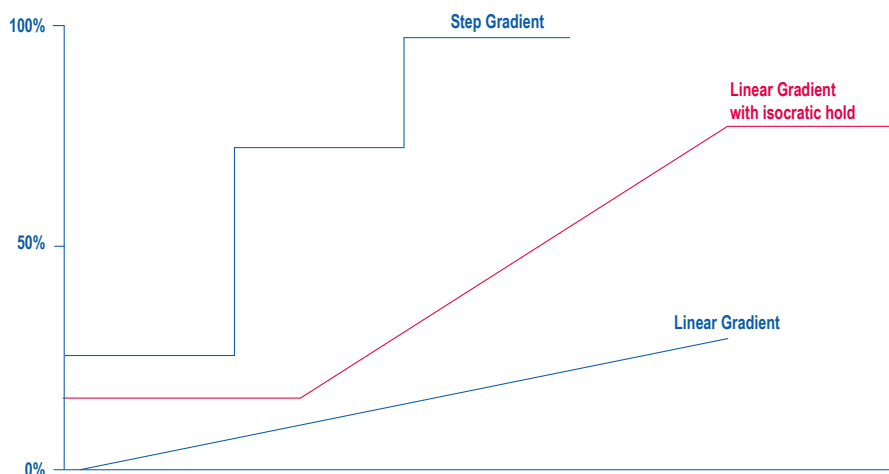


Average values for compounds < 800 MW
This data depends on the conditions of elution and the products to be purified.



Three different modes can be considered:

- Isocratic, Linear Gradient or Step Gradient plus a combination of Linear Gradient/Isocratic



Isocratic mode:

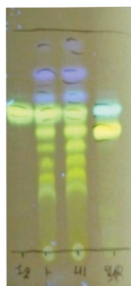
The mobile phase has the same composition throughout the entire purification run. Using an isocratic mode, TLC and flash operational conditions are directly correlated.

This mode is mainly used to purify compounds with $R_f > 0.15$ and $\Delta V_s > 1$. Compounds with $R_f < 0.15$ will elute the latest with broad peaks.

Example of Isocratic purification

1) TLC development:

Eluent:
50 Cyclohexane / 50 DCM



Optimization of TLC conditions to get R_f between 0.05 & 0.35

Eluent: 55 Cyclohexane / 45 DCM

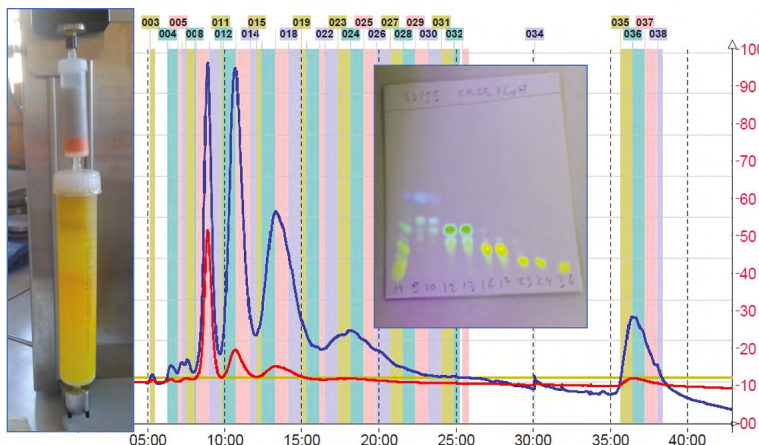


2) Choice of the column:

Crude sample: 800mg
(mixture of 8 compounds)
Column: PF-15SIHC/120g
Loading capacity: 0.6%

3) Flash condition:

Injection mode: Solid deposit with celite
Eluent: 55 Cyclohexane / 45 DCM
Flow rate: 60 mL/min
254 nm (red signal) + Scan : 230-450 nm (blue signal)
P= 12 bar





How to choose the right Gradient conditions in function of ΔV s

Gradient mode (Step, Linear, Linear with isocratic hold):

This mode improves the peak shape compared to the isocratic mode and reduces the total analysis time, which reduces the collection volume and the consumption of solvents.

The initial conditions of a gradient mode are deduced from the isocratic conditions found in TLC.

The % of initial strong solvent is a function of the chromatographic mode of the TLC (normal or reverse phase) and its value is determined according to the eluent force curves of the solvents used. The slope of the gradient plays a fundamental role, during the transposition.

An adapted slope will theoretically lead to improved separation with better selectivity, resolution, purity & loading capacity.

The CV calculated on the isocratic TLC is different to gradient elution mode on a flash column. During the purification, the solvent strength increases so compounds are eluted with a R_f lower than predicted in isocratic TLC. By this mode, compounds with long retention times will come out earlier, increasing the productivity.

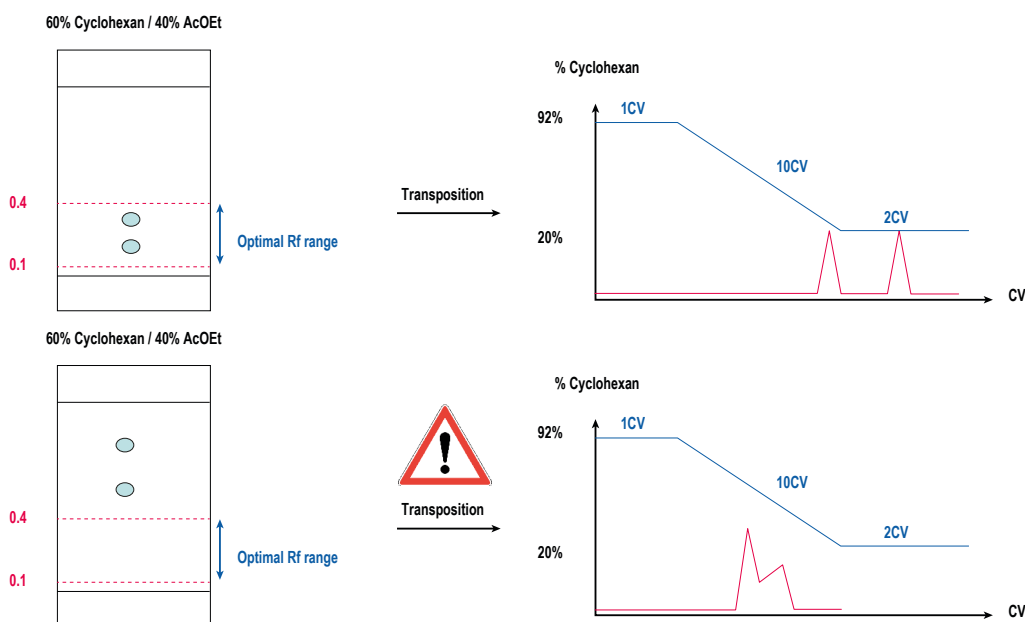
Linear Gradient + Isocratic hold:

This is the most used gradient mode in flash purification. A linear gradient is the fastest way to separate a complex mixture.

METHOD #1 IF ΔV s > 1

- Segment 1: 1/5 of the strong solvent of the TLC over 1VO
- Segment 2: from segment & over 10VO, reach 2x % of the strong solvent
- Segment 3: keep isocratic condition over 2VO

Example:



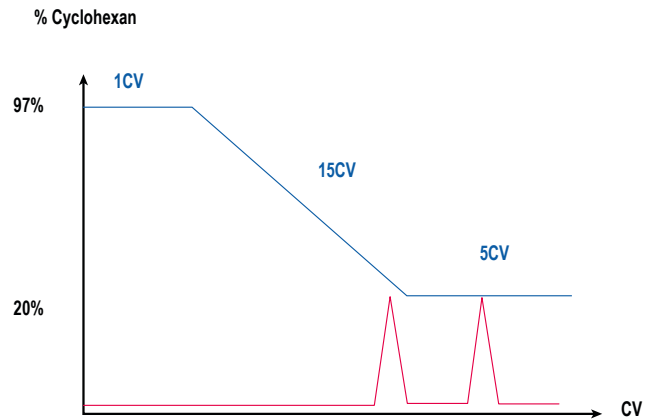
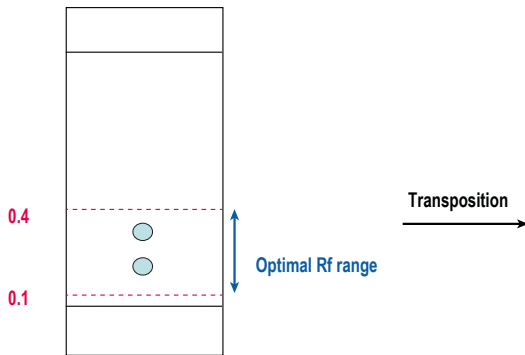


METHOD #2 IF $0.5 < \Delta VS \leq 1$

- Segment 1: 3% of strong solvent over 1V0
- Segment 2: from segment & over 20V0, reach 2x % of the strong solvent
- Segment 3: keep isocratic condition over 5V0

Example:

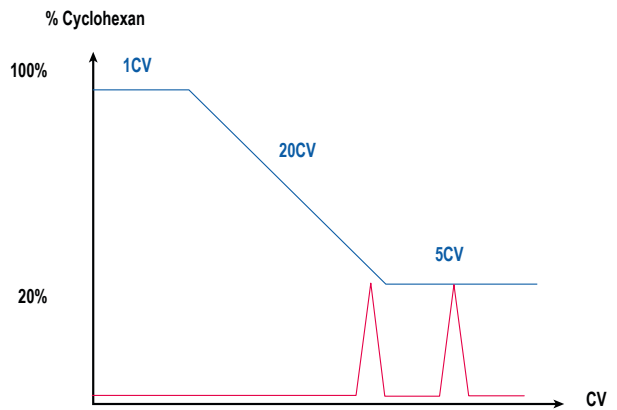
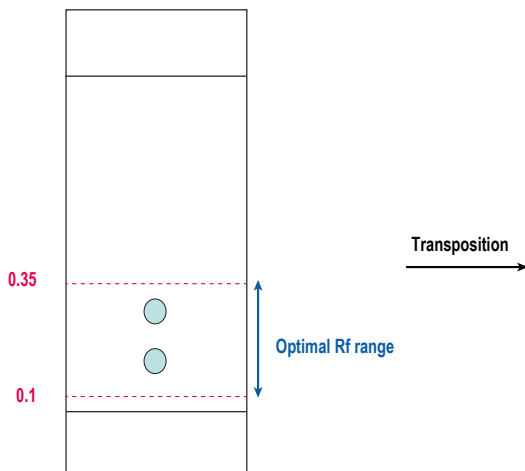
60% Cyclohexan / 40% AcOEt



METHOD #3 IF $\Delta VS < 0.5$

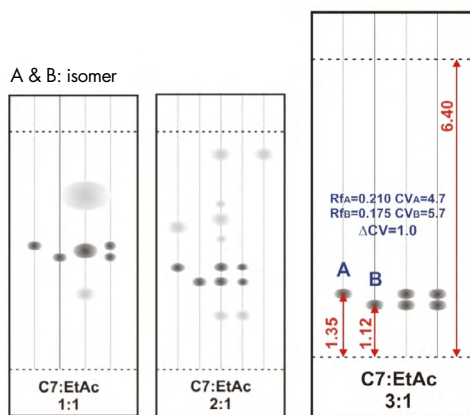
- Segment 1: 100% of weak solvent over 1V0
- Segment 2: from segment & over 25V0, reach 2x % of the strong solvent
- Segment 3: keep isocratic condition over 5V0

Example:



Method transfer from TLC's to Purification, Application example - AN#001

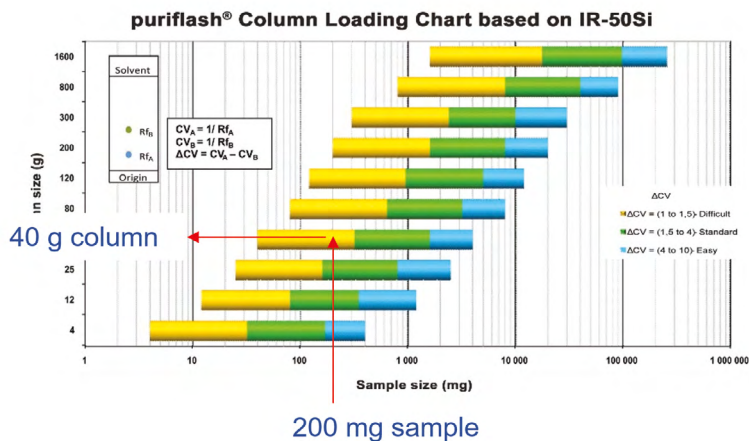
1) TLC Development



C7: Cyclohexane
EtOAc: Ethyl Acetate

2) Selection of column according to ΔCV mass of raw sample: 200 mg

We choose to stack 2 columns PF-15SIHP-F0025 to increase the height of the silica bed in order to obtain a better efficiency / separation rather than use a single column PF-15SIHP-F0040.



3) Flash condition on puriflash® 450

Solvents: A-Cyclohexane, B-Ethyl Acetate

Column: 2 x PF-15SIHP/25G

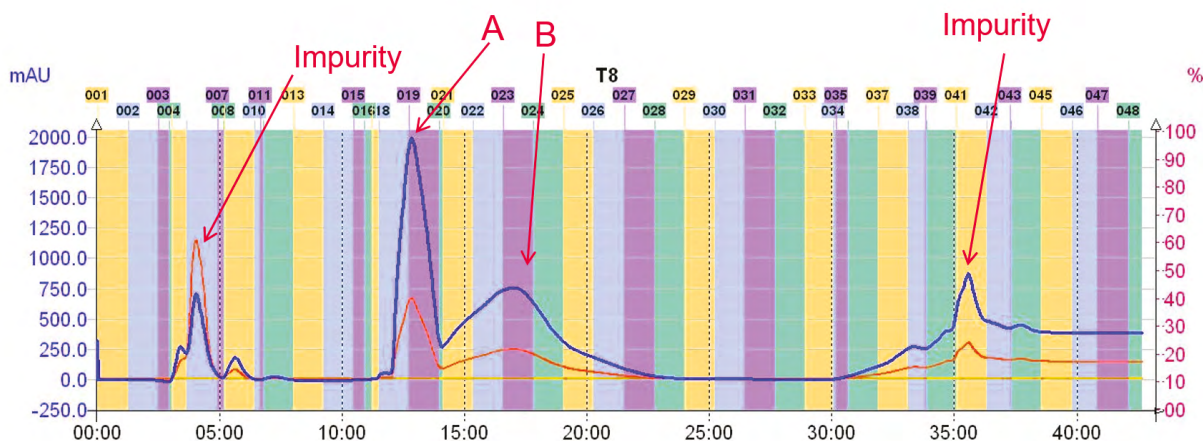
Flow rate: 20 mL / min

Mode of injection: Liquid Mass of crude sample: 200 mg

UV detector: 232 nm + Scan 220-600 nm

Elution Gradient:

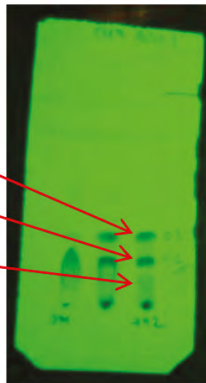
| t (min) | %A | %B |
|---------|----|----|
| 0 | 80 | 20 |
| 26 | 80 | 20 |
| 32 | 50 | 50 |
| 42 | 50 | 50 |



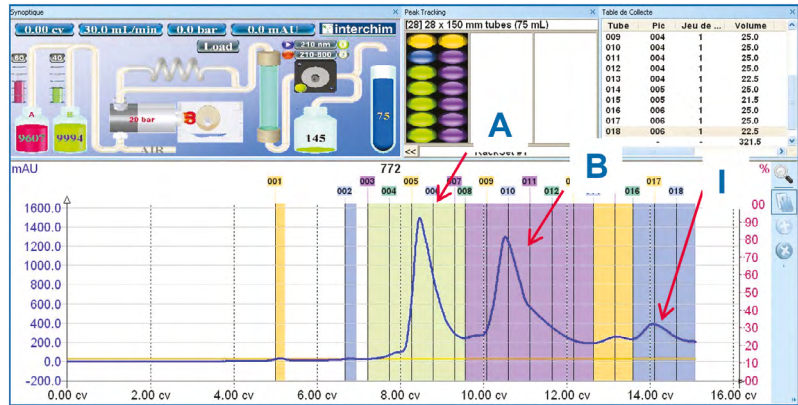


METHOD TRANSFER FROM TLC'S TO PURIFICATION, APPLICATION EXAMPLE - AN#002

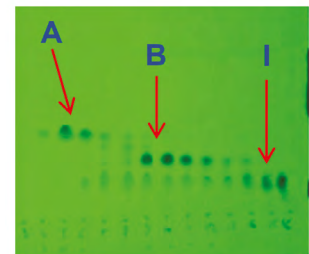
A) Cyclohexane 70%, B) AcOEt 30%
A and B: isomers



| CV | %A | %B |
|-------|-----|----|
| 0 | 100 | 0 |
| 5 | 80 | 20 |
| 10 | 70 | 30 |
| 14.25 | 40 | 60 |
| 15.08 | 5 | 95 |



Flash Condition on puriFlash® 450
Solid deposit (Dry-load 4 g)
Column: PF-15SIHP/40G
M inj = 1 g of crude sample
Flow rate: 30 mL/min
UV: 254 nm + Scan 210-600 nm
Solvent: A-Cyclohexane, B-AcOEt
P = 6 bar



Method transfer from (U)HPLC to Purification

1. Calculation of the essential analytical & preparative column parameters:

a) Dead volume $V_0 = \rho(D^2/4) \times L \times \epsilon$ - (ϵ : total column porosity, usually between 0.6 to 0.8)

b) Dead time $T_0 = V_0 / \text{opt.F}$ - (opt.F: Optimum flow rate depends on particle size and column I.D.)

Experimental method using Uracil, a non-retained compound, or NaNO_3 can be use for the determination of T_0 .



250 x 4.6 mm
 $V_0 = 2.90 \text{ mL}$
opt.F = 0.75 mL/min
 $T_0 = 3.87 \text{ min}$



250 x 10.0 mm
 $V_0 = 13.70 \text{ mL}$
opt.F = 3.50 mL/min
 $T_0 = 3.87 \text{ min}$



250 x 21.2 mm
 $V_0 = 61.70 \text{ mL}$
opt.F = 16.00 mL/min
 $T_0 = 3.87 \text{ min}$



250 x 30.0 mm
 $V_0 = 123.60 \text{ mL}$
opt.F = 32.00 mL/min
 $T_0 = 3.87 \text{ min}$



250 x 50.8 mm
 $V_0 = 354.50 \text{ mL}$
opt.F = 92.00 mL/min
 $T_0 = 3.87 \text{ min}$



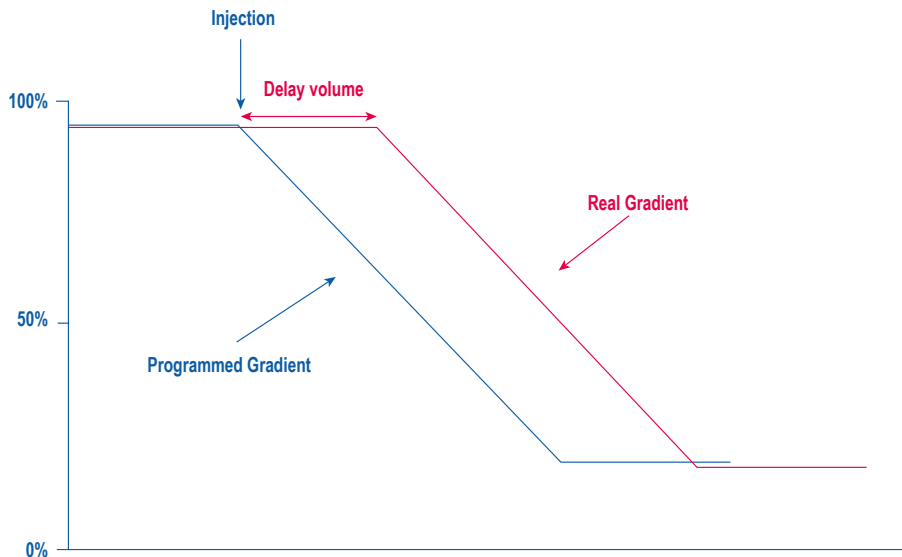


2. Calculation of the essential system parameters:

a) Delay volume

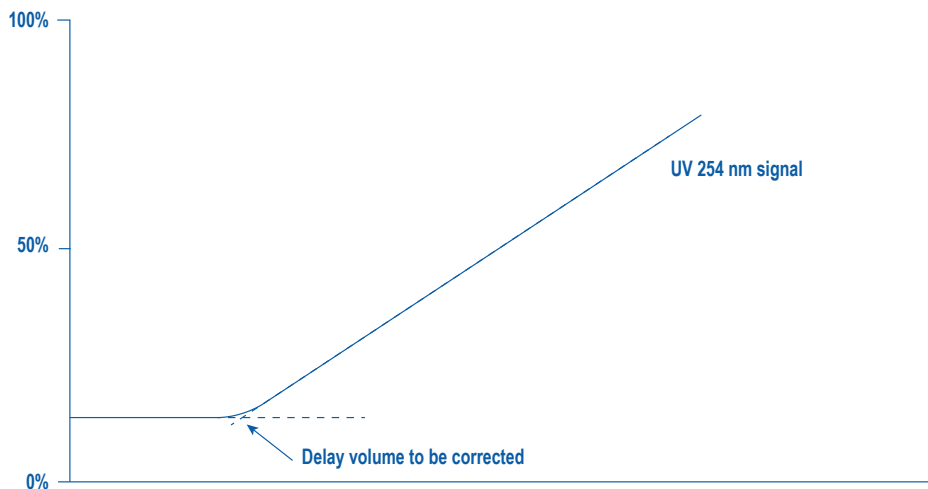
The delay volume is the time required for a change in the gradient composition to reach the column inlet.

Each instrument has its own delay volume. It can affect the results of the separation especially in terms of selectivity. It is crucial to know its value to achieve an efficient method transfer. Usually, for a preparative system, delay volume is > 10 mL.



b) Experimental measurement of the dead volume for an instrument

- Replace the column by a union
- Program a 0-100% B gradient in $\sim 10 T_0$ using (acetonitrile + 0.1% acetone) in solvent B
- Work at the flow rate at which subsequent experiments will be done
- Record the UV signal at 254 nm





3. Calculation of the preparative conditions

First of all, we calculate conditions based on a direct scale-up.

Therefore, it is important between the analytical and preparative mode that:

- a) The mobile phase (nature of the organic solvent, % organic solvent, pH, ionic strength, modifiers & temperature) and the stationary phase remain exactly the same.
- b) To keep same efficiency $N = L / (h \times dp)$ - (L: column length, h: constant (depends on the quality of column filling, mobile phase flow and can also be negatively influenced by large volumes injected), dp: particle diameter).
The ratio L / dp must be maintained constant.
- c) The linear velocity (u) must be maintained constant and adjusted according to the diameter of the column.
Typically, for a 4.6 mm id column at the optimum flow rate of 0.75 mL/min the linear velocity is 1.07 mm/s.
The same linear velocity for a 30.0 mm id column is obtained at a flow rate of 32.0 mL/min.

4. Calculation of the preparative conditions:

a) Flow rate (F)

It must be adjusted by keeping the linear velocity constant between the analytical and the transferred preparative method, taking into account the particle size and the geometry of the column.

$$F_{\text{prep}} = F_{\text{ana}} \times \left(\frac{id_{\text{prep}}^2}{id_{\text{ana}}^2} \right) \times \left(\frac{d_{p \text{ ana}}}{d_{p \text{ prep}}} \right)$$

Example:

$$F_{\text{prep}} = 0.75 \times \left(\frac{30.0^2}{4.6^2} \right) \times \left(\frac{5}{15} \right) = 11.0 \text{ mL/min}$$



5 µm, 250 x 4.6 mm
opt.F = 0.75 mL/min



15 µm, 250 x 30.0 mm
F = 11.0 mL/min



b) Injected volume (V)

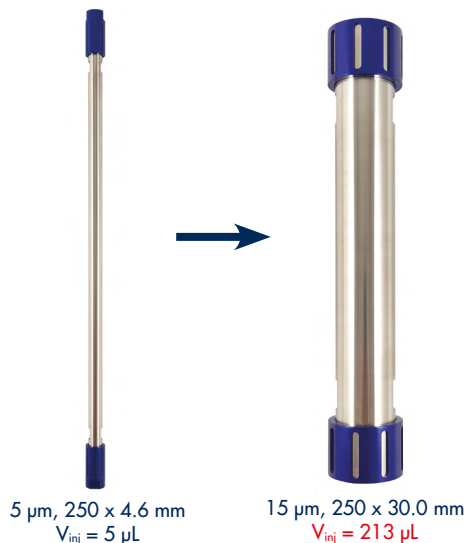
It must be adapted according to the volume of the phases to obtain the same chromatographic efficiencies.

The injected volumes are usually higher than those at the analytical scale to increase the loading capacity. Under overloading conditions, asymmetric peaks and a change in retention times are observed.

$$V_{\text{prep}} = V_{\text{ana}} \times \left(\frac{id_{\text{prep}}^2}{id_{\text{ana}}^2} \right) \times \left(\frac{L_{\text{prep}}}{L_{\text{ana}}} \right)$$

Example:

$$V_{\text{prep}} = 5 \times \left(\frac{30.0^2}{4.6^2} \right) \times \left(\frac{250}{250} \right) = 213 \mu\text{L}$$



c) Gradient conditions, isocratic step

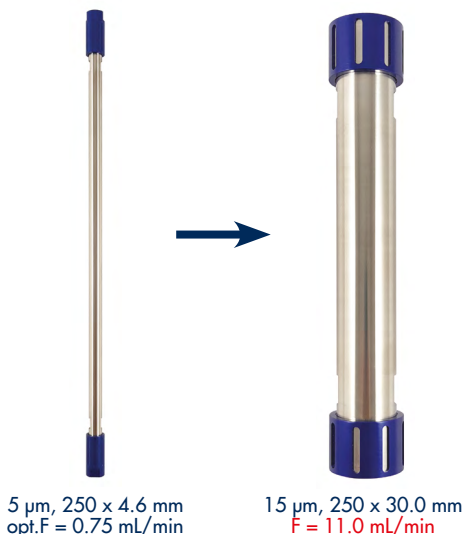
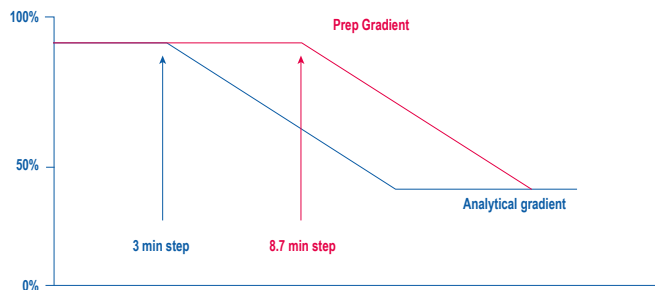
It is necessary to keep the ratio isocratic time / dead time of the column constant in analytical / preparative to keep a number of percolated column volumes equivalent.

$$T_{\text{prep}} = T_{\text{ana}} \times \left(\frac{id_{\text{prep}}^2}{id_{\text{ana}}^2} \right) \times \left(\frac{L_{\text{prep}}}{L_{\text{ana}}} \right) \times \left(\frac{F_{\text{ana}}}{F_{\text{prep}}} \right)$$

T = time of the isocratic step

Example:

$$T_{\text{prep}} = 3 \times \left(\frac{30.0^2}{4.6^2} \right) \times \left(\frac{250}{250} \right) \times \left(\frac{0.75}{11} \right) = 8.7 \text{ mL/min}$$





d) Gradient conditions, gradient slope

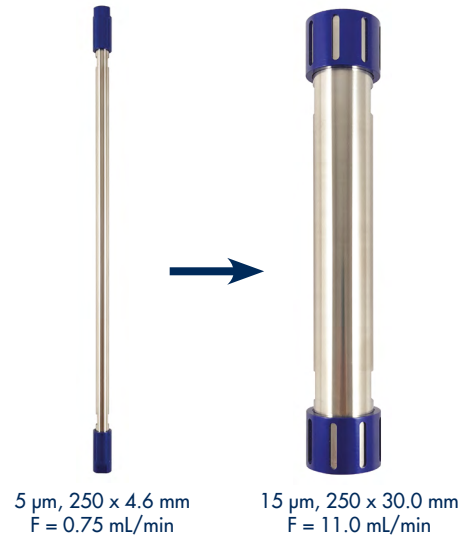
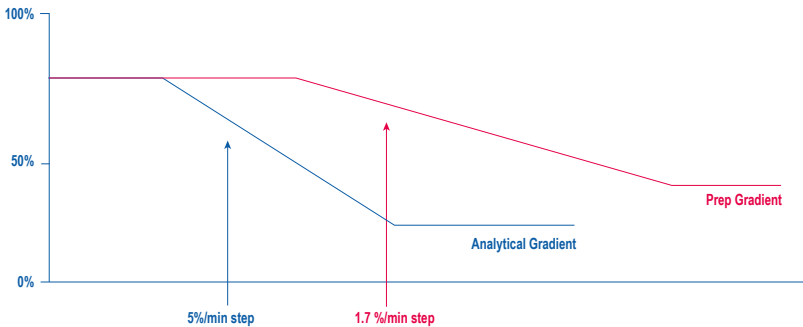
The initial and final compositions must remain the same during the transfer.
The new gradient slope is calculated by keeping the product (slope x dead time) constant to keep the number of column volumes constant.

$$S_{\text{prep}} = S_{\text{ana}} \times \left(\frac{id_{\text{ana}}^2}{id_{\text{prep}}^2} \right) \times \left(\frac{L_{\text{ana}}}{L_{\text{prep}}} \right) \times \left(\frac{F_{\text{prep}}}{F_{\text{ana}}} \right)$$

S = slope of the gradient

Example:

$$S_{\text{prep}} = 5\%/min \times \left(\frac{4.6^2}{30.0^2} \right) \times \left(\frac{250}{250} \right) \times \left(\frac{11}{0.75} \right) = 1.7\%/min$$



e) Gradient conditions, gradient slope time.

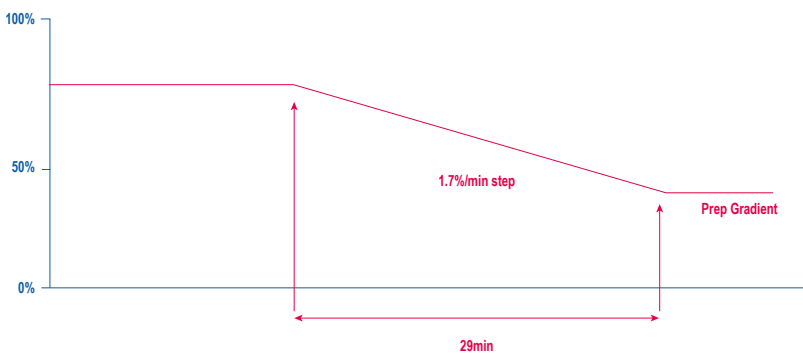
The initial and final compositions must remain the same during the transfer.
The new gradient slope is calculated by keeping the product (slope x dead time) constant to keep the number of column volumes constant.

$$T_{\text{prep}} = \left(\frac{\%B_{\text{final ana}} - \%B_{\text{initial ana}}}{S_{\text{prep}}} \right)$$

T = time of the gradient slope

Example:

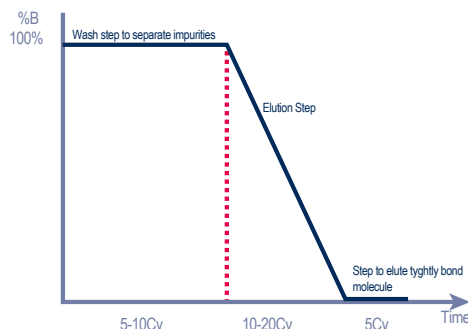
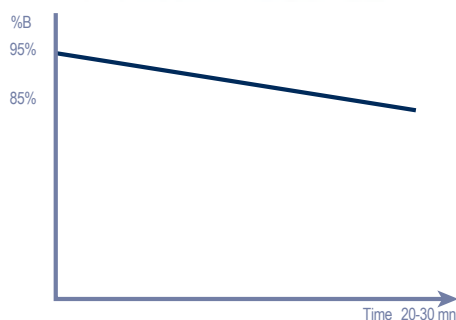
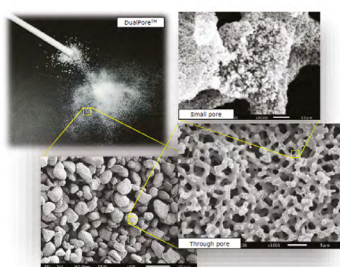
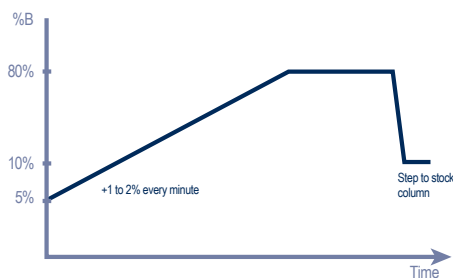
$$T_{\text{prep}} = \left(\frac{75 - 25}{1.7} \right) = 29 \text{ min}$$



f) Gradient conditions, additional comments

- The column reconditioning step generally consists of a rapid return to initial conditions and stabilization for about 5 to 10 column volumes.
- The delay volume creates an isocratic step at the beginning of the analytical and preparative gradient. The ratio between the delay time (Td) and the dead time of the column (TO) must remain constant, with same number of percolated column volumes during the delay time. To compensate for the differences of Td and TO it is recommended to reduce an existing isocratic plateau or to add an additional isocratic step.
- The analysis time is proportional to the dead time of the column. The pressure is inversely proportional to dp³ and to the length of the column. The solvent consumption is proportional to the internal diameter and the length of the column.





Reverse Phase mode

Interactions between stationary phase and hydrophobic parts of the peptide. Use C18 (-N or -T) or C8-N column according to polarity and length of the peptides.

Solvents are often Water+ACN+0.1%TFA (to modify selectivity, it's also possible to use methanol, and isopropanol for hydrophobic peptides).

Typical process: Increase % of organic solvent of 1 - 2% every minute. To increase the resolution, a second isocratic step can be done when the peptide of interest is eluted.

Optimization parameters: Temperature, isocratic gradient, change of media (C8, PhC4, C4), porosity (100, 200, 300 Å), modify pH.

Benefit of Advion Interchim Scientific peptides monolith

Is C18 bounded, and can be used as a conventional Reverse Phase.

- Selectivity is comparable to conventional silica
- Works for small and large molecules
- Lower generation of back pressure, allow to use high viscosity solvent like isopropanol
- High resolution, 30 μm DualPore™ columns provide comparable resolution over 15 μm conventional silica
- Can work at higher flow rate and save up to 80% time => Ultra High throughput

HILIC mode

Used for the separation of highly polar peptides. Use C18-N or C8-N columns according to length of the peptides.

Solvents are the same unlike in RP mode, and in this case, water is the strong solvent.

Typical process: Start method with 95% of organic solvent to 85% in few minutes.

Optimization parameters: temperature, isocratic step, change of media (C8, PhC4, C4), porosity (100,200,300 Å) modify pH.

HIC mode

Hydrophobic interactions between solutes and a stationary phase with low or medium hydrophobicity. The separation is based on the reversible interaction between a peptide and the hydrophobic surface of a chromatographic media. Use 45-RP column.

Solvents are often a solution of Na_2HPO_4 + 1-4M of antichaotropic salt (Ammonium sulfate, NaCl, Na_2SO_4 ...).

Typical process: Start with buffer solution of 1.5-4M (Na_2HPO_4) + ammonium sulfate, and decrease the concentration of ammonium sulfate.

Optimization parameters: Salt concentration, try other salts, modify pH, test other columns (C8, C4...).

See all stationary phases for peptides method development & purification.



Dry-Load Injection

The dry-load injection is a convenient technique when the polarity of the reaction mixture or extraction is close to the polarity of the stationary phase or, when it contains solutes with extreme opposite polarity.

It should also be consider when:

- The compound of interest is retained more than the other compounds we want to separate.
- The sample contains one or several compounds having low solubility with the eluent.

Compared to liquid injection, the dry-load injection improves efficiency, resolution and final purity.

Sample in solution


Injection Loop



Limited injection volume due to sample solubility


SOLID SAMPLE

Dry injection




Allow to large sample amounts

→



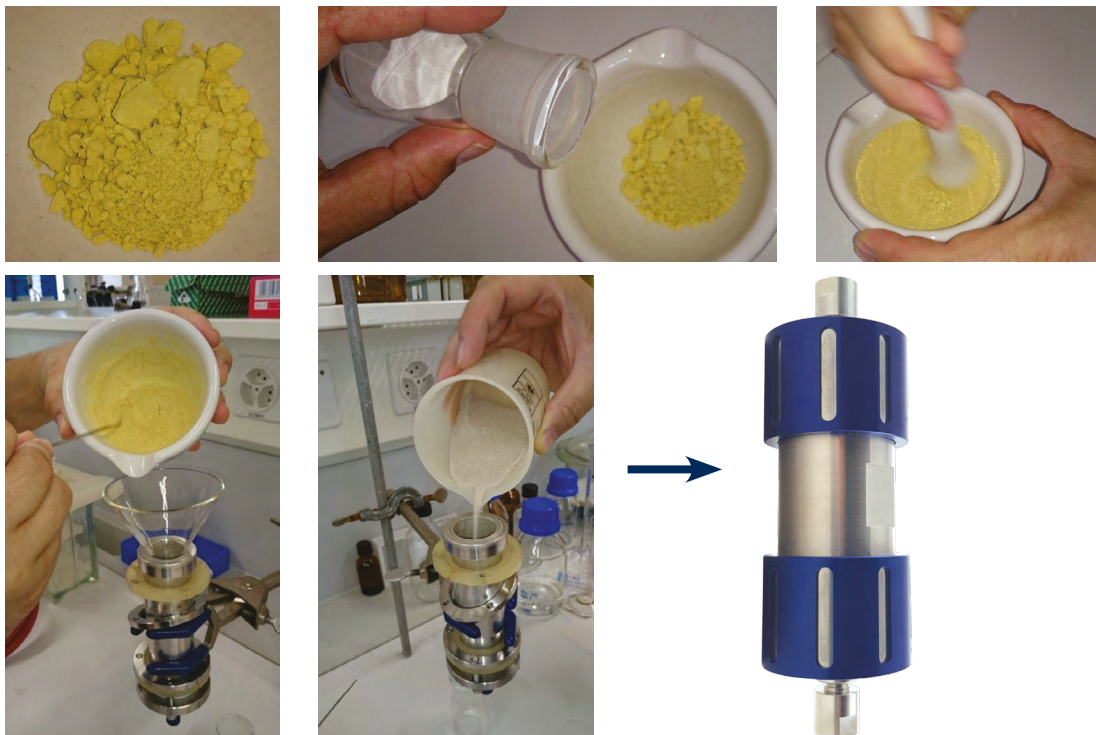
High pressure dry-load







How to prepare the Dry-load cell for injection



1. Adsorb the dissolved sample in the "better solvent" on a small amount of stationary phase (Silica, C18 or Celite).
2. Evaporate the solvent with a rotary evaporator until a "dry" powder is obtained. Note: If the volume of the dissolved sample is small, it can be poured onto the silica, and the partially impregnated silica mixed up to obtain a homogeneous dry powder, thus avoiding the passage to the rotary evaporator.
4. Place the mixture over the inlet frit of the column, once it has possibly been equilibrated with the elution solvent.
5. Add a sintered frit over the mixture, then a closure system or the piston of the column (for equipped systems) and slightly tamp the mixture to obtain a perfectly homogeneous deposit thickness.
6. Proceed with elution.

TECHNICAL TIP

The volume of the dry-load must not exceed 5% to 10% of the purification column volume to keep sufficient resolution between fractions.

If possible, wet the dry-load with 100% of the less eluent solvent before to start the purification run.

Caution: Adapt your step in function of the back pressure and the acceptable flow rate.

The dry-load can generate air bubbles creating disruptions that hide the first peaks. (UV detector)

Celite exhibit advantages:

- It does not generate back pressure due to its large particle size
- It does not interact with the compounds that arrive at the same time at the top of the column
- It improves separation and is compatible with both NP and RP mode



This technique allows the crude sample to dissolve in minimum solvent to prevent peaks from broadening (dispersion phenomenon). The solvent which has the weakest affinity with the crude sample must be used (Ex: Cyclohexane for normal phase purification and water for reversed phase purification).

If you do a liquid injection, check that the sample is soluble at the starting condition of the run otherwise a crystallization can occur. A strong dissolving solvent can impact the resolution. To avoid the loss of resolution, Advion Interchim Scientific advises to dissolve the crude sample at the starting condition of the run.

The dissolving solvents have an impact on the quality of the purification. The dispersion of the crude sample by the dissolving solvent decreases the peak resolution. The volume of the dissolving solvent must be less than 5% of the column volume to preserve the resolution.

Different injection modes



Direct injection
on column head



Injection with an
automatic valve



Injection pump



Autosampler

- Injection on a dry column without preliminary equilibration.
- Injection on a pre-conditioned column. This method gives the best results because the column absorbent offers a regular flow and the sample moves along with the solvent flow in the column.

This injection mode allows the purification of compounds with high R_f values: $R_f < 0.7$. You can directly work with the optimum flow rate.

- Direct injection on column head: the use of a Luer-Lock connector at column inlet allows use of a syringe and rapid sample injection without any cross contamination risk or product loss.
- Injection with an external pump for larger volume.
- Injection with an autosampler for automated multi-injections and purifications.
- Injection with an automatic valve: this method improves the reproducibility of the injections, increases productivity and is less time consuming.

Injection methods in Flash purification - Liquid Injection



Injection with a 6-way 2 position automatic valve

When the valve is at position A, the sample is loaded into the loop from the injection port while the mobile phase directly flows through to the column. When the valve switched to position B, the sample in the sample loop is flushed by the mobile phase and carried onto the column. The flow direction of the mobile phase through the loop is opposite to the flow direction during the loading. This is especially critical for partial-loop injection to avoid sample dilution.

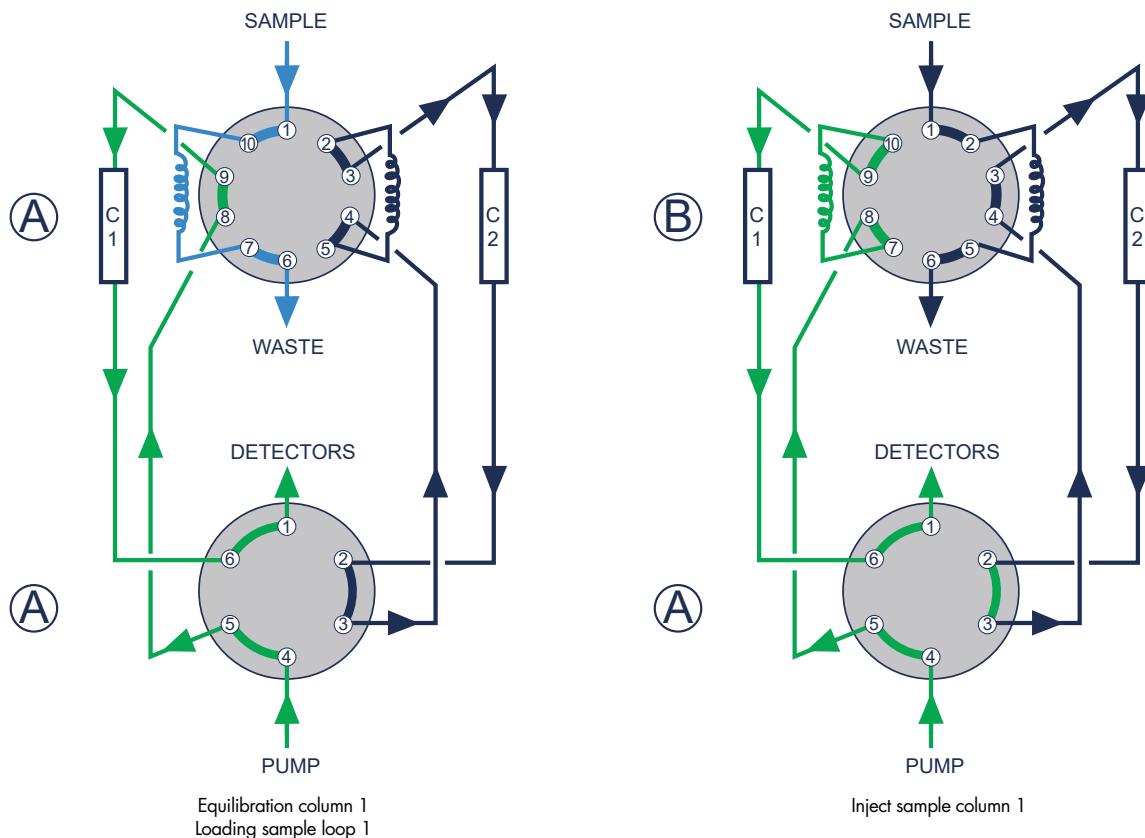


Injection with a 10-way 2 position automatic valve on 2 different columns

With this coupling of two valves (10-way -2 position valve and switching valve) creating 2 independent fluidic lines, each of the two columns is linked to its own loop.

When valve 1 is in position A and valve 2 in position A, the sample is loaded into loop 1 from the injection port while the mobile phase directly flows through to column 1.

After the column equilibration the valve 2 switch to position B. The sample in loop 1 is flushed by the mobile phase and carried onto column 1.

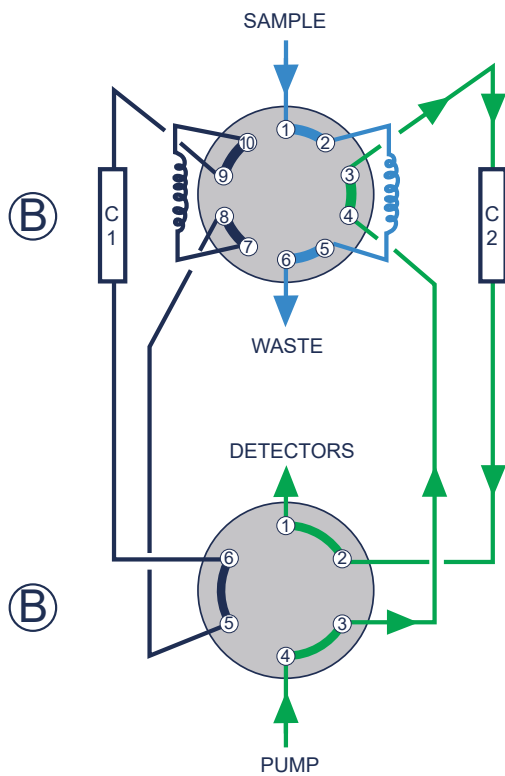




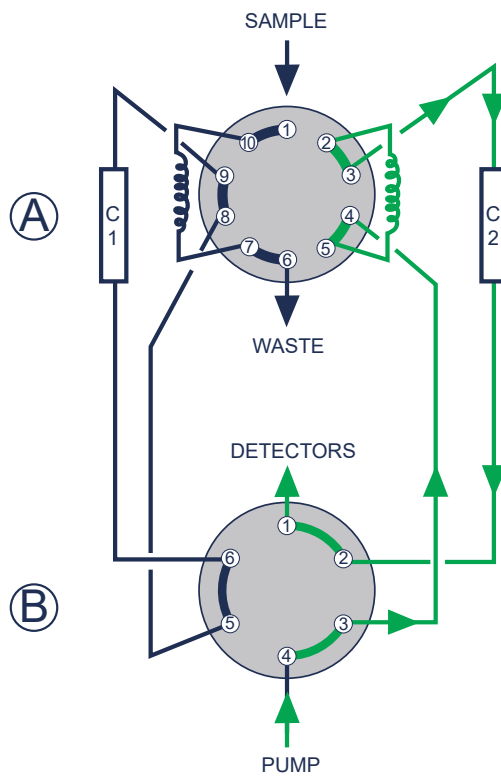
Injection with a 10-way 2 position automatic valve on two different columns

At the opposite, when valve 1 is in position B and valve 2 is in position B, the sample is loaded into loop 2 from the injection port, while the mobile phase directly flows through column 2.

After the column equilibration, valve 2 toggles to position A. The sample in loop 2 is flushed by the mobile phase and carried onto column 2.



Equilibration column 2
Loading sample loop 2



Inject sample column 2

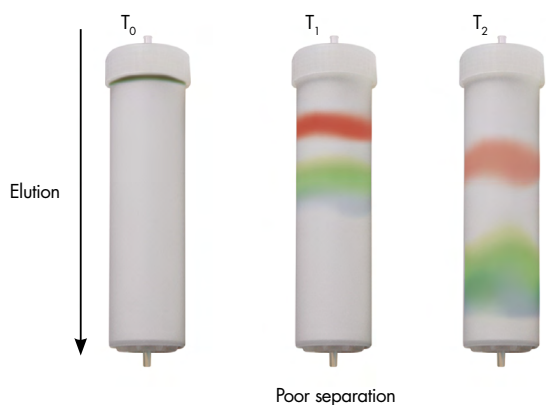


Injection methods in Flash purification - Examples

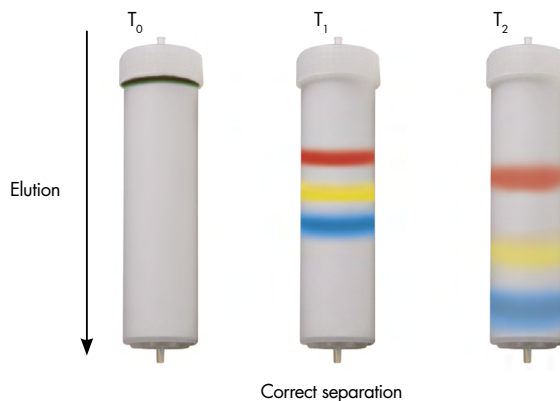


Injection example 1: Liquid deposit

Liquid deposit on dry columns
Starting condition to eluent (20% strong solvent)

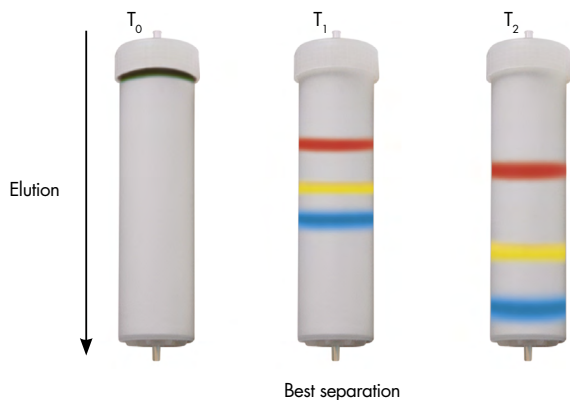


Liquid deposit on pre-conditioned columns with the same starting eluent condition



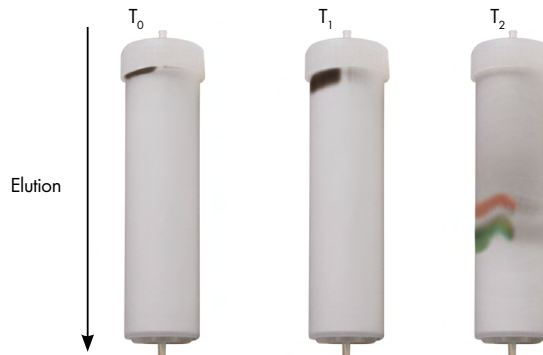
Injection example 2: Liquid injection

Liquid injection with syringe on pre-conditioned column
(same starting eluent condition as example 1)



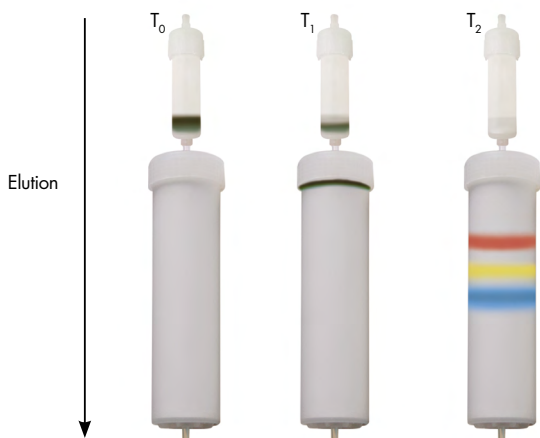
Injection example 3: Liquid injection on dry column

System not cleaned with starting eluent condition

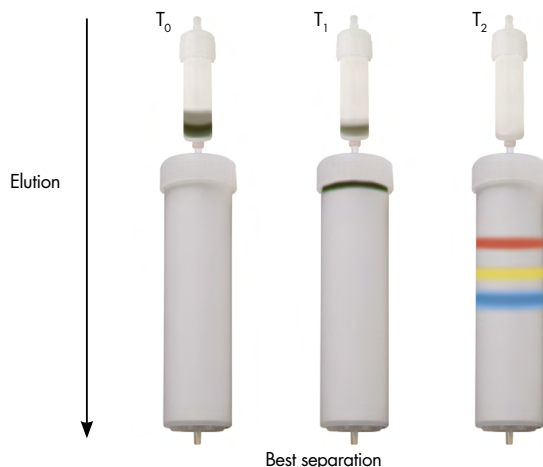


Injection example 4: Dry-load injection on pre-conditioned column

Dry-load equilibration with 20% of strong solvent



Dry-load equilibration with 100% of weak solvent

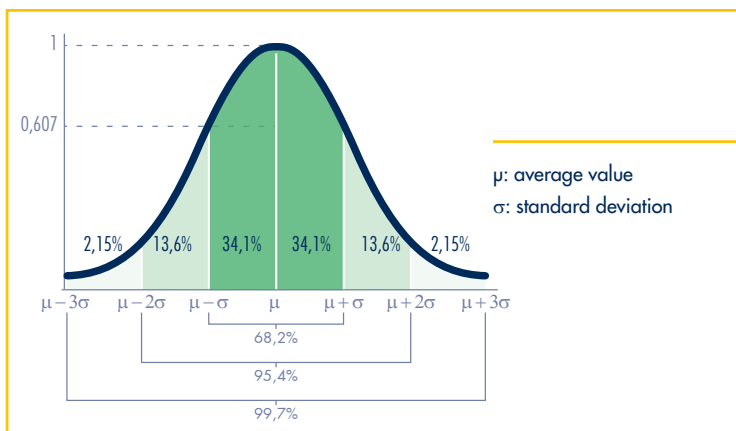




Peak shape

A peak can be assimilated to a Laplace Gauss curve with different amounts of species (percentage of the surface) according to the standard deviation of this function.

As the goal is to get a full separation of different molecules we can easily guess that the more the peaks are separated, the more the compounds are pure.

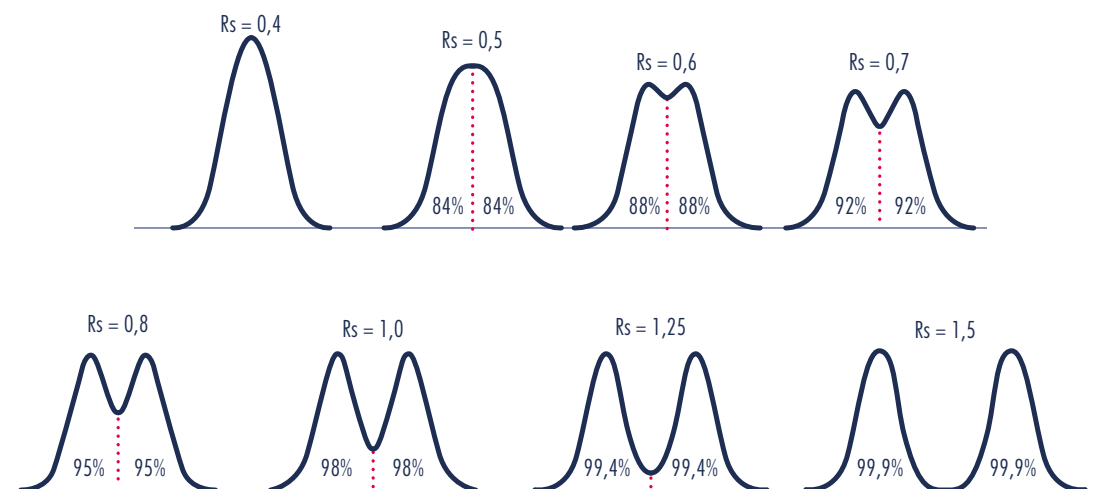


Peak separation

Some parameters must be enhanced to reach the best compromise between elution time (quantity of solvent) and separation (resolution).

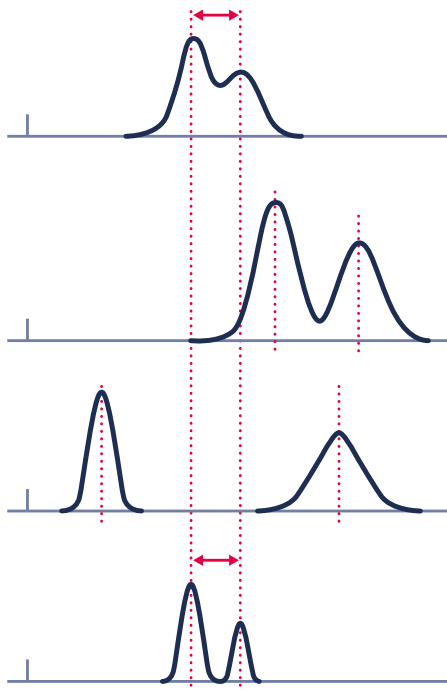
These parameters interact, leading to a measurable separation in terms of resolution R_s .

DIFFERENT RESOLUTION VALUES CORRELATED TO THE PEAKS SEPARATION.





Peak separation



← Separation estimated by selectivity α (LC) or ΔR_f (TLC)

Large diameter of particles
Overlapped peaks
How to improve ?

- Decrease solvent strength to increase retention time
 - Use more packing material (size of the column)
 - Try a new packing material
-
- Improve selectivity by suitable choice of conditions (gradient, proportion or nature of solvents).
-
- Increase efficiency (plate number N)
 (smaller column-packing particles)

SEPARATION PARAMETERS

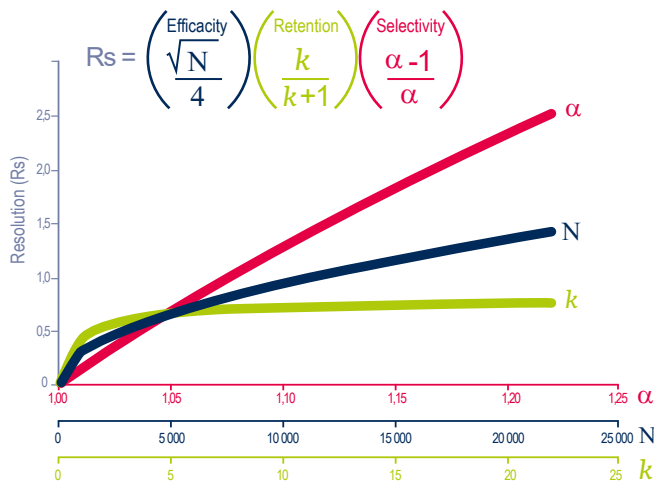
The 3 main parameters ruling the chromatographic technique are:

Efficiency (plates number) : N

Retention factor : k

Selectivity : α

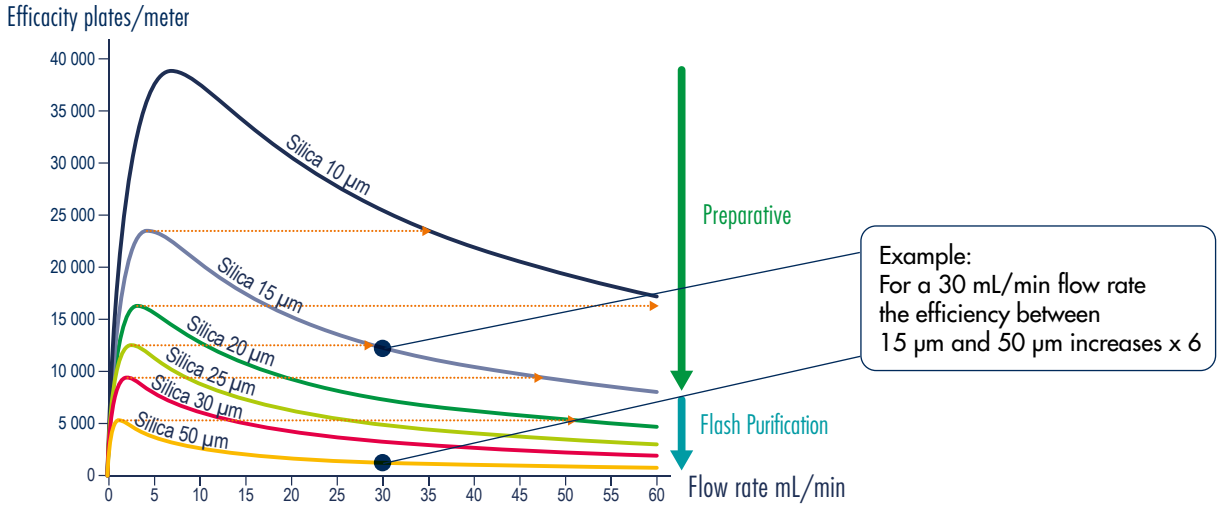
Their relative influence on resolution is shown in the diagram.





EFFICIENCY (N) INFLUENCE

The efficiency parameter (N) is usually the first one that many operators want to change. We must consider that only the square root of this value influences the resolution. However, as shown in the diagram, smaller particle size strongly impacts the resolution.



Efficiency (N) influence: Example

The application below highlights the benefit of smaller particle sizes in terms of resolution and purification cost. High efficiency (N) is giving better separation and allows a large increase of sample loading capacity.

PF-15SIHP vs IR-50SI columns

The Ultra Performance Flash Purification (UPFP) concept accelerates throughput by reducing the time and cost per sample of the purification process with increased confidence. The most significant difference in UPFP versus Flash purification is the combination of advanced "built to last" machine technology and mastery of small particles spherical silica puriFlash® columns which offers significant benefits over the traditional flash grade silica.

Conditions:
Device: puriFlash® 450
Solvents: A-Cyclohexane, B-Ethyl acetate
Injection Mode: Liquid injection
Crude sample mixture: 400 mg of each Phthalate
Injection volume: 3.2 mL
UV Detection: 254 nm
Eluent conditions:

IR-50SI-F0080

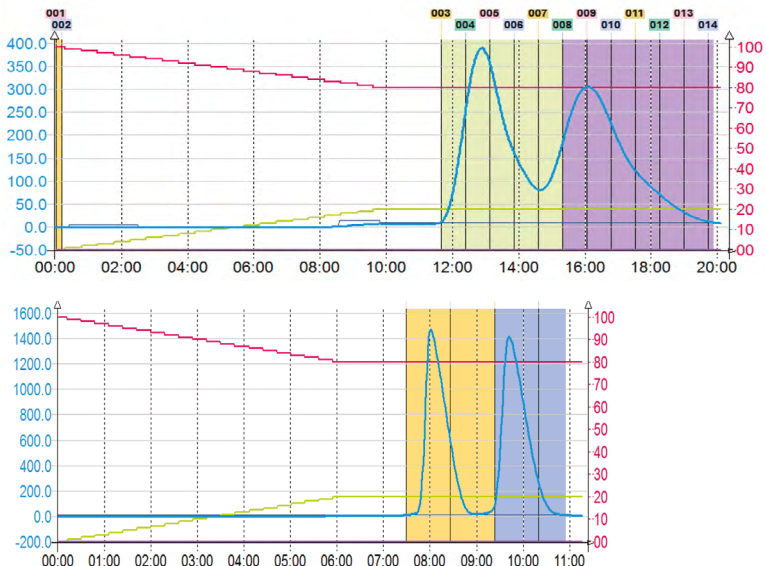
| Step | CV | Time | %A | %B |
|------|------|-------|-----|----|
| 1 | 0 | 0 | 100 | 0 |
| 2 | 3.28 | 09:50 | 80 | 20 |
| 3 | 5.63 | 16:51 | 80 | 20 |

Loading capacity: 1%

PF-15SIHP-F0040

| Step | CV | Time | %A | %B |
|------|------|-------|-----|----|
| 1 | 0 | 0 | 100 | 0 |
| 2 | 3.28 | 06:03 | 80 | 20 |
| 3 | 5.63 | 10:21 | 80 | 20 |

Loading capacity: 2%





Purification cost PF-15SIHP vs IR-50SI columns

| Flash column | IR-50SI | PF-15SIHP |
|---|---------------|---------------|
| Qty of silica per column | 80 g | 40 g |
| Silica Ratio | | 50% less |
| Flow rate | 34 mL/min | 26 mL/min |
| Cyclohexane consumption (equilibration & run time) | 1032 mL | 418 mL |
| Ethyl Acetate consumption (run time) | 94 mL | 40 mL |
| Total volume | 1126 mL | 458 mL |
| Consumption Ratio | | 59% less |
| Total Purification time | 20 min | 11 min |
| Time Saving | | 45% |
| Labor time: Edit method | 5 min | 5 min |
| Labor time: Analysis & Collection of collected fraction | 25 min | 9 min |
| Total Labor time | 30 min | 14 min |
| Time Improvement | | 114% |
| Column Cost (Cat. price) | 15.10€ | 35.17€ |
| Solvent Cost | 27.66€ | 11.24€ |
| Labor Cost | 37.50€ | 17.50€ |
| Waste recycling (Solvent & Column) | 0.466€ | 0.232€ |
| Total Cost of Purification per run | 80.73€ | 64.14€ |
| Cost Saving | | 26% |

- Cyclohexane 1L price (Cat. price): 25.10€
- Ethyl Acetate 1L price (Cat. price): 18.70€
- Labor cost per hour: 75€
- Solvent recycling without halogen compound (Cat. price): 0,00035€/mL
- Silica columns recycling (Cat. price): 0,0009€/mL

CONCLUSION :

A 1.5µSIHP-FO040 column gives a better result with greater resolution, efficiency, loading capacity and improved retention versus a IR-50SI column. Using a 1.5µSIHP, reduces run time by 45%, improves time for purification by 114%, reduces the solvent consumption by 59% and improves cost reduction for purification by 26%. Lower collection volume means reduced evaporation time.

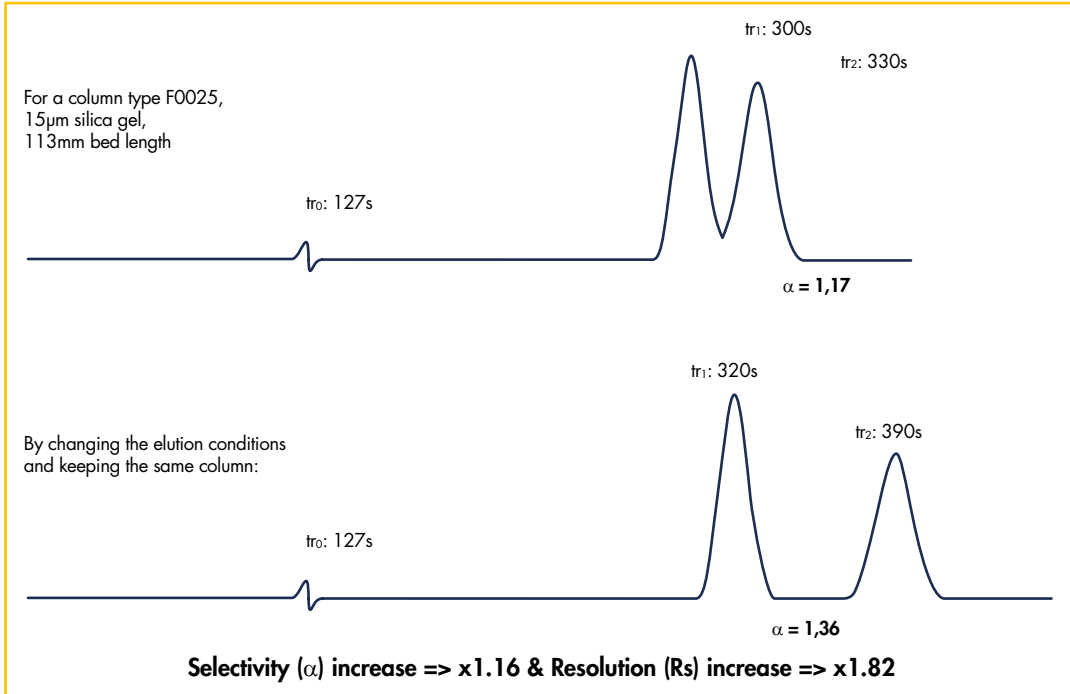
If the sufficient selectivity is reached, the 1.5µSIHP allows to achieve greater fraction purity. The best ratio cost/productivity is obtained with 1.5µm silica.



Selectivity (α) influence

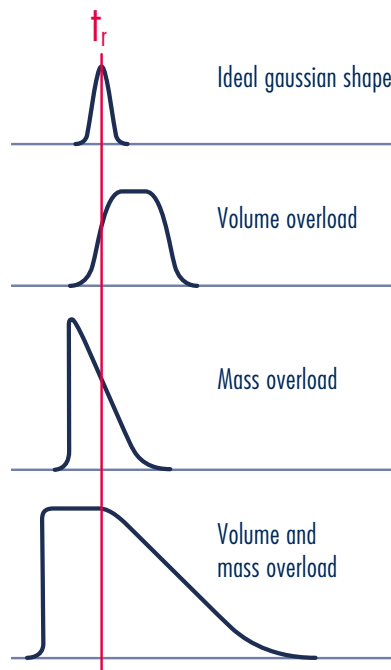
Selectivity (α) is an important parameter, resulting from the interaction of compounds with the stationary and mobile phases. The goal is to find the best elution conditions providing highly differentiated retention times.

It is a ratio between the K value of two compounds, thus, directly related to their own retention time. $\alpha = K_2/K_1$



Loading capacity

The loading capacity of a column also has a great importance on the purification success. A silica gel or any other adsorbent shows a specific surface area, linked to its ability to develop interactions with the compounds. In order to ensure a smooth process of separation, one usually takes care to not exceed the ratio charge/surface. This theoretical value can be overcome but can result in peak distortion which reduces the resolution.



RETENTION (K) INFLUENCE

On the other hand, the retention factor (k) has a real measurable effect up to 5.

Above 5, this contribution on resolution is quite weak.

There isn't any advantage to look for very long retention times as they lead to large collection volumes of compounds.





Mass overloading

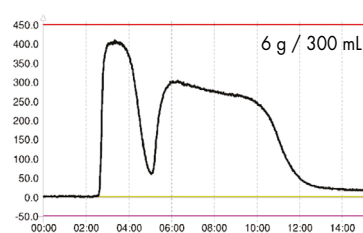
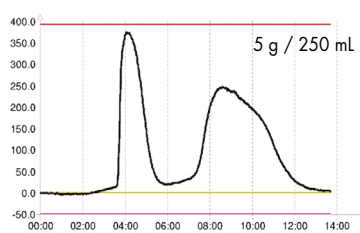
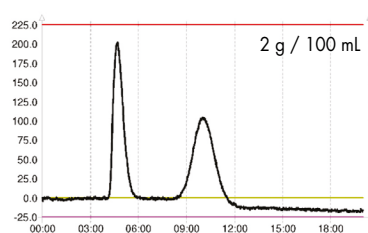
Commonly, most users say that a virgin silica gel bears a loading capacity around 10% of its weight. This is obviously less for a bonded one. This must be correlated with:

- The distance between two peaks
- Their relative position
- Their own surface

Mass overloading example

This example reveals how a column, according to a good resolution, can be loaded with a high amount of sample.

PURIFICATION OF GUAIFENESIN ENANTIOMERS



Purify 6 g under 12 min

Flash Conditions :

Device: puriFlash®430

Solvents: 80% Hexane/20% EtOH

Column: CHIRALPAK OD 20 µm 250 x 30 mm glass column

Flow rate: 200 mL/min

Injection mode: liquid injection by external injection pump

Sample concentration: 20 /L

Injection volume: 100 mL (2 g); 250 mL (5 g); 300 mL (6 g)

UV Detection



Volume overloading

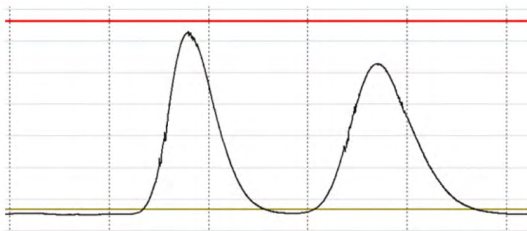
It is necessary to consider the injected volume which creates a significant distortion of the peaks beyond **10% of the pore volume** of the column.

Due to these parameters, the loading amount may widely vary.
This rule is valid for liquid and dry-load injection modes.

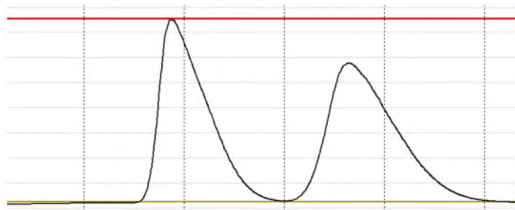
The following applications illustrate the influence of volume overloading.

Volume overloading example

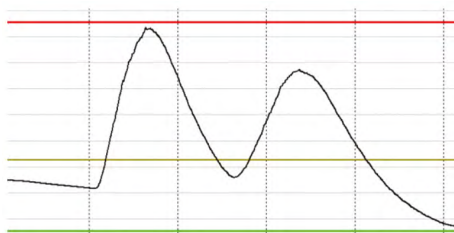
LIQUID INJECTION CONCENTRATION 91MG/ML



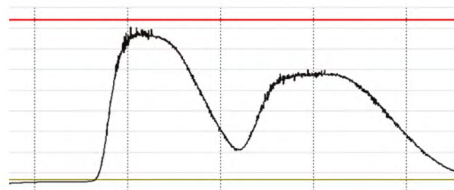
Injection volume: 0.7 mL



Injection volume: 1.6 mL

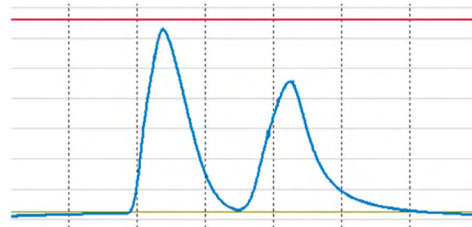


Injection volume: 2.3 mL

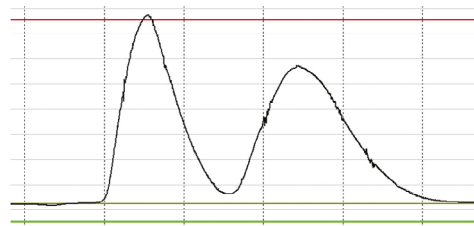


Injection volume: 3.3 mL

DRY-LOAD INJECTION 4G PACKED WITH CELITE®



Injection on conditioned Dry-Load
Crude sample: 300 mg



Injection on unconditioned Dry-Load
Crude sample: 300 mg

Silica gel 50 µm column
TLC elution: Heptane / Ethyl Acetate (95/5)
Compounds: Methyl Phthalate, Ethyl Phthalate
Gradient elution



Method Optimization & Column Sizing



Loading capacity values for virgin silica gel

The below quantities are given as an indication for virgin silica gels and may vary depending on the injection method, conditions of elution and the compounds to be purified.

ΔCV or Δk around 7

| Column type | | F0001 | F0004 | F0012 | F0025 | F0040 | F0080 | F0120 | F0220 | F0330 | F0800 | F1600 |
|-------------|----|--------|--------|-------|-------|-------|--------|-------|-------|-------|--------|---------|
| 15 μ m | HP | 0.10 g | 0.45 g | 1.4 g | 2.8 g | 4.5 g | 9.1 g | 14 g | 25 g | 37 g | --- | --- |
| | HC | 0.11 g | 0.52 g | 1.6 g | 3.2 g | 5.2 g | 10.4 g | 16 g | 29 g | 43 g | --- | --- |
| 20 μ m | IR | 0.08 g | 0.38 g | 1.1 g | 2.4 g | 3.8 g | 7.6 g | 11 g | 21 g | 31 g | --- | --- |
| 25 μ m | HC | 0.09 g | 0.40 g | 1.2 g | 2.5 g | 4.0 g | 8.0 g | 12 g | 22 g | 33 g | 80.0 g | 160.0 g |
| 30 μ m | HP | 0.07 g | 0.34 g | 1.0 g | 2.1 g | 3.4 g | 6.7 g | 10 g | 18 g | 28 g | 67 g | 134 g |
| | IR | 0.06 g | 0.29 g | 0.9 g | 1.8 g | 2.9 g | 5.8 g | 9 g | 16 g | 24 g | 58 g | 116 g |
| 50 μ m | HP | 0.06 g | 0.30 g | 0.9 g | 1.9 g | 3.0 g | 6.0 g | 9 g | 17 g | 25 g | 60 g | 120 g |
| | HC | 0.07 g | 0.35 g | 1.0 g | 2.2 g | 3.5 g | 6.9 g | 10 g | 19 g | 29 g | 69 g | 138 g |

ΔCV or Δk around 5

| Column type | | F0001 | F0004 | F0012 | F0025 | F0040 | F0080 | F0120 | F0220 | F0330 | F0800 | F1600 |
|-------------|----|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 15 μ m | HP | 0.09 g | 0.42 g | 1.3 g | 2.6 g | 4.2 g | 8.5 g | 13 g | 23 g | 35 g | --- | --- |
| | HC | 0.10 g | 0.48 g | 1.5 g | 3.0 g | 4.8 g | 9.7 g | 15 g | 27 g | 40 g | --- | --- |
| 20 μ m | IR | 0.07 g | 0.35 g | 1.0 g | 2.2 g | 3.5 g | 7.0 g | 10 g | 19 g | 29 g | --- | --- |
| 25 μ m | HC | 0.08 g | 0.36 g | 1.1 g | 2.3 g | 3.6 g | 7.3 g | 11 g | 20 g | 30 g | 73 g | 146 g |
| 30 μ m | HP | 0.06 g | 0.29 g | 0.9 g | 1.8 g | 2.9 g | 5.7 g | 9 g | 16 g | 24 g | 57 g | 114 g |
| | IR | 0.04 g | 0.21 g | 0.6 g | 1.3 g | 2.1 g | 4.2 g | 6 g | 11 g | 17 g | 42 g | 84 g |
| 50 μ m | HP | 0.05 g | 0.22 g | 0.7 g | 1.4 g | 2.2 g | 4.4 g | 7 g | 12 g | 18 g | 44 g | 88 g |
| | HC | 0.05 g | 0.25 g | 0.7 g | 1.6 g | 2.5 g | 5.0 g | 7 g | 14 g | 21 g | 50 g | 100 g |

ΔCV or Δk around 2

| Column type | | F0001 | F0004 | F0012 | F0025 | F0040 | F0080 | F0120 | F0220 | F0330 | F0800 | F1600 |
|-------------|----|---------|--------|--------|-------|-------|-------|-------|-------|-------|--------|-------|
| 15 μ m | HP | 0.04 g | 0.18 g | 0.5 g | 1.1 g | 1.8 g | 3.5 g | 5 g | 10 g | 14 g | --- | --- |
| | HC | 0.04 g | 0.20 g | 0.6 g | 1.3 g | 2.0 g | 4.0 g | 6 g | 11 g | 17 g | --- | --- |
| 20 μ m | IR | 0.03 g | 0.14 g | 0.4 g | 0.9 g | 1.4 g | 2.7 g | 4.1 g | 7 g | 11 g | --- | --- |
| 25 μ m | HC | 0.03 g | 0.14 g | 0.4 g | 0.9 g | 1.4 g | 2.9 g | 4 g | 8 g | 12 g | 29 g | 58 g |
| 30 μ m | HP | 0.02 g | 0.10 g | 0.3 g | 0.6 g | 1.0 g | 2.0 g | 3 g | 5.5 g | 8.2 g | 20 g | 40 g |
| | IR | 0.015 g | 0.07 g | 0.20 g | 0.4 g | 0.7 g | 1.3 g | 2 g | 3.7 g | 5.5 g | 13.5 g | 27 g |
| 50 μ m | HP | 0.015 g | 0.07 g | 0.21 g | 0.4 g | 0.7 g | 1.4 g | 2.1 g | 3.9 g | 5.8 g | 14.0 g | 28 g |
| | HC | 0.017 g | 0.08 g | 0.24 g | 0.5 g | 0.8 g | 1.6 g | 2.4 g | 4.4 g | 6.7 g | 16.0 g | 32 g |

IR: Irregular silica gel - Average values for compounds < 800MW

HP: High Performance silica gel - Average values for compounds < 800MW

HC: High Capacity silica gel - Average values for compounds < 500MW



Loading capacity values for virgin silica gel

The below quantities are given as an indication for virgin silica gels and may vary depending on the injection method, conditions of elution and the compounds to be purified.

ΔCV or Δk around 0.8

| Column type | | F0001 | F0004 | F0012 | F0025 | F0040 | F0080 | F0120 | F0220 | F0330 | F0800 | F1600 |
|------------------|----|---------|--------|--------|--------|--------|--------|-------|-------|-------|--------|--------|
| 15 μm | HP | 0.014 g | 0.07 g | 0.20 g | 0.41 g | 0.7 g | 1.3 g | 2.0 g | 3.6 g | 5.5 g | --- | --- |
| | HC | 0.016 g | 0.08 g | 0.23 g | 0.47 g | 0.8 g | 1.5 g | 2.3 g | 4.2 g | 6.2 g | --- | --- |
| 20 μm | IR | --- | 0.05 g | 0.15 g | 0.30 g | 0.5 g | 1.0 g | 1.5 g | 2.7 g | 4.0 g | --- | --- |
| 25 μm | HC | --- | 0.05 g | 0.16 g | 0.32 g | 0.5 g | 1.0 g | 1.6 g | 2.8 g | 4.3 g | 10.5 g | 21.0 g |
| 30 μm | HP | --- | 0.04 g | 0.11 g | 0.22 g | 0.4 g | 0.71 g | 1.1 g | 2.0 g | 2.9 g | 7.0 g | 14.0 g |
| | IR | --- | --- | 0.07 g | 0.15 g | 0.24 g | 0.5 g | 0.7 g | 1.3 g | 2.0 g | 4.8 g | 9.6 g |
| 50 μm | HP | --- | --- | 0.08 g | 0.16 g | 0.25 g | 0.5 g | 0.8 g | 1.4 g | 2.1 g | 5.0 g | 10.0 g |
| | HC | --- | --- | 0.09 g | 0.18 g | 0.29 g | 0.6 g | 0.9 g | 1.6 g | 2.4 g | 5.8 g | 11.6 g |

ΔCV or Δk around 0.4

| Column type | | F0001 | F0004 | F0012 | F0025 | F0040 | F0080 | F0120 | F0220 | F0330 | F0800 | F1600 |
|------------------|----|-------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
| 15 μm | HP | --- | 0.04 g | 0.12 g | 0.25 g | 0.40 g | 0.8 g | 1.2 g | 2.2 g | 3.3 g | --- | --- |
| | HC | --- | 0.05 g | 0.14 g | 0.29 g | 0.46 g | 0.9 g | 1.4 g | 2.5 g | 3.8 g | --- | --- |
| 20 μm | IR | --- | --- | 0.09 g | 0.18 g | 0.29 g | 0.6 g | 0.9 g | 1.6 g | 2.4 g | --- | --- |
| 25 μm | HC | --- | --- | 0.09 g | 0.19 g | 0.31 g | 0.6 g | 0.9 g | 1.7 g | 2.6 g | 6 g | 12 g |
| 30 μm | HP | --- | --- | 0.06 g | 0.13 g | 0.21 g | 0.4 g | 0.6 g | 1.2 g | 1.7 g | 4.2 g | 8.5 g |

IR: Irregular silica gel - Average values for compounds < 800MW

HP: High Performance silica gel - Average values for compounds < 800MW

HC: High Capacity silica gel - Average values for compounds < 500MW

Loading capacity for bonded phases (RP & NP)

Loading capacity for bonded phases as a percentage of the adsorbent mass in the column.

| | | $\Delta k = 0.4$ | $\Delta k = 0.8$ | $\Delta k = 2$ | $\Delta k = 5$ | $\Delta k = 7$ |
|------------------|-------------------------|------------------|------------------|----------------|----------------|----------------|
| 15 μm | 60Å < pore size < 120Å | 0,12% | 0,20% | 0,55% | 1,30% | 1,40% |
| | 200Å < pore size < 300Å | 0,06% | 0,10% | 0,25% | 0,65% | 0,70% |
| 30 μm | 60Å < pore size < 120Å | 0,07% | 0,10% | 0,30% | 0,90% | 1,10% |
| | 200Å < pore size < 300Å | 0,03% | 0,06% | 0,15% | 0,45% | 0,60% |
| 50 μm | 60Å < pore size < 120Å | ... | 0,08% | 0,20% | 0,70% | 0,90% |
| | 200Å < pore size < 300Å | ... | 0,04% | 0,10% | 0,35% | 0,50% |

These values are given as an indication and may vary depending on the molecules and adsorbents used.





Gradient mode

Isocratic vs Gradient

Another way to enhance the separation consists of starting with a low percentage of strong solvent and increasing the amount during the elution.

A gradient can be modeled in two ways: linear or incremental.

Depending on the difficulty of the separation one may be more suitable than the other. Advion Interchim Scientific has developed an algorithm that automates the composition of the gradient according to the difficulty of the separation and the particle size of the columns used.

Compared with an isocratic method, a well-developed gradient makes it possible to significantly reduce the width of peaks and considerably increase the mass of crude to be purified.

This influence is very clear in areas of Rf between 0.1 and 0.7. Isocratic elution will not allow good selectivity in a restricted Rf zone between 0.1 and 0.3.

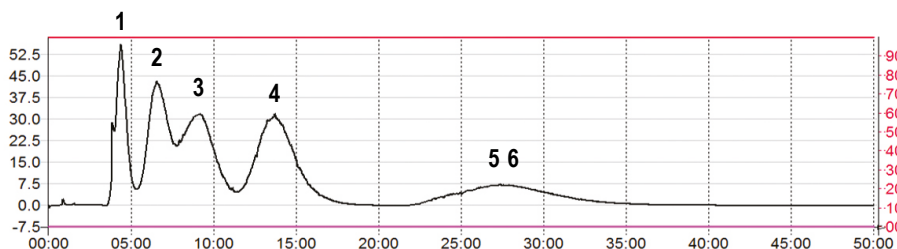
According to the following purification:

Compound 2: Rf = 0.52

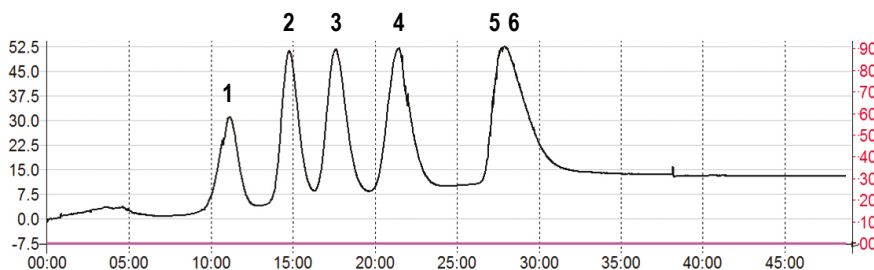
Compound 3: Rf = 0.33

Eluent: cyclohexane/ethyl acetate column type F0025 IR 50 μ m flow rate 15 mL/min

ISOCRATIC 91%/9% (ORIGINAL TLC ELUENT COMPOSITION)



GRADIENT SLOPE 2% \Rightarrow 17%



Conclusion

According to those explanations, it is easy to understand that a longer column, or a smaller particle size, gives more efficiency and greatly enhances the separation.

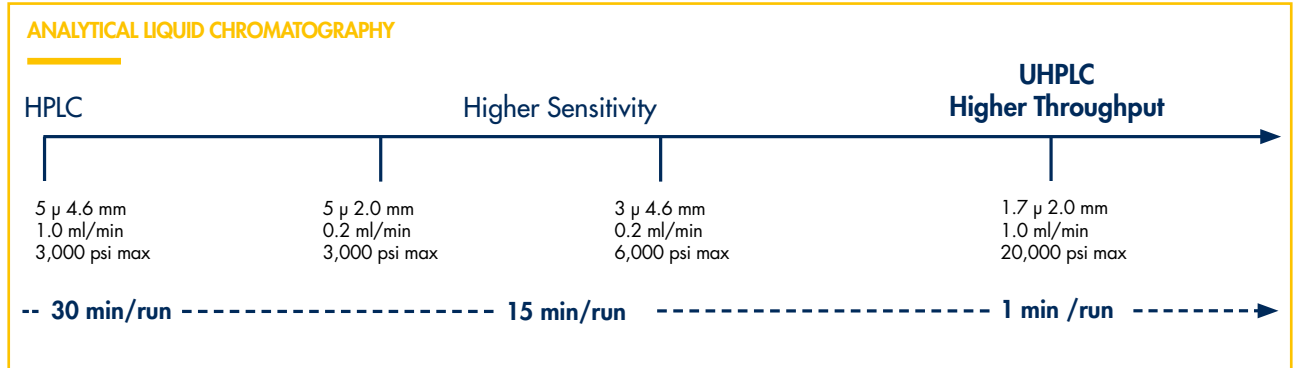
By choosing the right silica gel and the right eluent, the compounds will interact advantageously and will be retained differently. The gradient elution mode will also greatly improve the separation throughout the purification.

Finally, the column size must be related to the quantity of crude sample to purify and the difficulty of the separation.

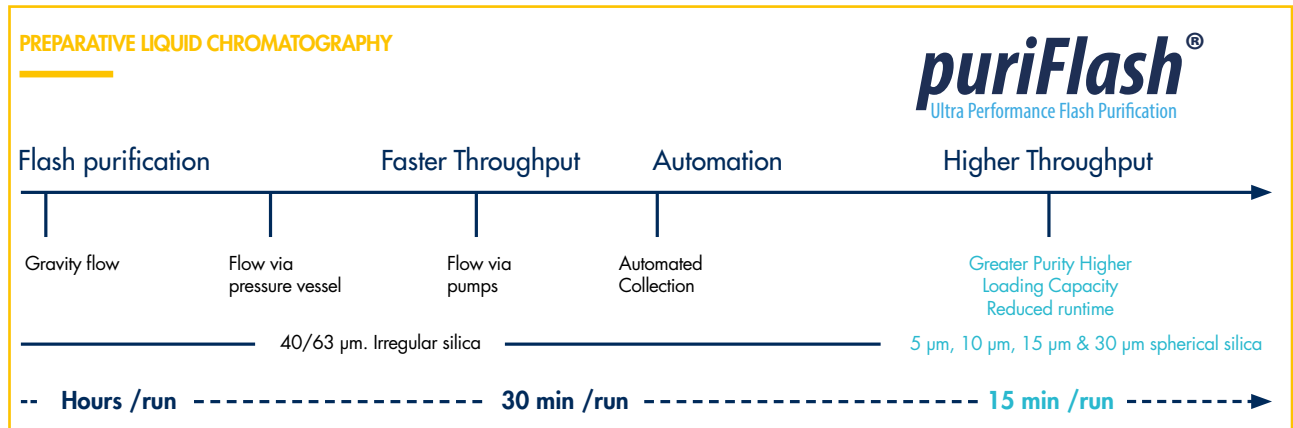


Ultra Performance Flash Purification, or how to do high throughput purification

Liquid chromatography is a technique that requires finding the right selectivity to properly separate your compounds. The purpose of preparative liquid chromatography is to recover the compound of interest with the best purity, quantity and productivity. Improvements of analytical techniques of liquid chromatography over the last thirty years have mainly focused on the transition from the use of irregular silicas to spherical silicas, proposing a greater choice of stationary phases, in particular for the reverse phase and finally the benefit of reducing the size of the silica particles.



This evolution has led to a high increase of productivity by a significant reduction of the runtime (tens of minutes to min). It is always a challenge and often a matter of compromise to obtain the desired purity, loading and throughput. For many years, Advion Interchim Scientific promoted a similar approach to analytical scientists called "Ultra Performance Flash Purification" to help them to achieve their day to day challenges.

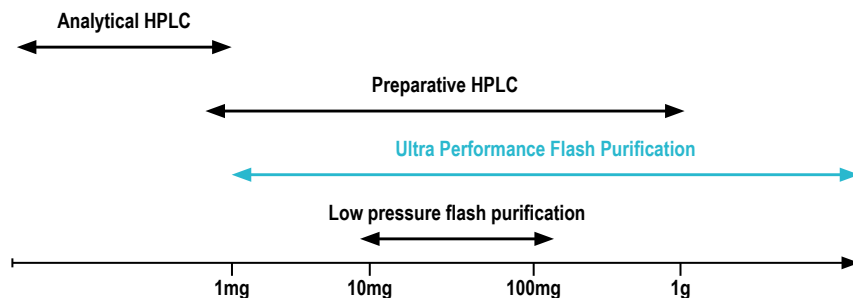


Ultra Performance Flash Purification - UPFP



This concept has established Ultra Performance Flash Purification as an innovative solution that offers a larger spectrum of purification versus other techniques.

Quantity of material to be separated



a) Irregular vs. Spherical silicas

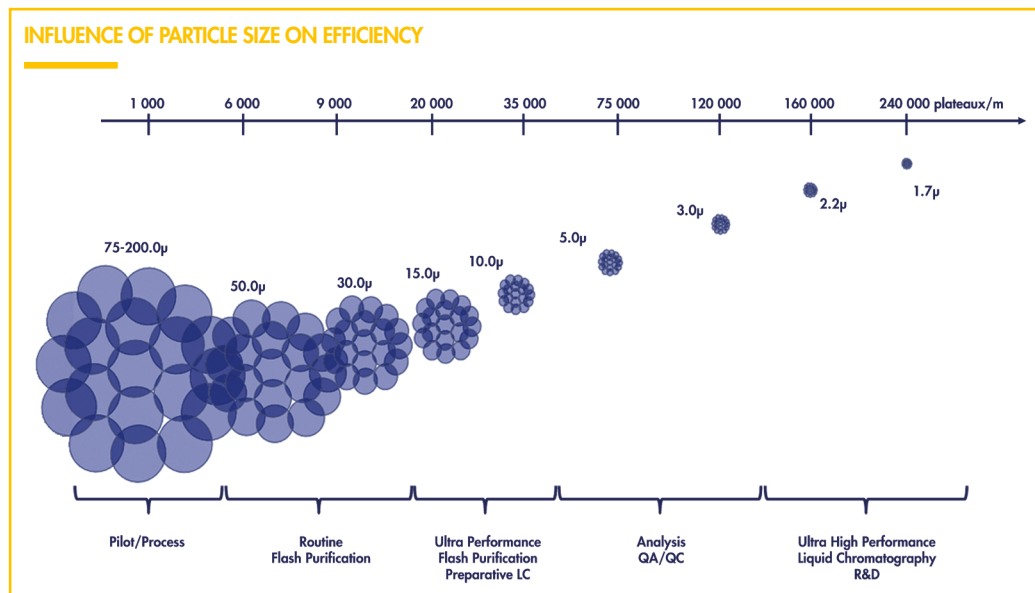
Usually spherical silicas have higher purity with a more narrow particle and pore size distribution over irregular silicas. These advantages make them easier to pack in column with an optimum bed density. The benefit for the user is an optimized and reproducible recovery, a lower collection volume and a reduced evaporation time.

b) Stationary Phases

A wide range of selectivities must be available to cover all the different polarities of samples to be purified. Advion Interchim Scientific offers more than 50 selectivities for normal and reverse phase, ion exchange, hilic, and for the purification of peptides and polypeptides.

The benefit of reduced particles size

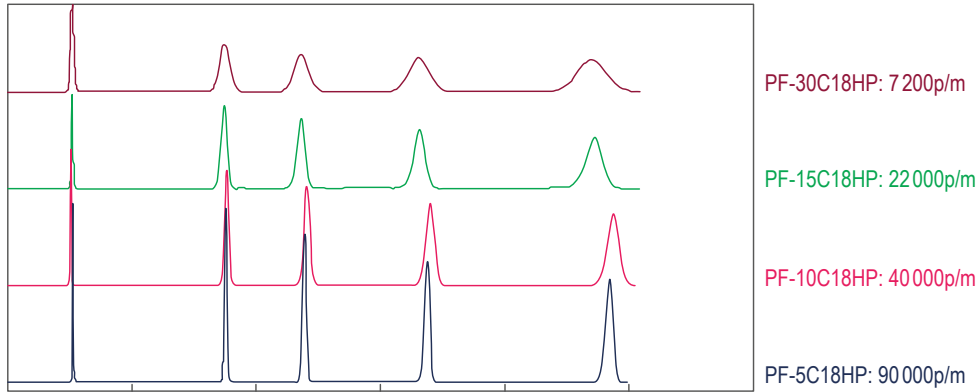
As particle size of the silica beads decreases, the more efficiency increases and the back pressure of packed columns with such particle increases as a result.



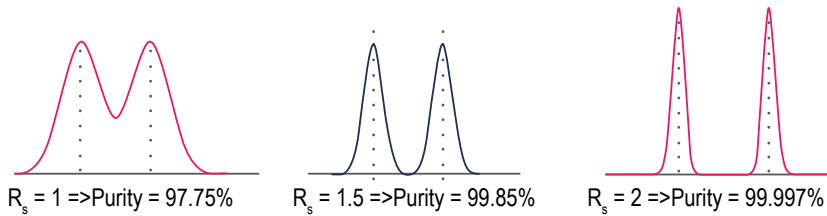


The benefit of reduced particle size

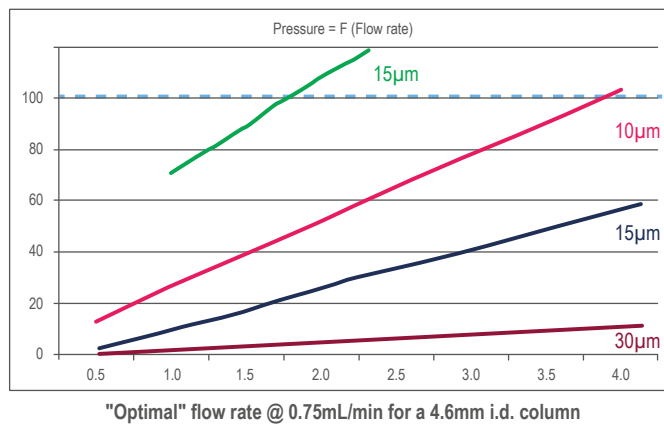
One of the benefits of greater efficiency is the direct impact on the peak shape. The higher the efficiency is, the thinner the peak is. Which means for a single peak—smaller collection volume and less evaporation time.



The impact is far greater when the question is to separate two peaks. For the same selectivity, the higher the efficiency is, the higher the resolution is.



This offers the scientist more flexibility by either collecting a product with higher purity, increased loading capacity, or reduced runtime. Finally, it increases the global productivity of the purification. The counterpart is the back pressure generated by the reduction of the particle size.



The above experiments have been done on a 5, 10, 15 and 30 micron Uptisphere Strategy C18HQ packed into a 4.6x250mm columns.

At the optimal flow rate for a 21.2 mm id (21 mL/min), a 28 mm id (37 mL/min) and a 50 mm id (118 mL/min) the back pressure generated, under MeOH/H₂O (50/50) is for a:

30 micron = 3 bar – 15 micron = 6 bar – 10 micron = 20 bar – 5 micron = 60 bar



Ultra Performance Flash Purification - UPFF

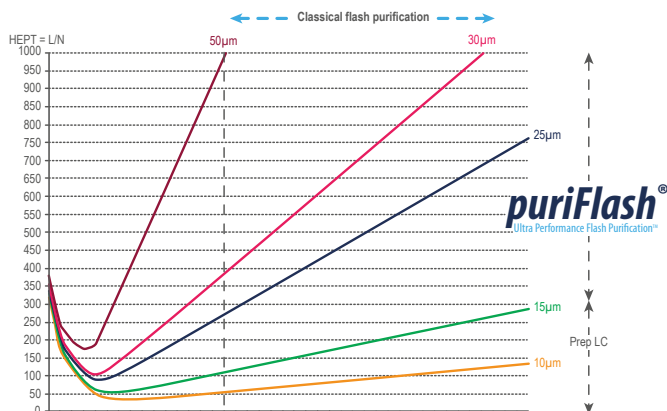
The benefit of reduced particle size

Advion Interchim Scientific has developed a high quality pump to accurately and repeatedly handle a wide range of pressures to satisfy the scientist's purification objectives of purity, loading capacity or runtime.

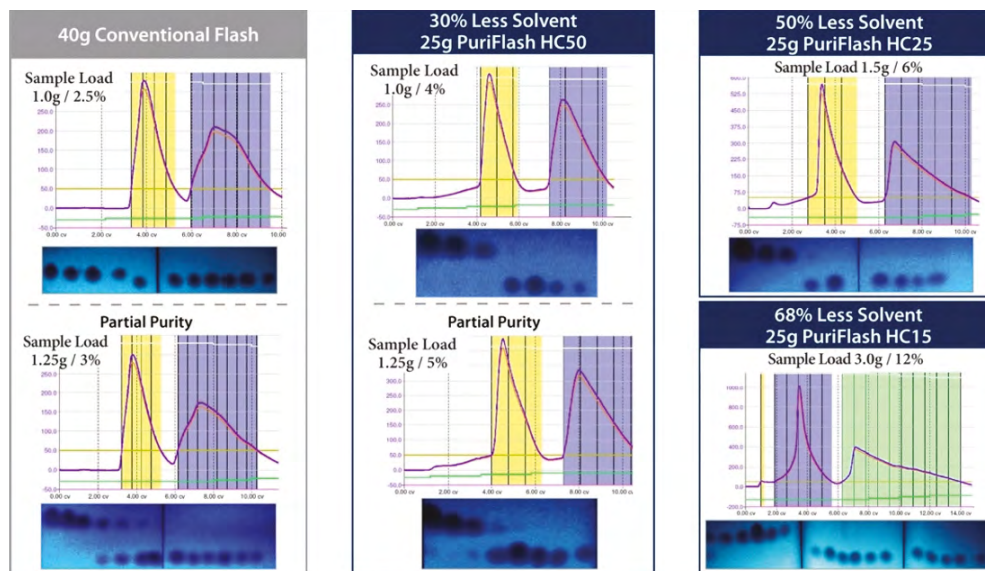
Increased the flow rate without compromising resolution is also a benefit of using smaller particle size:

| 4.6 x 250 mm col | |
|--------------------|---------------|
| Particle size | Opt flow rate |
| 5.0 μm | 0.710 mL/min |
| 10.0 μm | 0.370 mL/min |
| 15.0 μm | 0.240 mL/min |
| 20.0 μm | 0.190 mL/min |
| 25.0 μm | 0.160 mL/min |
| 30.0 μm | 0.130 mL/min |
| 50.0 μm | 0.087 mL/min |

H = Fion (flow rate) for a 25g column



Example of the advantages & benefits of the Ultra Performance Flash Purification concept



Test Conditions

Sample: 50 mg/mL dibutyl and diethyl phthalate
 UV: 254 nm
 Flow rate: 20 mL/min
 Tube volume: 25 mL
 Solvents: A: Heptane B: EtOAc
 Gradient: 0 - 7 CV 5% B, 7 - 13 CV 5 - 8% B

| 100% Purity | | | | |
|----------------------|-------------|-------|------------------|------------------|
| Column | Sample Load | Tubes | Collected Volume | Solvent Consumed |
| 40 g Conventional | 1.0 g | 11 | 263 mL | 480 mL |
| 25 g puriFlash® HC50 | 1.0 g | 7 | 144 mL | 340 mL |
| 25 g puriFlash® HC25 | 1.5 g | 9 | 199 mL | 360 mL |
| 25 g puriFlash® HC15 | 3.0 g | 17 | 367 mL | 460 mL |

| Partial Purity / Overload Condition | | | | |
|-------------------------------------|-------------|-------|------------------|------------------|
| Column | Sample Load | Tubes | Collected Volume | Solvent Consumed |
| 40 g Conventional | 1.25 g | 13 | 298 mL | 540 mL |
| 25 g puriFlash® HC50 | 1.25 g | 8 | 186 mL | 360 mL |



Detectors discern compounds from the mobile phase according to their physical properties. Fractions are collected based on the detector signal. Collection can be done relatively to a threshold and/or a slope value. Detection sensitivity is different from one detector to another and is linked to compound concentration. To maximize the detection potential it is recommended to couple different devices ie. UV+ELSD, UV+ELSD+MS,...

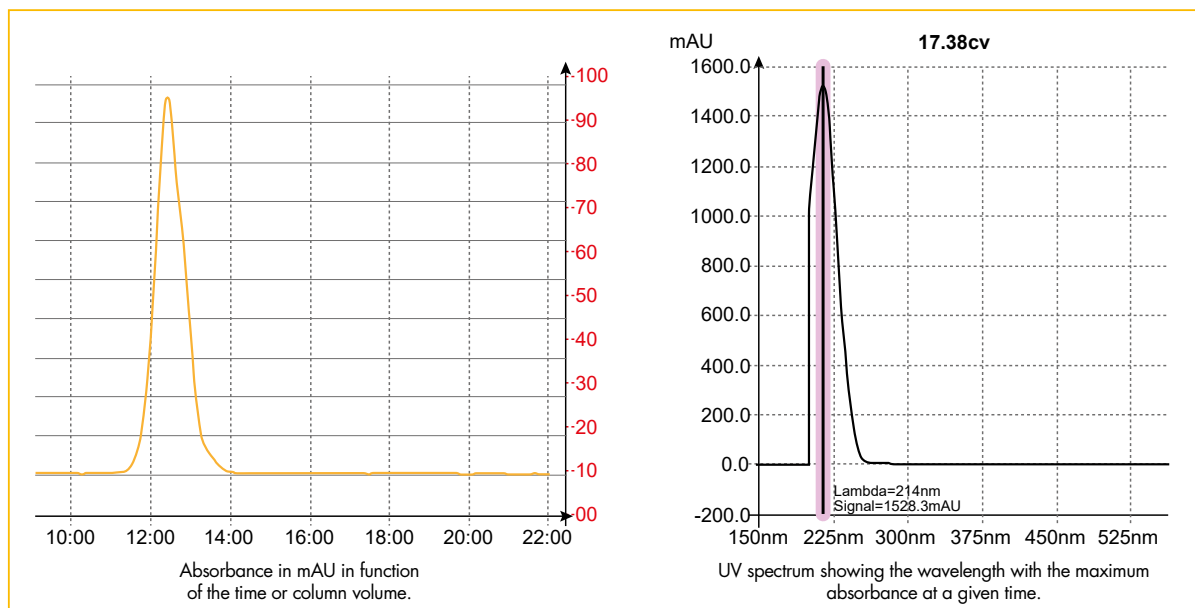
UV Visible Detector - Diode Array (DAD) Technology

When subjected to a light radiation, certain functional groups may be the site of an electronic excitation corresponding to an energy absorption at a specific wavelength. The resulting signal corresponds to light absorption.

The UV detectors are not universal detectors. To be detected, a compounds must have a chromophore in its molecular structure (i.e substances with aromatic cycle with at least 2 conjugated double bonds, with a double bond adjacent to an atom with ion electron pairs, with carbonyl groups, or containing bromine, iodine, or sulfur).

Different UV detectors are commonly used:

- Detector with a fixed wavelength, managed by a specific lamp. In this case, compounds response must be verified.
- Detector with variable wavelength allowing to choose between several wavelengths. This offers a maximum of sensitivity.
- Diode Array Detector (DAD), uses hundreds of diodes to scan a range of wavelengths and gives a 3D representation (time, absorbance, wavelength) of the signal. This detector allows the acquisition of the UV spectrum which gives an indication of the purity of each detected compound.



All wavelength detection:

- When the maximum absorbance of molecule is unknown, the scan function of the detector is the right solution.
- This scan signal corresponds to an average absorbance based on wavelengths within a selected range.



Detection Modes



| Solvent | UV (nm) Cutoff @ 1AU |
|----------------------|----------------------|
| Acetone | 330 |
| Acetonitrile | 190 |
| Dimethylformamide | 268 |
| Dimethyl sulfoxide | 268 |
| 1,4-Dioxane | 215 |
| Ethanol | 210 |
| Isopropanol | 120 |
| Methanol | 205 |
| Tetrahydrofuran | 215 |
| Water | 200 |
| Benzene | 280 |
| n-Butanol | 254 |
| Carbon Tetrachloride | 263 |
| Chloroform | 245 |

| Solvent | UV (nm) Cutoff @ 1AU |
|-------------------------|----------------------|
| Cyclohexane | 200 |
| 1,2-Dichloroethane | 235 |
| Dichloromethane | 235 |
| Ethyl Acetate | 260 |
| Diethyl ether | 220 |
| Heptane | 200 |
| Hexane | 200 |
| Iso-octane | 215 |
| Methyl tert-butyl ether | 210 |
| Butanone | 329 |
| Pentane | 200 |
| Toluene | 285 |
| Xylene | 290 |

Limits of detection:

The mobile phase can also interact in the detection and can absorb at a specific wavelength => solvent cut off.

Every compound has their own molecular extinction coefficient.

Due to this property, the apparent equivalent absorbance of two compounds should lead to two different concentrations. According to the Beer-Lambert law, absorbance of each molecule is linked to its own concentration.

$$A = \epsilon C l$$

C = concentration in mol/L

l = cell length in cm

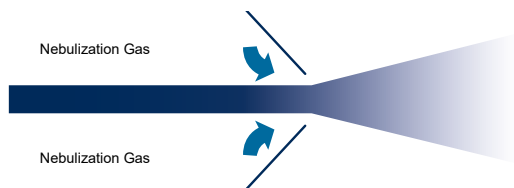
ϵ = molecular extinction coefficient ($L \cdot mol^{-1} \cdot cm^{-1}$)

The absorbance is improved when the cell path length is increased.



Evaporative Light Scattering Detector (ELSD)

Principle: ELSD detection is a three steps process:



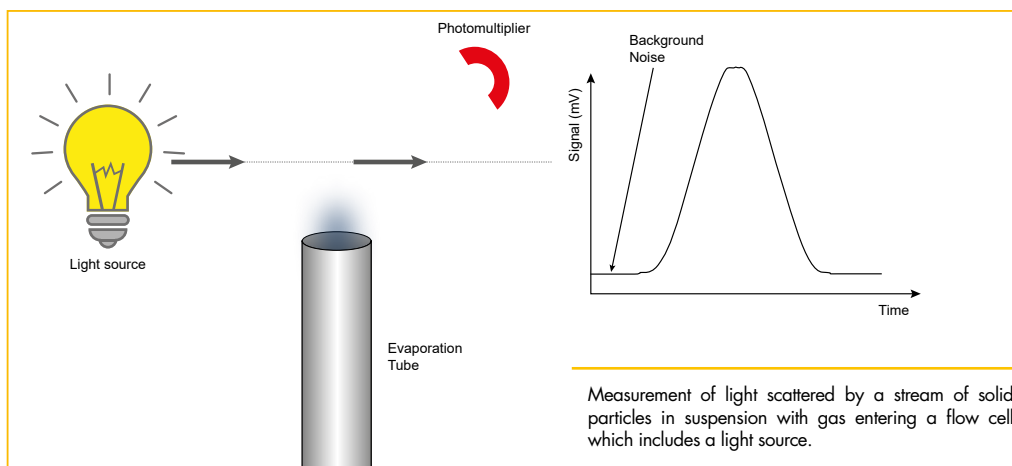
Nebulization

The nebulization is done in a nebulization chamber thanks to a venturi nebulizer that generates droplets of mobile phase containing the compound of interest. The largest droplets are eliminated. Compressed dry air or Nitrogen are used as nebulization gas.

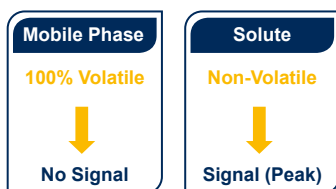
Evaporation

The evaporation is set in a drift tube. The nebulized eluent goes through a heated drift tube to evaporate the mobile phase. The temperature is optimized in function of the nature of the solute and the mobile phase. For low or non-volatile compounds, the temperature of evaporation is increased to improve the detection.

Detection of light diffusion using a Photomultiplier or a Photodiode:



- Detection is obtained by the measure of the intensity of the scattered light.
- A significant difference of volatility between the mobile phase and the compound is necessary.
- Caution must be considered for semi and highly volatile compounds detection as the signal is only generated by non-evaporated compounds.



- Both isocratic or gradient mode can be used
- There is no solvent restriction as long as it can be evaporated before detection, except phosphate, sodium, sulphate, potassium, HCl and H₂SO₄ buffers that are forbidden.
- ELSD response does not have a linear response with the concentration of the compound.

Caution: The ELSD is a sample-destructive technology of detection.

Considering purification recovery is the one of main goals, the lowest quantity possible of sample has to be sent to the ELSD.



Detection Modes



SAGA Function

Advion Interchim Scientific has developed with Sedere an innovative automatic gain feature (SAGA: Sedex Automated Gain Adjustment).

This technology automatically adapts the gain to avoid saturation while keeping the ability of the detection of small quantity of products.

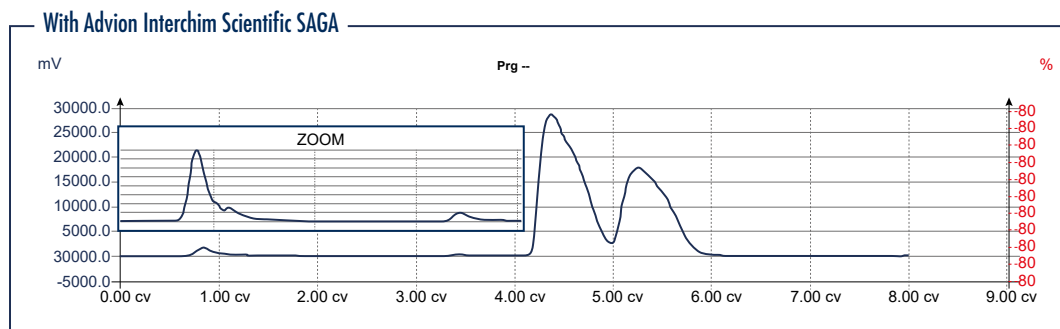
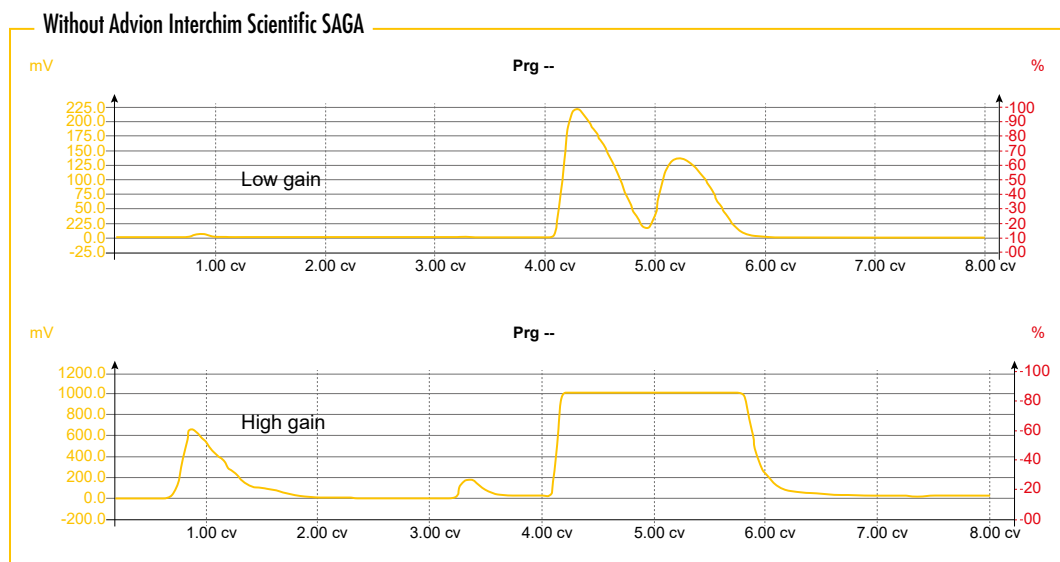
ELSD becomes almost unsaturable without an impact on sensitivity.

Application: Separation of 2 diastereo-isomers

Injection of 5 mL (625 mg of each compound)

Column: PF-15SIHP-F0025

Flow rate: 15 mL/min



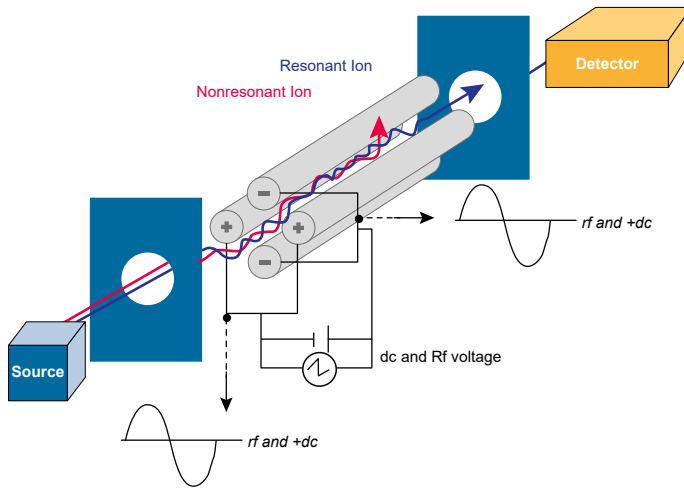
This advanced technology detects all compounds regardless of the quantity to purify. Impurities can be seen even if a concentrated peak is close.

- Simplicity: automatic gain adjustment according to the sample load.
- Flexibility: manage both small quantity (2 mg) and higher sample loading (up to 20%) within the same run.
- Confidence: numbers of class of compounds can be detected.



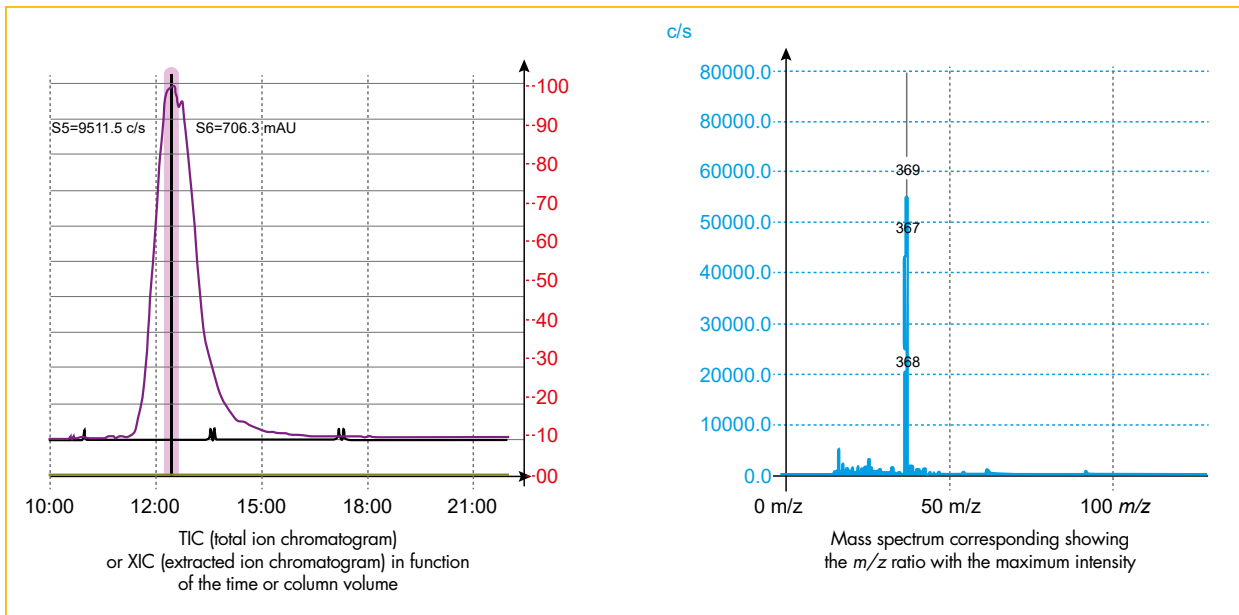
Mass Spectrometer Detectors (MS)

A Mass Spectrometer measures the mass to charge ratio (m/z). Thus, it converts sample compounds into ions. The ions fly under vacuum and are sorted and separated according to their mass to charge ratio under the influence of an electrical and/or a magnetic field. The detection system measures the amount of ions.



A mass spectrometer measures the spectrum over time (a sequence of spectra) to produce chromatograms.

- TIC - Total Ion Chromatogram - adds all the masses together and shows how the entire mass spectrum varies over time - like a UV signal.
- XIC (or EIC) - Extracted Ion Chromatogram - shows how one mass varies over time, allowing you to identify where your peak of interest elutes.



Detection Modes



MS detection is applicable to a broad range of organic compounds. In addition to providing chromatographic data, it definitively identifies the compound by confirming its mass.

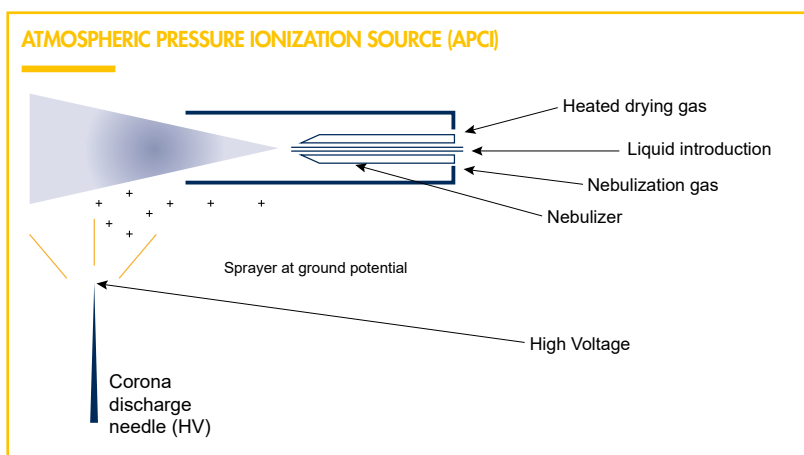
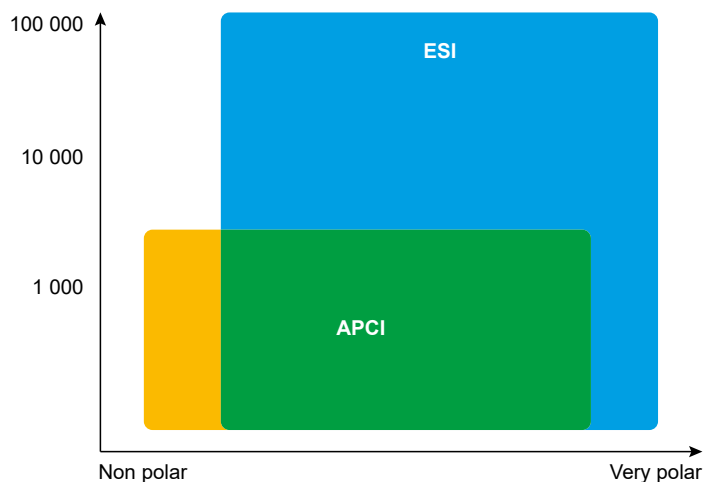
The ionization of the compounds is made by a source.

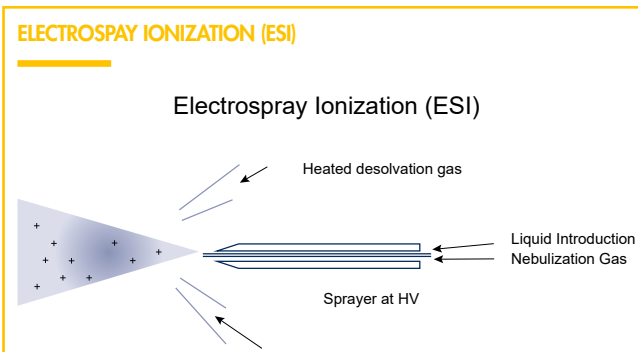
No Ion Source is universal. The selection depends on the compound to be analyzed and the mass spectrometer type.

Two of the most common Ion Sources are Electrospray and Chemical Ionization and they can only be used with a gas source (nitrogen).

APCI and ESI generally ionize by proton transfer:

- Acceptance of a proton to produce $[M+H]^+$ in positive ionization
- Abstraction of a proton from the analyte to produce $[M-H]^-$ in negative ionization. Ionization may also occur by forming adducts with other species
- e.g. NH_4^+ (+18), Na^+ (+23), K^+ (+39), Methanol (CH_3OHH^+ , +33), Acetonitrile (CH_3CNH^+ , +42), Acetic Acid (CH_3COOH^+ , +61)





Electrospray is produced by applying a strong electric field to a liquid passing through a capillary tube with a weak flux. Desolvation by gas flow (N₂) heating (100-300°C). Ions are preformed in solution before nebulization.

Ion Sources: APCI & ESI

Electrospray (ESI)

- Volatility not mandatory
- Technique adapted to heat-labile compound
- Ions are formed in solution
- Can form multi-charged ions

APCI

- Volatility needed
- Compounds must be thermally stable
- Ions are formed in the gas phase
- The ions are individually charged

Why choose APCI for purification ?

- Better for neutral compounds than ESI
- Simpler spectra than ESI: more often the molecular M+H ion, less adducts, fragments dimers, No multiple charging
- Generally 'Easy To do': less sensitive to operating conditions than ESI
 - less solvent dependence as ionization occurs in the gas phase
 - less matrix suppression
- Can accept higher sample concentrations
- More sensible than ESI: less noise at high flow rate (>750 mL/min)
 - However, samples must be sufficiently volatile to be vaporized & thermally stable to 130 - 150°C
 - ESI might be considered for Reverse Phase and is essential for biological molecules.

Applications vs. Sources

Proteins, peptides, RNA, sugars, carbohydrates, PPG's...

ESI

Most drugs, metabolites, aromatic compounds containing at least one ionizable functional group that can be protonated / deprotonated like NH₂, CO₂H, SO₃H, Ph-OH.

Small (<1.000u) volatile, polar and neutral molecules, steroids.

APCI

Neither Ion Source works for:
Naphthalene, biphenyl, PAH's with no heteroatoms, hydrocarbon waxes, resins and glues.

The mass spectrometer is a sample destructive method of detection.

As purification recovery is the main goal, the lowest possible quantity of sample has to be sent into the MS.

Advion Interchim Scientific developed a **Unique interface "Split & Dilution in a box"** to avoid saturation of the MS spectrometer whatever the concentration of sample injected is. It does not generate additional back pressure even at high flow rate.

It is combined to a normalized scale of MS, UV, ELSD signals by Advion Interchim Scientific software.



Detection Modes

Triple Detection: UV-ELSD-MS

To sum-up the detectors are compounds dependent.

| | UV | ELSD | MS |
|-----------|-------------|---|---|
| Detection | Chromophore | Non volatile at the working temperature | Ionizable Gives an indication on the compounds structure |

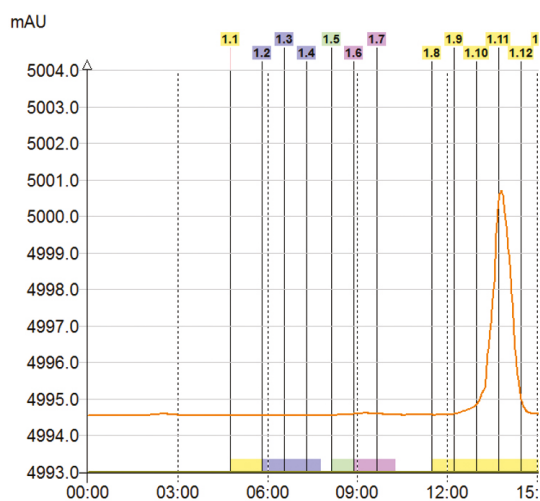
To make sure to detect and collect all the compounds, a combination of several detectors is advised.

A triple detection UV-ELSD-MS can be easily used with a puriFlash® system.

Application example: customer mixture using PF system with triple detection.

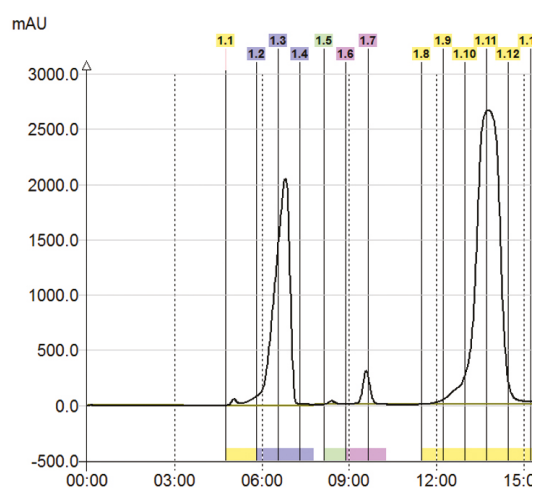


UV Signal



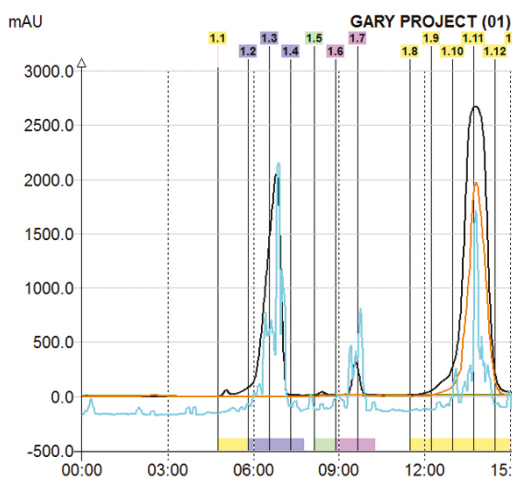
➔ Only 1 compound detected

ELSD Signal



➔ 3 compounds detected

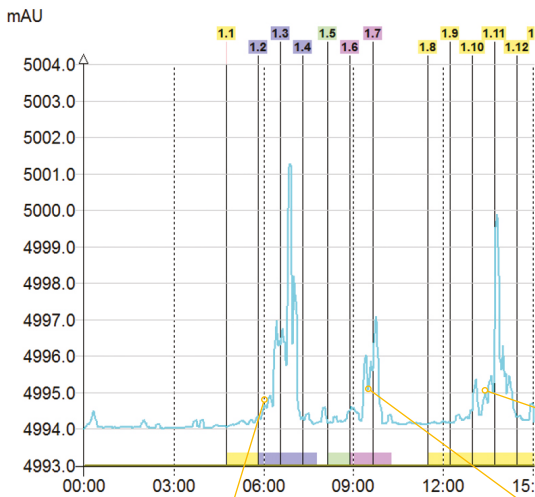
Triple Detection



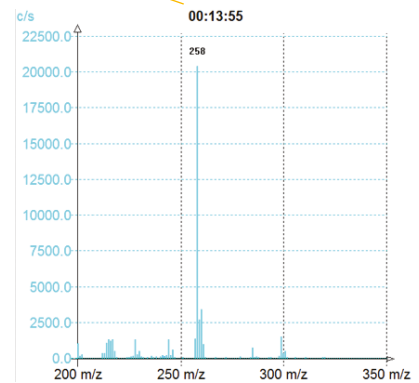
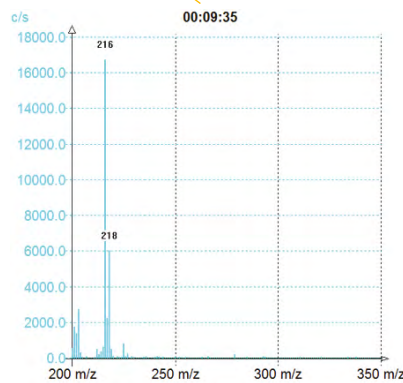
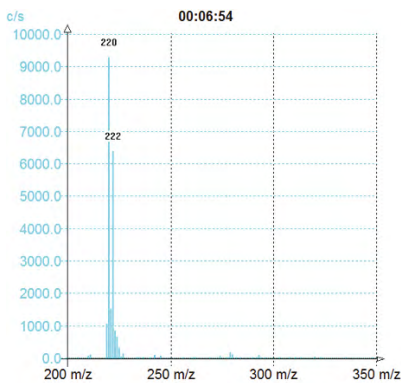
In this example with UV detection, only the user would have collected one product instead of three with the triple detection. Moreover, with the MS they are able to identify their interest compounds.



MS TIC Signal



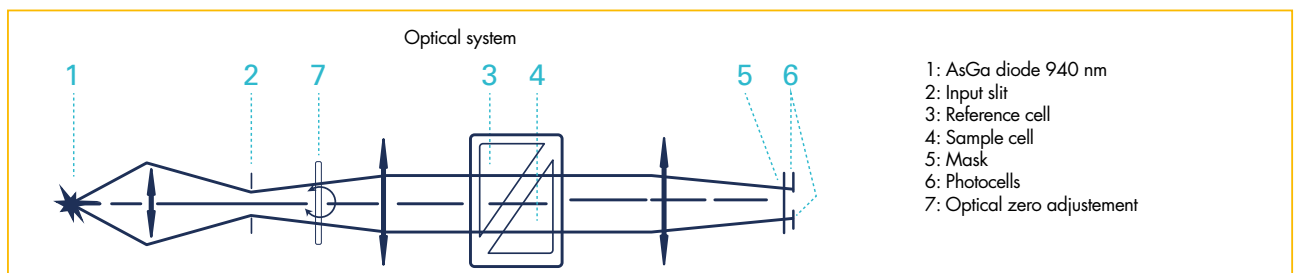
3 compounds detected
With information
of the m/z for each peak



Refractive Index Detector (RI)

The RI detector measures the refractive index of an analyte relative to the solvent.

A light beam crosses a two compartment cell. One is filled with the solvent and the other with the column effluent. So, this is a difference of refractive index of the two liquids which is measured. The greater the RI difference between sample and mobile phase, the larger the imbalance will become and so the sensitivity will be higher. There is no detection if the refractive index of the compound is too close to the solvent refractive index.

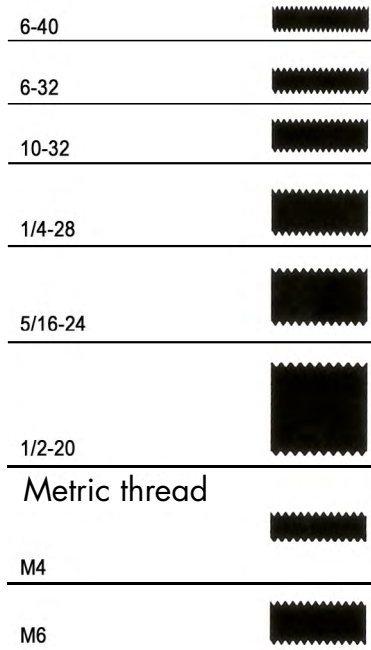


Limits of Detection:

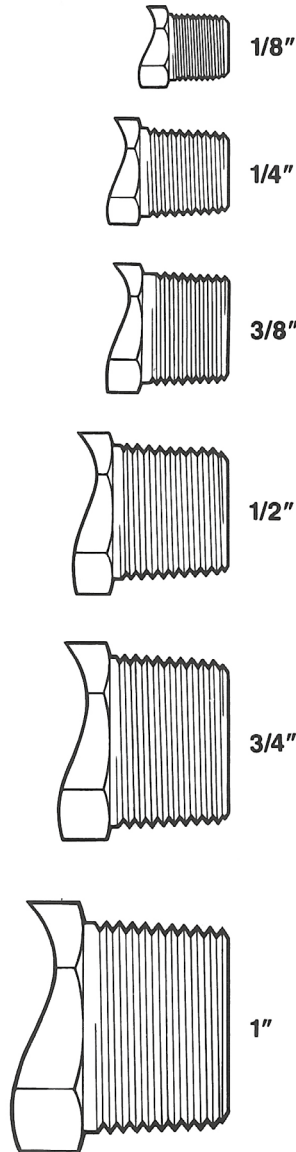
RI detector is a pure differential instrument and any changes in the eluent composition require the rebalancing of the detector. This factor is severely limiting RI detector application area for the analysis requiring a gradient of elution, where mobile phase composition is modified during the run.



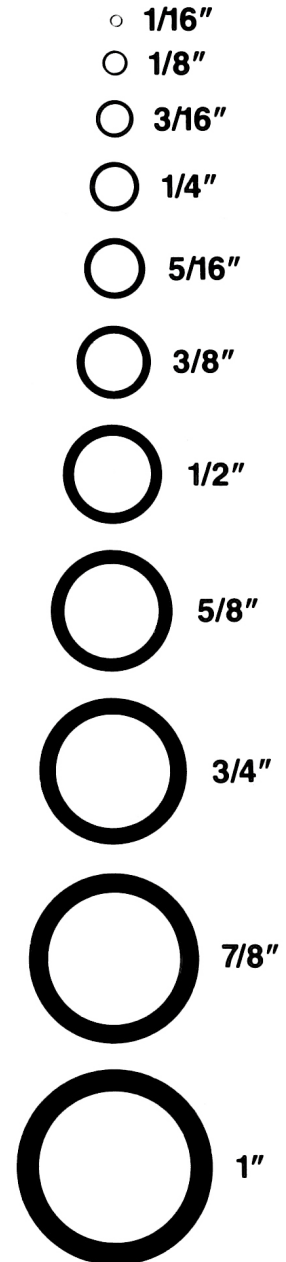
Actual size threads schemes HPLC and low pressure



Actual size NPT fittings



Actual size tubings OD



Solvent bottles



WARNING !!! All dimensions mentioned are likely (according to the manufacturer) to have deviations from plus or minus 0.5 mm!!!

| Tubings OD | Wrench to be used |
|------------|-------------------|
| 1/16" | 1/4" |
| 1/8" | 7/16" |
| 1/4" | 9/16" |
| 3/8" | 1" 1/16" |
| 1/2" | 1" 5/16" |
| 1" | 1" 7/16" |



Which wrench for which tube?



| Lenghts | | mm | cm | m | Inch | Foot |
|---------|---|-----------------|-------|----------------------|------------------------|-------------------------|
| 1 mm | = | 1 | 0.1 | 10 ⁻³ | 3.937.10 ⁻² | 3.2808.10 ⁻³ |
| 1 cm | = | 10 | 1 | 10 ² | 0.3937 | 3.2808.10 ⁻² |
| 1 m | = | 10 ³ | 100 | 1 | 39.37 | 3.28084 |
| 1 Inch | = | 25.4 | 2.54 | 2.54.10 ² | 1 | 8.333.10 ⁻² |
| 1 Foot | = | 304.8 | 30.48 | 0.3048 | 12 | 1 |

| Capacities | | ml | liter | U.S. pint | U.S. quart | U.S. gallon |
|------------|---|------------------------|------------------|------------------------|------------------------|------------------------|
| 1 ml | = | 1 | 10 ⁻³ | 2.113.10 ⁻³ | 1.057.10 ⁻³ | 0.264.10 ⁻³ |
| 1 l | = | 10 ³ | 1 | 2.113436 | 1.056718 | 0.264179 |
| 1 pint | = | 0.473.10 ³ | 0.473163 | 1 | 0.5 | 0.125 |
| 1 quart | = | 0.9463.10 ³ | 0.946326 | 2 | 1 | 0.25 |
| 1 gallon | = | 3.785.10 ³ | 3.785306 | 8 | 4 | 1 |

| Pressure | | PSI | atm | Kg/ cm ² | kPa | Bar |
|----------------------|---|---------|-----------------------|-----------------------|--------|------------------------|
| 1 psi | = | 1 | 6.8.10 ⁻² | 7.03.10 ⁻² | 6.8948 | 6.895.10 ⁻² |
| 1 atm | = | 14.696 | 1 | 1.0332 | 101.32 | 1.0133 |
| 1 Kg/cm ² | = | 14.223 | 0.9678 | 1 | 98.06 | 0.9806 |
| 1 kPa | = | 0.145 | 9.87.10 ⁻³ | 1.02.10 ⁻² | 1 | 10 ⁻² |
| 1 Bar | = | 14.5038 | 0.9869 | 1.0197 | 100 | 1 |

| Volumes | | liter | Gallon US | m ³ | Cubic foot |
|---------------------|---|-------|-----------|------------------|-------------------------|
| 1 Litre | = | 1 | 0.2642 | 10 ⁻³ | 3.53 x 10 ⁻² |
| 1 US Gallon | = | 4.546 | 1 | 0.00379 | 0.161 |
| 1 M ³ | = | 1000 | 264.0 | 1 | 35.31 |
| 1 Pied ³ | = | 28.32 | 6.23 | 0.0283 | 1 |

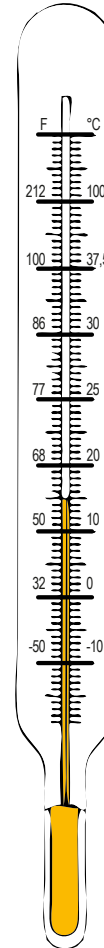
| Weight | | g | Once | Pounds |
|---------------|---|-------|---------|------------------------|
| 1 g | = | 1 | 0.03527 | 2.205.10 ⁻³ |
| 1 Once (Oz) | = | 28.35 | 1 | 0.0625 |
| 1 Livre (lbs) | = | 453.6 | 16 | 1 |

| Microns | Mesh | Microns | Mesh | Microns | Mesh |
|---------|------|---------|------|---------|------|
| 38 | 400 | 250 | 60 | 1700 | 12 |
| 45 | 325 | 300 | 50 | 2000 | 10 |
| 53 | 270 | 355 | 45 | 2360 | 8 |
| 63 | 230 | 425 | 40 | 2800 | 7 |
| 75 | 200 | 500 | 35 | 3350 | 6 |
| 90 | 170 | 600 | 30 | 4000 | 5 |
| 106 | 140 | 710 | 25 | 4750 | 4 |
| 125 | 120 | 850 | 20 | 5600 | 3.5 |
| 150 | 100 | 1000 | 18 | | |
| 180 | 80 | 1180 | 16 | | |
| 212 | 70 | 1400 | 14 | | |

Temperature

Fahrenheit = 9/5 Celsius + 32
Celsius = 5/9 (Fahrenheit - 32)

F: Fahrenheit degrees
°C: Celsius degrees
A few benchmarks



Interchim® - Uptivial™

Selection guide

Screw vials 12x32 - 9 mm

- Vials, microvials, inserts
- Screw caps with seals
- Screw caps with seals, seals
- Uptivial Kits

Screw vials 12x32 - 8 mm

- Vials, microvials, inserts, screw caps
- Screw caps with seals, Uptivial kits

Screw vials 12x32 - 10 mm

- 2 ml vials 10 mm, reduced vials, inserts, screw caps
- 10 mm screw caps with seals

Snap vials 12x32 - 11 mm

- Vials, microvials, inserts, snap caps
- Uptivial Kits, racks

Crimp vials 12x32 - 11 mm

- Vials, microvials, inserts
- Crimp caps with seals
- Uptivial Kits, racks

Crimp and Snap vials 15x45 - 13 mm

- Vials, inserts and caps

Screw vials 15x45 - 13 mm

- Vials, inserts and screw caps
- Kit and racks

Shell vials

- 1 ml, 2 ml and 4 ml vials with caps, inserts

Crimp vials 8 mm

- Vials, Caps and inserts

Headspace crimp vials 20 mm

- 5, 10, 20 ml
- Crimps caps 20 mm (metallic & magnetic) with seals
- Crimps caps 20 mm, seals and racks

Headspace screw vials 18 mm

- 10, 20 ml vials and screw caps

Sample screw vials

- Vials 2 ml to 60 ml
- Caps and seals
- Kits, racks and storage boxes
- Vials with conical bottom 2 ml to 20 ml

Sample snap vials

- Vials 5 ml to 25 ml, caps, racks and storage boxes

Solvent Bottles

- 25 ml to 20 l

Test tubes

- 1 ml to 73 ml and caps

Culture tubes

- 10 ml to 25 ml, caps and racks

Sirup vials and wide opening vials

Penicillin vials

B.2 - B.35

B.2 - B.3

B.4 - B.7

- B.4
- B.5
- B.6
- B.7

B.8 - B.9

- B.8
- B.9

B.10 - B.11

- B.10
- B.11

B.12 - B.13

- B.12
- B.13

B.14 - B.16

- B.14
- B.15
- B.16

B.17

- B.17

B.18 - B.19

- B.18
- B.19

B.20

- B.20

B.21

- B.21

B.22 - B.24

- B.22
- B.23
- B.24

B.25

- B.25

B.26 - B.29

- B.26
- B.27
- B.28
- B.29

B.30

- B.30

B.31

- B.31

B.32

- B.32

B.33

- B.33

B.34

- B.35

Accessoires

Crimper and decapper

Silicone Lids

B.36 - B.37

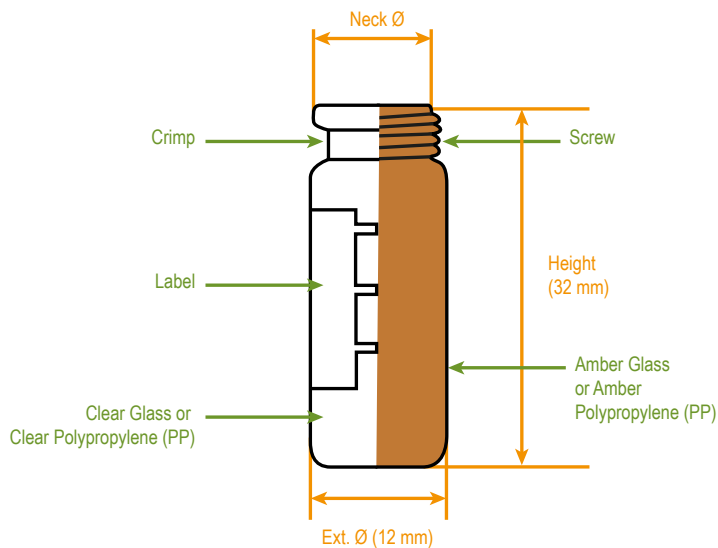
B.36

B.37

UptiVial™ - Selection guide




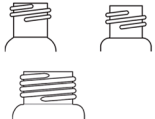
UptiVial™

Selection Guide



Vials selection

| UptiVial™ kits | Certified | LC/GC certified | MS certified |
|--|-----------|-----------------|--------------|
| Certified raw material quality | yes | yes | yes |
| Certified dimensions | yes | yes | yes |
| Traceable batch number | yes | yes | yes |
| LC and GC test (Certificate delivered with each kit) | | yes | yes |
| LC/MS and GC/MS test (Certificate delivered with each kit) | | | yes |

| Type of vials | Sealing | Features | Availability |
|---|-----------|--|---|
| Crimp vials  | Excellent | Crimping - Crimper Coloured caps available for easy identification | 2 mL, 6 mL, 10 mL, 20 mL Clear glass, amber glass, silanized or deactivated glass, polypropylene |
| Snap vials with 2 rings  | Good | Polypropylene or metallic caps Coloured caps available for easy identification Polypropylene caps can be reused Simple and fast | 2 mL, 4 mL Clear glass, amber glass, silanized or deactivated glass, polypropylene |
| "Shell vial" type  | Good | Polypropylene Plug | 1 mL, 2 mL, 4 mL Clear glass, amber glass, polypropylene |
| Screw vials  | Excellent | Manual screwing Coloured caps available for quick identification Caps can be reused | 2 mL, 4 mL, 8 mL, 10 mL, 12 mL, 16 mL, 20 mL, 30 mL, 40 mL, 60 mL Clear glass, amber glass, polypropylene |

| Vial material | Applications |
|---------------------------------|--|
| Clear borosilicated glass EXP51 | General purpose, can be used with acids. |
| Amber borosilicated glass EXP51 | Use with light sensitive samples. |
| Desactivated or Silanized glass | Deactivation treatment to eliminate interactions between glass and sample. |
| Polypropylene | Plastic material limits certain interactions between sample and vial. |



Seals selection

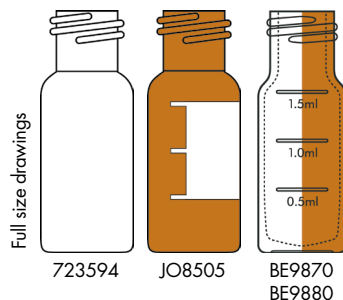
| Seal material | Features | Solvent compatibility |
|---------------------------|---|---|
| PTFE | Excellent chemical resistance and inertness. Can be used for manual or automatic perforation. Recommended for one-off injections (does not reseal). Perfectly suited for MS applications. Economical. Not recommended for storage. Maximum temperature 260°C. | Acetonitrile, Acetic acid, Acetone, Alcohols, Benzene, Chlorinated solvents, Cyclohexane, DMSO, Ether, Methanol, THF, Toluene |
| Butyl/PTFE | Routine analysis. Economical. Good chemical resistance before perforation. Can be used for manual or automatic perforation. Maximum temperature 150°C. | Acetonitrile, Acetic Acid, Alcohols, DMSO, Methanol |
| Silicone/PTFE | Recommended for multiple injections and sample storage. Ability to "resealing" after perforation. Excellent chemical resistance. Autoclavable, max. temperature 200°C. | Acetonitrile, Acetic acid, Acetone, Alcohols, DMSO, Ether, Methanol |
| Silicone/PTFE slit | Prevents coring. Excellent chemical resistance. Limits the formation of excess pressure in the vial. | Acetonitrile, Acetic acid, Acetone, Alcohols, DMSO, Ether, Methanol |
| PTFE/Silicone/PTFE | Excellent chemical resistance and resealing capacities High performance for GC and LC applications. | Acetonitrile, Acetic acid, Acetone, Alcohols, Benzene, Chlorinated solvents, Cyclohexane, DMSO, Ether, Methanol, THF, Toluene |

| Autosampler compatibility | | 2 mL 11 mm Crimp vials | 2 mL 8- 425 Screw vials | 2 mL 9 mm Screw vials | 2 mL 10- 425 Screw vials | 1 mL, 2 mL, 4 mL Shell vials | 4 mL 13- 425 Screw vials | Headspace |
|---------------------------|---|------------------------------|-------------------------------|-----------------------------|--------------------------------|------------------------------------|--------------------------------|-----------|
| Agilent | 1050/1090/1100/1200 | * | | * | | | | |
| | 5880/5890/6890 | * | | * | | | | |
| | 7673A/7683A | * | | * | | | | |
| | CTC Combi PAL | | | | | | | * |
| Bruker (Varian) | CP8410 | * | | * | | | * | |
| | CP8034/8035/8100/8200/9095/9100 | * | * | * | | | | |
| | 8035/ Vista | | * | * | | | | |
| | 8000/8100/8200/8400/8410, CP910/911/912/9010 | * | * | * | | | | |
| | Genesis | | | | | | | * |
| Carlo Erba/Fisons | AS800 | | | | | | | |
| CTC | AS200/LC PAL | * | * | * | * | | | |
| | Combi Pal | | | | | | | *magnetic |
| Jasco PerkinElmer | AS2055/AS2055i/AS2057/AS2057i/ AS2059 | * | * | * | | | | |
| | AS-100/100B/300/8300, Autosystem | * | | * | | | | |
| | Clarus 400/500/600 | * | | * | | | | |
| Shimadzu | SIL-2AS/6A/10A/10AF/10AP/10Ai/10AxL | * | *Caps with collar | * | * | * | * | |
| | SIL- 6B/7A/8A/9A | * | * | * | * | * | | |
| | SIL-10A/10AF/10AP/10Ai/10AxL | | | | | * | * | |
| Thermo | TRACE GC + FOCUS GC | * | * | * | | | | |
| | SURVEYOR LC | * | * | * | | * | | |
| | TRIPLUS | | | * | | | | *magnetic |
| Waters | 2767/2707/2777 | * | * | | | | | |
| | Acquity | * | | * | | | | |
| | Acquity UPLC | | | * | | | * | |
| | Alliance, Alliance 2690/2695/2790/2795 | * | | * | * | | | |
| VWR (Merck)/Hitachi | Wisp 48, Wisp 96, 717 | | | | | * | * | |
| | | * | * | * | | | | |



VIALS, CAPS & GLASSWARE

UptiVial™ - Screw vials 9 mm



Screw vials 12 x 32 mm wide opening - 9 mm

Total volume = 2 mL, Usable volume = 1.5 mL

| Description P/N / 1000 u | Clear | | Amber | |
|-----------------------------|----------|------------|----------|------------|
| | Standard | With label | Standard | With label |
| Glass | 723594 | JO8440 | 723981 | JO8505 |
| Silanized glass | S31191 | JO9141 | AG7J10 | E45561 |
| Polypropylene | BE9870* | --- | BE9880* | --- |

*Graduated



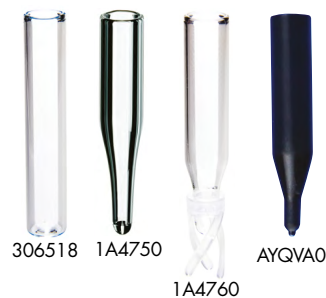
Screw vials 12 x 32 mm - Small volume - 9 mm

| Total volume | Usable volume | Residual volume | Vial material | Insert material | Shape of the insert | Clear - P/N / 1000 u | | Amber - P/N / 1000 u | |
|--------------|---------------|-----------------|---------------|-----------------|-------------------------|----------------------|------------|----------------------|------------|
| | | | | | | Standard | With label | Standard | With label |
| 1.60 mL | 1.50 mL | < 3 µL | Glass | --- | Flared bottom vial | DR9581 | --- | --- | --- |
| 1.40 mL | 1.10 mL | < 1 µL | Glass | --- | Bevelled bottom vial | KV5712 | --- | --- | --- |
| 1.40 mL | 1.00 mL | < 4 µL | Glass | --- | Conical bottom | T33885* | --- | T33891* | --- |
| 0.90 mL | 0.60 mL | < 1 µL | PP | PP | Flat bottom | CG6360 | --- | --- | --- |
| 0.40 mL | 0.30 mL | < 4 µL | Glass | Glass | Conical bottom - bonded | BWHV20 | 862685 | BWHV30 | CQ5830* |
| 0.40 mL | 0.25 mL | < 4 µL | PP | PP | Conical bottom | R06290 | --- | BE6070 | --- |
| 0.40 mL | 0.25 mL | < 1 µL | TPX | TPX | Conical bottom | I12710 | --- | --- | --- |
| 0.35 mL | 0.20 mL | < 1 µL | TPX | Glass | Conical bottom | BT5030 | --- | CL0310 | --- |
| 0.35 mL | 0.20 mL | < 1 µL | Glass | Glass | Conical bottom | --- | 862682 | --- | GO5930 |
| 0.35 mL | 0.20 mL | < 1 µL | Glass | Glass | Conical bottom - bonded | KV6432 | --- | BVIBD0 | --- |

*per 100 u

PP : Polypropylene

TPX : Polymethylpentene



Inserts for wide opening vials

| P/N / 1000 u | Total volume | Usable volume | Dimensions | Glass | Silanized glass | Polypropylene | Black polypropylene |
|------------------------------------|--------------|---------------|------------|--------|-----------------|---------------|---------------------|
| Flat bottom | 500 µL | 400 µL | 6 x 31 mm | 306518 | APB791 | 844971 | --- |
| Conical bottom | 300 µL | 250 µL | 6 x 30 mm | 1A4750 | BD3760 | AP2350 | AYQVAO |
| Conical bottom with plastic spring | 300 µL | 250 µL | 6 x 29 mm | 1A4760 | JV5570 | APA200* | AYQVBO |

*Graduated

TECHNICAL TIP

Silanized or deactivated glass:

the process of deactivating the glass surface limits the reactions between polar compounds (such as amino acids, proteins, phenols, etc.) and the glass.

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Moreover, this solution avoids "overstocking" in your laboratory.

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9 mm screw caps - polypropylene - open with bonded seals

In order to guarantee a better reproducibility, we have selected bonded seals: the seal is electrochemically glued (without addition of solvent) in the cap to avoid the gasket falling out during the piercing by the needle of the autosampler.

| Description P/N / 1000 u | Material seals | Thickness | Caps | | | | |
|---------------------------------|--|-----------|--------|--------|--------|---------|--|
| | | | Blue | Red | Green | Transp. | |
| Open caps + "bonded" caps | Butyl red / PTFE transparent | 1.0 mm | FJ7200 | JV9920 | 1K4260 | U28112 | |
| | Silicone white / PTFE red | 1.3 mm | FJ5940 | 111070 | 1F1200 | --- | |
| | Silicone white / PTFE red slit | 1.3 mm | B2WJY0 | --- | --- | --- | |
| | Silicone light brown / PTFE white | 1.3 mm | 1F7370 | --- | --- | --- | |
| | Silicone light brown / PTFE white slit | 1.3 mm | AWH8Z0 | --- | --- | --- | |
| | Silicone white / PTFE blue slit | 1.0 mm | FJ9510 | --- | --- | --- | |
| | Silicone white / PTFE red cross slit | 1.0 mm | AXLCC0 | --- | --- | --- | |

Other cap colours available : black, yellow, pink.

9 mm screw caps for LC/MS and GC/MS applications

| Description P/N / 1000 u | Material seals | Thickness | Caps | | | |
|------------------------------|--|-----------|--------|--------------|---------|--|
| | | | Blue | Caps Gray | Transp. | |
| Open caps + "bonded" caps | Silicone transparent / PTFE transparent | 1.3 mm | F18890 | --- | --- | |
| | Silicone transparent / PTFE transparent slit | 1.3 mm | --- | F18910 | --- | |
| Polypropylene caps | Polyethylene | | --- | --- | DO3910 | |

9 mm screw caps magnetic - open with "bonded" seals

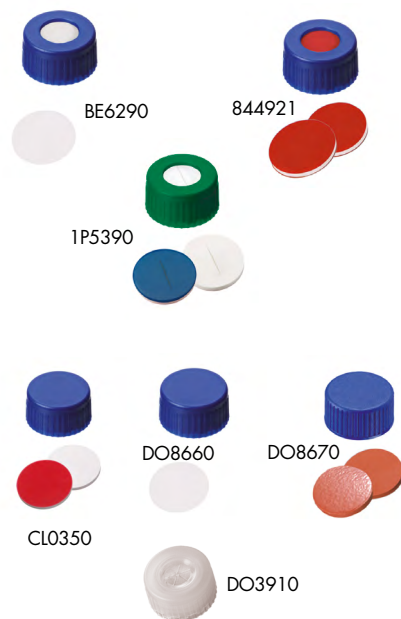
| Description P/N / 1000 u | Material seals | Thickness | Caps Gray |
|-----------------------------|----------------------------------|-----------|--------------|
| | | | |
| Open magnetic caps + seals | Silicone white / PTFE red bonded | 1.3 mm | AYQRN0 |
| | Silicone white / PTFE red slit | 1.3 mm | AYQRO0 |



AYQRN0



UptiVial™ - Screw vials 9 mm



1P5390

BE6290

844921

DO8660

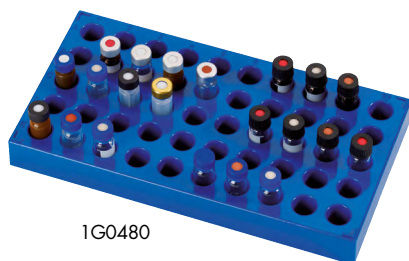
DO8670

CL0350

DO3910



Septa 9 mm



1G0480

9 mm screw caps - open - with seals

| P/N / 1000 u | | Blue | Red | Green | Transp. |
|--------------------------------------|--------|--------|--------|--------|---------|
| PTFE white | 0.2 mm | BE6290 | BW8270 | BW8290 | 1Q4530 |
| Aluminium (Phthalate free) | | OB1210 | --- | --- | --- |
| Natural rubber/ TEF | 1.0 mm | 827775 | --- | 665473 | JO8010 |
| Silicone white / PTFE red | 1.0 mm | BE9910 | --- | 665545 | BE8700 |
| PTFE red / Silicone white / PTFE red | 1.0 mm | AYJMU0 | DX2040 | AS2NQ0 | DX2030 |
| Silicone white / PTFE blue slit | 1.0 mm | E45606 | --- | 1P5390 | DX2590 |

Other cap colours available : black, yellow, pink.

9 mm screw caps - closed - with seals

| Description P/N / 1000 u | Material | Seals | | Caps | |
|-----------------------------|------------------------------|-----------|--|--------|---------|
| | | Thickness | | Blue | Transp. |
| Closed caps - polyethylene | Polyethylene | | | --- | DO3910 |
| Closed caps + seals | PTFE white | 0.2 mm | | DO8660 | --- |
| Closed caps + seals | Butyl red / PTFE transparent | 1.0 mm | | DO8670 | --- |
| Closed caps + seals | Silicone white / PTFE Red | 1.0 mm | | CL0350 | --- |

9 mm screw caps - open - without seal

| Black P/N / 1000 u | Blue P/N / 1000 u | Red P/N / 1000 u | Green P/N / 1000 u | Yellow P/N / 1000 u |
|-----------------------|----------------------|---------------------|-----------------------|------------------------|
| U66750 | R59950 | CK6170 | 724061 | CK6180 |

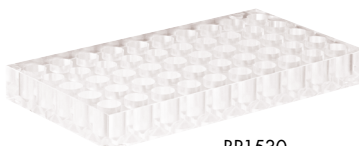
9 mm seals

| Description | Thickness | P/N / 1000 u |
|--------------------------------------|-----------|--------------|
| PTFE white | 0.25 mm | T08990 |
| Butyl red / PTFE transparent | 1.00 mm | 724594 |
| Silicone white / PTFE red | 1.00 mm | 724614 |
| Silicone white / PTFE blue slit | 1.00 mm | T33840 |
| PTFE red / Silicone white / PTFE red | 1.00 mm | 724640 |

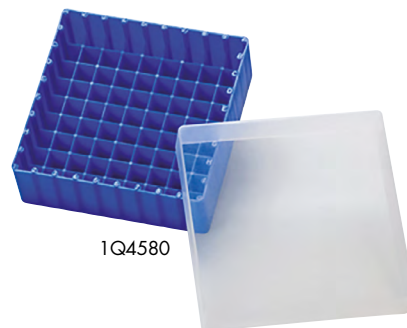
Accessories

Racks and boxes for vials (12 mm diameter)

| Description | P/N / 1 u |
|--|-----------|
| Polypropylene rack - 50 positions - blue - 200 x 107 x 17 mm | 1G0480 |
| Acrylic rack - 50 positions - transparent - 173 x 95 x 20 mm | BP1530 |
| Polypropylene box - 81 positions - blue - 130 x 130 x 45 mm | 1Q4580 |



BP1530



1Q4580



UptiVial™ Kit - 9 mm glass screw vials + caps

Total volume = 2 mL, Usable volume = 1.5 mL

| Description 1000 vials and 1000 screw caps blue + seals Label | Seals thickness | Clear glass | | Amber glass | |
|--|--------------------|-------------|---------|-------------|---------|
| | | no | yes | no | yes |
| PTFE | 0.2 mm | DW3060 | --- | --- | --- |
| Butyl red / PTFE transparent* | 1.0 mm | 293982* | 744203* | 309674* | CH2641* |
| Silicone white / PTFE red | 1.3 mm | 309575* | T33851* | S72231* | DW5955* |
| Silicone white / PTFE blue slit* | 1.0 mm | T39382* | CG8690* | CG8771* | CG8781* |
| Silicone beige/PTFE white slit | 1.0 mm | B30SQ0 | CG8710 | CG9051 | --- |
| PTFE red / Silicone white / PTFE red | 1.0 mm | 309663 | DY0580 | 309746 | 309323 |
| Aluminium (no phthalate) | 0.06 mm | APSZK0 | A2URHO | --- | --- |

*Bonded = septa integral to the cap



UptiVial™ Kit - 9 mm polypropylene screw vials + caps

| Description 1000 PP vials and 1000 blue open caps + seals | 2 mL | 300 µL |
|--|--------|--------|
| PTFE | 1K5760 | --- |
| Silicone white / PTFE red | ANEZ30 | 1M6930 |
| Silicone white / PTFE light brown slit* | --- | BVC9E0 |
| Silicone white / PTFE blue slit* | ANEZ40 | 138441 |
| Closed caps + PTFE | AQ9UY0 | 1H0660 |

*Bonded = septa integral to the cap

Certificate of conformity on request.

HPLC and GC certified 9 mm vial kits

Advion Interchim Scientific offers a wide range of UptiVial™ certified kits to meet your requirements.

Each batch is controlled according to 15 essential parameters including the different technical characteristics, UV liquid chromatography tests, FID gas chromatography gas chromatography, ...

Each kit is delivered with a certificate of analysis.

UptiVial™ 2 mL 9 mm certified vial kits

Packaging: 10 boxes of 100 units

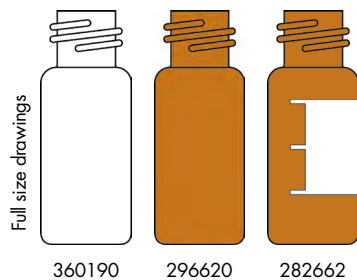


| Vials volume | Seals pre-assembled in blue caps | Clear glass | Amber glass |
|--------------|---|-------------|-------------|
| 2 mL | Rubber red / PTFE transparent | 1J072C | 1J073C |
| | Silicone white / PTFE red | 1J068C | 1J069C |
| | Silicone light brown / PTFE white (bonded) | 1J070C* | 1G038C* |
| | Silicone light brown / PTFE white slit (bonded) | 1G013C* | 1J071C* |

*Packaging by 100 units available.



UptiVial™ - Screw vials 8 mm



Full size drawings

360190

296620

282662

Screw vials 12 x 32 mm standard opening - 8 mm

Total volume = 2 mL, Usable volume = 1.5 mL

| Description P/N / 1000 u | White | | Amber | |
|-----------------------------|----------|------------|----------|------------|
| | Standard | With label | Standard | With label |
| Glass | 360190 | 282610 | 296620 | 282662 |
| Silanized glass | E45545 | --- | --- | AS2NIO |

*Graduated

Screw vials 12 x 32 mm - Reduced volume - 8 mm

| Total volume | Usable volume | Vial material | Insert material | Shape of the insert | Clear P/N / 1000 u | Amber P/N / 1000 u |
|--------------|---------------|---------------|-----------------|---------------------|-----------------------|-----------------------|
| 1.1 mL | 1.0 mL | Glass | | Conical bottom | 566465 | --- |
| 850 µL | 675 µL | PP | PP | Flat bottom | BV4350 | --- |
| 600 µL | 650 µL | PP | PP | Conical bottom | 963290 | --- |
| 350 µL | 400 µL | PP | PP | Conical bottom | 963280 | --- |
| 500 µL | 250 µL | PP | Glass | Conical bottom | 177700 | --- |
| 250 µL | 300 µL | PP | PP | Conical bottom | 963270 | --- |
| 250 µL | 100 µL | PP | PP | Conical bottom | 313140 | --- |
| 100 µL | 100 µL | PP | Glass | Conical bottom | 282930 | JV7470 |
| 100 µL | 100 µL | Glass | Glass | Conical bottom | 282910 | --- |

pp : Polypropylene



566465



BV4350



285920 BE6740

BE8530

Inserts for wide opening vials

| Solvent | Total volume | Usable volume | Dimensions | Glass P/N / 1000 u | Polypropylene P/N / 100 u |
|------------------------------------|--------------|---------------|-------------|-----------------------|------------------------------|
| Flat bottom | 300 µL | 250 µL | 5 x 31 mm | 285920 | --- |
| Conical bottom | 250 µL | 200 µL | 5 x 30 mm | BE6740 | --- |
| Conical bottom with plastic spring | 200 µL | 150 µL | 5 x 29 mm | BE8530 | APB970 |
| Conical bottom | 150 µL | 110 µL | 4 x 27.5 mm | U75901* | --- |

*Requires the use of springs P/N : CL8440 (/ 1000 u)



FJ5920

818919

8 mm screw caps - open

| Description | Seals | | Screw caps - P/N / 1000 u | | |
|-------------------------------|---------------------------------------|-----------|---------------------------|---------|---------|
| | Material | Thickness | Black | Red | Yellow |
| Open caps + "bonded" caps | Butyl red / PTFE transparent | 1.0 mm | 583481 | --- | --- |
| | Silicone white / PTFE red | 1.3 mm | FJ5920* | 1E2880* | 1E2850* |
| | Silicone white / PTFE red Upti-Traces | 1.3 mm | BF0080 | --- | --- |
| | Silicone white / PTFE red slit | 1.0 mm | 818919 | --- | --- |
| | PTFE red / Silicone white / PTFE red | 1.0 mm | Q95140 | --- | --- |
| Open caps with collar + Seals | Silicone white / PTFE red | 1.5 mm | --- | --- | R58310 |
| Open caps | - | - | 282940 | 282950 | 583440 |
| Open caps with collar | - | - | APC380* | --- | APC830* |

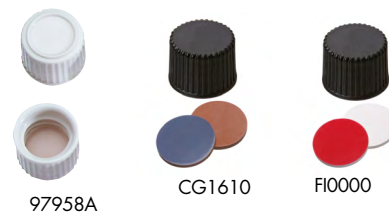
* Bonded = septa integral to the cap - Other colours available : green, blue, pink.



8 mm screw caps - closed - with seals

| Description | Material Seals | Thickness | Screw caps - P/N / 1000 u | |
|---------------------|-------------------------------|-----------|---------------------------|--------|
| | | | White | Black |
| Closed caps + seals | PTFE white | 0.25 mm | 97958A* | --- |
| Closed caps + seals | Rubber red / PTFE transparent | 1.00 mm | --- | CG1610 |
| Closed caps + seals | Silicone white / PTFE red | 1.30 mm | --- | FI0000 |

* /100 u



8 mm seals

| Description | Thickness | P/N / 1000 u |
|--------------------------------------|-----------|--------------|
| PTFE white | 0.25 mm | 969700 |
| PTFE white slit | 0.25 mm | 282980 |
| Butyl red / PTFE transparent | 1.00 mm | 305980 |
| Silicone white / PTFE red | 1.00 mm | 398110 |
| Silicone white / PTFE blue | 1.65 mm | 420180 |
| Silicone white / PTFE yellow slit | 1.00 mm | 662210 |
| PTFE red / Silicone white / PTFE red | 1.00 mm | 969900 |



Septa 8 mm

UptiVial™ Kit - 8 mm screw vials + caps

Total volume = 2 mL, Usable volume = 1.5 mL

| Description 1000 vials + 1000 screw caps black + seals | Thickness seals | Clear glass | Clear glass | Amber glass | |
|---|--------------------|----------------|----------------|----------------|---------|
| | | | | no | yes |
| PTFE | 0.2 mm | 992040 | --- | --- | --- |
| Butyl red / PTFE transparent | 1.0 mm | 494120 | DY0980 | BU0990 | DY0990 |
| Silicone white / PTFE red (bonded) | 1.3 mm | 771540* | U73070* | 760470* | CK4380* |
| Silicone white / PTFE blue slit | 1.0 mm | AZ9870 | AX0501 | DS7470 | AX0511 |
| PTFE / Silicone / PTFE | 1.0 mm | DY4060 | DY4070 | --- | --- |

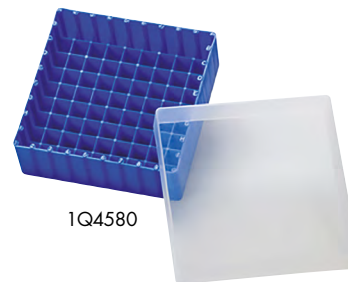
* Bonded = septa integral with the cap - Other combinations on request.



Certificate of conformity on request.

Racks and boxes for vials (12 mm diameter)

| Description | P/N / 1 u |
|--|-----------|
| Polypropylene rack - 50 positions - blue - 200 x 107 x 17 mm | 1G0480 |
| Acrylic rack - 50 positions - transparent - 173 x 95 x 20 mm | BP1530 |
| Polypropylene box - 81 positions - blue - 130 x 130 x 45 mm | 1Q4580 |



1Q4580



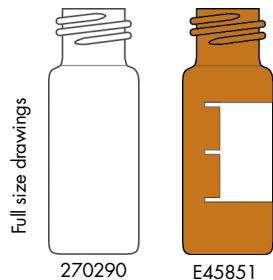
1G0480



BP1530



UptiVial™ - Screw vials 10 mm



270290

E45851



APA600

AOZ830

APA650



306510 1A4750

1A4760

Screw vials 12 x 32 mm - wide opening - 10 mm

Total volume = 2 mL, Usable volume = 1.5 mL

| Description P/N / 1000 u | White | | Amber | |
|-----------------------------|----------|------------|----------|------------|
| | Standard | With label | Standard | With label |
| Glass | 270290 | 982280 | 527920 | E45851 |
| Silanized glass | APA610 | BD3740 | --- | E45881 |

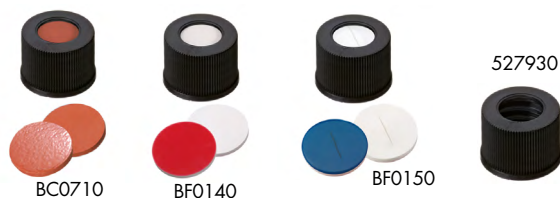
Screw vials 12 x 32 mm - Reduced volume - 10 mm

| Total Volume | Usable volume | Residual volume | Clear glass | Amber glass P/N / 1000 u | Polypropylene |
|--------------|---------------|-----------------|-------------|-----------------------------|---------------|
| 450 µL | 350 µL | < 2 µL | APA590 | APA600 | --- |
| 600 µL | 400 µL | < 6 µL | --- | --- | AOZ830 |
| 750 µL | 550 µL | < 70 µL | --- | --- | 992530 |
| 1.5 mL | 1.1 mL | < 4 µL | APA650 | --- | --- |

Inserts for wide opening vials

| P/N / 1000 u | Total volume | Usable volume | Dimensions | Glass | Silanized glass | Polypropylene |
|---------------------------------------|--------------|---------------|------------|--------|-----------------|---------------|
| Flat bottom | 500 µL | 400 µL | 6 x 31 mm | 306518 | APB791 | 844971 |
| Conical bottom | 300 µL | 250 µL | 6 x 30 mm | 1A4750 | BD3760 | AP2350 |
| Conical bottom with plastic spring | 300 µL | 250 µL | 6 x 29 mm | 1A4760 | JV5570 | APA200* |

*Graduated



BC0710

BF0140

BF0150

527930

10 mm screw caps - open

| Description | Material | Seals | | Screw caps - P/N / 1000 u | | |
|------------------------------|---------------------------------------|-----------|--|---------------------------|------------|--------|
| | | Thickness | | Black | Light blue | Red |
| Open caps + "bonded" caps | Rubber / PTFE naturel | 1.3 mm | | BC0710 | --- | --- |
| | Silicone white / PTFE red | 1.5 mm | | 534120 | --- | --- |
| | Silicone white / PTFE red | 1.3 mm | | APA180 | APA140 | APA150 |
| | Silicone white / PTFE red Upti-Traces | 1.3 mm | | BF0140 | --- | --- |
| | Silicone white / PTFE blue slit | 1.5 mm | | BF0150 | --- | --- |
| | PTFE red / Silicone white / PTFE red | 1.0 mm | | AK9062 | --- | --- |
| Open caps | - | - | | 527930 | R04541 | R04560 |



429981

119470

P52050

10 mm screw caps - closed - with seals

| Total volume | Seals | Black - P/N / 1000 u | White - P/N / 100 u |
|---------------------------|---------------|----------------------|---------------------|
| Closed screw caps | - | 429981 | --- |
| Closed screw caps + Seals | PTFE | --- | P52050 |
| Closed screw caps + Seals | Rubber / PTFE | 119470 | --- |



10 mm seals

| Description | Thickness | P/N / 1000 u |
|--------------------------|-----------|--------------|
| PTFE | 0.25 mm | 527940 |
| Rubber / PTFE | 1.00 mm | 527950 |
| Silicone / PTFE red | 1.50 mm | 527980 |
| Silicone / PTFE red slit | 1.00 mm | BC0720 |
| PTFE / Silicone / PTFE | 1.00 mm | 422620 |



Septa 10 mm

UptiVial™ Kit - 10 mm screw vials + caps

Total volume = 2 mL, Usable volume = 1.5 mL

| Description / 1000 u | Clear glass | Amber glass |
|------------------------------------|------------------|-------------|
| PTFE | 992050 | 844510 |
| Silicone white/ PTFE red (1.5 mm) | DZ1440 | DY8730* |
| Silicone white / PTFE red (1.3 mm) | 1K6560 | --- |
| Silicone / PTFE slit | A2XLMO / APA520* | --- |
| PTFE / Silicone / PTFE | BU0900 | --- |

*With label.



Other combinations on request.

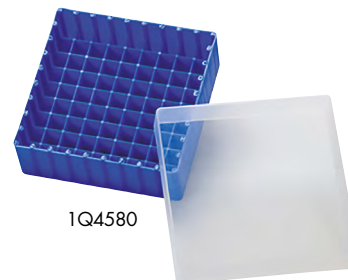
10 mm screw-top vial kits with pre-assembled caps

Total volume = 2 mL, Usable volume = 1.5 mL

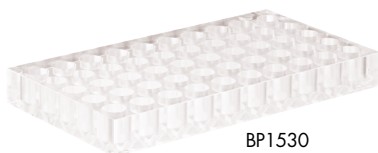
| Description / 1000 u | Clear glass | Amber glass |
|------------------------|-------------|-------------|
| PTFE | BC0740 | 293080 |
| Butyl / PTFE | BC0750 | --- |
| Silicone / PTFE | 645140 | --- |
| PTFE / Silicone / PTFE | BC1910 | --- |

Racks and boxes for vials (12 mm diameter)

| Description | P/N / 1 u |
|--|-----------|
| Polypropylene rack - 50 positions - blue - 200 x 107 x 17 mm | 1G0480 |
| Acrylic rack - 50 positions - transparent - 173 x 95 x 20 mm | BP1530 |
| Polypropylene box - 81 positions - blue - 130 x 130 x 45 mm | 1Q4580 |



1Q4580



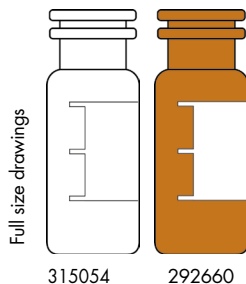
BP1530



1G0480



UptiVial™ - Snap vials 11 mm



Full size drawings

315054

292660

Snap vials double rings 12 x 32 mm - wide opening - 11 mm

Total volume = 2 mL, Usable volume = 1.5 mL

| Description P/N / 1000 u | White | | Amber | |
|-----------------------------|----------|------------|----------|------------|
| | Standard | With label | Standard | With label |
| Glass | 290920 | 315054 | 388140 | 292660 |
| Silanized glass | APB770 | BD3750 | --- | APB800 |

Snap vials 12 x 32 mm - Reduced volume - 11 mm

| Total volume | Usable volume | Residual volume | Vials | | Insert | | Clear glass | Amber glass |
|--------------|---------------|-----------------|----------|--------------|----------|------------------|-------------------|-------------------|
| | | | Material | Bottom shape | Material | Bottom shape | | |
| 1.7 mL | 1.3 mL | < 4 µL | Glass | Flat | - | Slightly conical | BG2400 / 100 u | --- |
| 1.4 mL | 1.2 mL | < 1 µL | Glass | Flat | Glass | - | KV5720 / 1000 u | --- |
| 1 mL | 800 µL | < 80 µL | PP | Flat | PP | Flat | E23153 / 1000 u | --- |
| 1 mL | 750 µL | < 8 µL | TPX | Flat | TPX | Conical | 962612 / 1000 u | --- |
| 900 µL | 650 µL | < 25 µL | PP | Flat | PP | Flat | CL0330 / 1000 u | --- |
| 500 µL | 300 µL | < 3 µL | Glass | Flat | Glass | Conical | KV6451 / 1000 u | --- |
| 475 µL | 300 µL | < 2 µL | PP | Flat | PP | Conical | APA720 / 100 u | --- |
| 400 µL | 250 µL | < 4 µL | PP | Flat | PP | Conical | 659785 / 1000 u | --- |
| 400 µL | 250 µL | < 4 µL | PP | Flat | PP | Conical | 112720 / 1000 u | EV3010 / 1000 u |
| 300 µL | 200 µL | < 1 µL | Glass | Flat | Glass | Conical | HQ2990** / 1000 u | FO1360** / 1000 u |
| 300 µL | 200 µL | < 4 µL | TPX | Flat | Glass | Conical | BW9280 / 1000 u | CL0320 / 1000 u |

*With labels

PP : Polypropylene

TPX : Polymethylpentene



CL0320

KV6450

KV5720



306518

1A4750

1A4760

Inserts for wide opening vials

| P/N / 1000 u | Total volume | Usable volume | Dimensions | Glass | Silanized Glass | Polypropylene |
|------------------------------------|--------------|---------------|------------|--------|-----------------|---------------|
| Flat bottom | 500 µL | 400 µL | 6 x 31 mm | 306518 | APB791 | 844971 |
| Conical bottom | 300 µL | 250 µL | 6 x 30 mm | 1A4750 | BD3760 | AP2350 |
| Conical bottom with plastic spring | 300 µL | 250 µL | 6 x 29 mm | 1A4760 | JV5570 | APA200* |

*Graduated.

11 mm snap caps polyethylene for double ring vials

| Description P/N / 1000 u | Seals | | Crimp Caps | | | |
|-----------------------------|---|-----------|------------|--------|--------|--------|
| | Material | Thickness | PE Naturel | Blue | Green | Red |
| Snap caps 11 mm + Seals | PP | | 181822 | 181931 | 181941 | APA981 |
| | PTFE white | 0.25 mm | 292931 | 339151 | 339160 | 339180 |
| | Rubber red naturel / PTFE transparent | 1.0 mm | BE6980 | --- | --- | --- |
| | Rubber red synthetic / PTFE transparent | 1.0 mm | 292943 | CP5190 | CQ1530 | CQ5140 |
| | Silicone white / PTFE red | 1.3 mm | 181999 | 182001 | 182011 | 182021 |
| | Silicone white / PTFE red Upti-Trace | 1.3 mm | BE9950 | 1D3790 | A1MN90 | A1MN70 |
| | Silicone white / PTFE blue slit | 1.0 mm | 814511 | APB081 | APB101 | APB111 |
| | Silicone white / PTFE red slit (cross) | 1.3 mm | 380571 | 1D3750 | OC6950 | OC6940 |
| | Silicone white / PTFE red slit (star) | 1.3 mm | APB161 | --- | --- | --- |
| | PTFE red / Silicone white / PTFE red | 1.0 mm | APB011 | APB021 | --- | APB041 |



181999

Black, pink, yellow caps available on request.



11 mm crimp vials UptiVial™ kits

Total volume = 2 mL, Usable volume = 1.5 mL

| Description 1000 vials and 1000 caps + seals | Clear glass | | Amber glass |
|---|-------------|------------|-------------|
| | Standard | With label | With label |
| PTFE | OC3050 | --- | --- |
| Butyl / PTFE | 1D4600 | B3ASA0 | 1D4630 |
| Silicone / PTFE | DY7080 | B33U50 | EV0720 |
| Silicone / PTFE slit | 7A6440 | B3ASB0 | --- |
| Silicone / PTFE slit (cross) | --- | --- | AXF8P0 |



Other combinations on request.
Certificate of conformity on request.

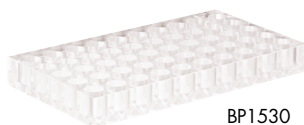
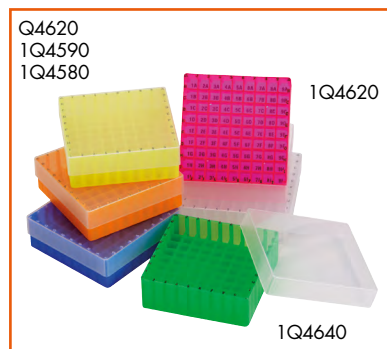
Accessories for 12 mm vials

Storage boxes for 12 x 32 mm vials

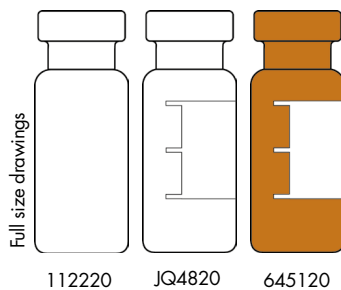
| Description | Blue | Orange | Pink | Yellow | Green | Transparent |
|---|--------|--------|--------|--------|--------|-------------|
| 81 positions 130 x 130 x 45 mm - 1 u | 1Q4580 | 1Q4590 | 1Q4610 | 1Q4620 | 1Q4640 | 1Q4650 |
| 16 positions 67 x 67 x 45 mm - 1 u | 1Q4660 | 1Q4670 | 1Q4680 | 1Q4690 | 1Q4700 | 1Q4710 |

Racks 12 mm

| Material | Color | Dimensions (mm) | Number of positions | P/N / u |
|---------------|-------------|-----------------|---------------------|---------|
| Acrylic | Transparent | 173 x 95 x 20 | 50 | BP1530 |
| Polypropylene | Blue | 200 x 105 x 17 | 50 | 1G0480 |



UptiVial™ - Crimp vials 11 mm



Crimp vials 12 x 32 mm - wide opening - Neck 11 mm

Total volume = 2 mL, Usable volume = 1.5 mL

| Description P/N / 1000 u | Clear | | Amber | |
|-----------------------------|----------|------------|----------|------------|
| | Standard | With label | Standard | With label |
| Glass | 112220 | JQ4820 | 090505 | 645120 |
| Silanized glass | --- | E46751 | --- | E46772 |

Crimp vials 12 x 32 mm - Reduced volume - 11 mm



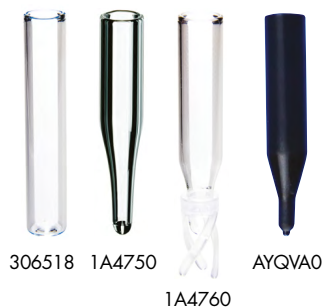
| Total volume | Usable volume | Residual volume | Vials | | Insert | | Clear / 1000 u | Amber / 1000 u |
|--------------|---------------|-----------------|----------|------------------|----------|------------------|----------------|----------------|
| | | | Material | Bottom shape | Material | Bottom shape | | |
| 1.1 mL | 0.9 mL | < 2 µL | Glass | Conical | - | - | 566460* | --- |
| 1.3 mL | 1.1 mL | < 4 µL | Glass | Conical | - | - | LV5960 | --- |
| 1.8 mL | 1.5 mL | < 8 µL | Glass | Flat | Glass | - | JV2640 | --- |
| 1.5 mL | 1.1 mL | < 4 µL | Glass | Conical - bonded | - | - | APB822 | --- |
| 1.4 mL | 1.2 mL | < 1 µL | Glass | Flat | Glass | - | KV5720 | --- |
| 1.0 mL | 800 µL | < 80 µL | PP | Flat | PP | Flat | E23153 | --- |
| 500 µL | 300 µL | < 4 µL | PP | Flat | PP | Conical | 659780 | --- |
| 500 µL | 300 µL | < 3 µL | Glass | Flat | Glass | Conical | E36535 | A2UR80 |
| 300 µL | 200 µL | < 1 µL | Glass | Flat | Glass | Conical | HQ2990** | FO1360** |
| 300 µL | 200 µL | < 4 µL | TPX | Flat | Glass | Conical | BW9280 | CL0320 |
| 300 µL | 200 µL | < 3 µL | Glass | Flat | Glass | Conical - bonded | BWLRQ0 | BX1G80 |

* 10 x 32 mm

** With label

PP : Polypropylene

TPX : Polymethylpentene



Inserts for wide opening vials

| P/N / 1000 u | Total volume | Usable volume | Dimensions | Glass | Silanized Glass | Polypropylene | Polypropylene black |
|------------------------------------|--------------|---------------|------------|--------|-----------------|---------------|---------------------|
| Flat bottom | 500 µL | 400 µL | 6 x 31 mm | 306518 | APB791 | 844971 | --- |
| Conical bottom | 300 µL | 250 µL | 6 x 30 mm | 1A4750 | BD3760 | AP2350 | AYQVAO |
| Conical bottom with plastic spring | 300 µL | 250 µL | 6 x 29 mm | 1A4760 | JV5570 | APA200* | AYQVBO |

*Graduated.



Crimper and decrimper

| Description | P/N / 1 u |
|-----------------------|-----------|
| Crimping pliers 11 mm | HO9150 |
| Decapper 11mm | HO9170 |



Crimping pliers
HO9150

11 mm metal caps

| Description | Seals | | Crimp Caps + Seals / 1000 u |
|---------------------|---|-----------|-----------------------------|
| | Material | Thickness | |
| | Aluminium | 0.06 mm | 119460 |
| | PTFE white | 0.25 mm | 324150 |
| | PP | | APA920 / 100 u |
| | Butyl red (synthetic) / PTFE | 1.0 mm | 290610 |
| | Rubber red (natural rubber) / TFE | 1.0 mm | 290619 |
| | Silicone white / PTFE red | 1.0 mm | 213920 |
| | Silicone white / PTFE red Upti Trace | 1.3 mm | BE9940 |
| | Silicone white / PTFE light brown | | JQ6820 |
| | Silicone white / PTFE red slit | 1.0 mm | B426F0 |
| | Silicone white / PTFE yellow slit | 1.0 mm | 871473 |
| | Silicone blue / PTFE white slit (cross) | 1.5 mm | JQ4470 |
| | PTFE red / Silicone white / PTFE red | | AYPDU0 |
| | Viton black | | APB170 |
| Aluminium caps only | - | - | 176952 |

Aluminium Crimp Caps + seals



290610

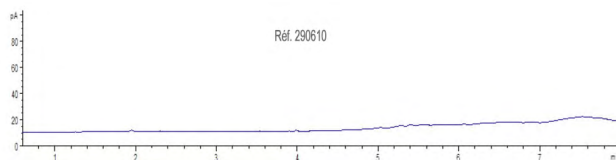
213920

Aluminium caps only

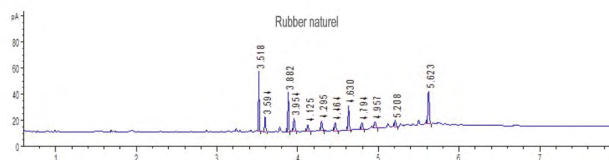
Available with green, red, blue or gold caps.

Complete range of crimping and release pliers at the end of chapter B.

TECHNICAL TIP



Ref. 290610



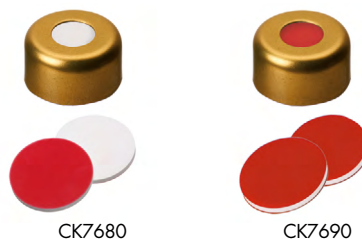
Rubber naturel

Butyl red synthetic / PTFE:

less contamination, more reliable analysis with a lower background level in GC (very useful for trace analysis with ECD and NPD), same mechanical characteristics as other Seals "rubber" red.

11 mm magnetic metal caps

| Description | Seals | | Crimp Caps + Seals / 1000 u |
|---|--------------------------------------|-----------|-----------------------------|
| | Material | Thickness | |
| Gold magnetic caps orifice 5 mm + Seals | Silicone white / PTFE red | 1.3 mm | CK7680 |
| Gold magnetic caps orifice 5 mm + Seals | PTFE red / Silicone white / PTFE red | 1.0 mm | CK7690 |



CK7680

CK7690



UptiVial™ - Crimp vials 11 mm



Other combinations on request.
Certificate of conformity on request.



78888P

Other combinations on request.



11 mm crimp vials UptiVial™ Kits

Total volume = 2 mL, Usable volume = 1.5 mL

| Description | Clear glass | | Amber glass | |
|--------------------------------------|-------------|------------|-------------|------------|
| | Standard | With label | Standard | With label |
| 1000 Vials + 1000 Crimp Caps + Seals | | | | |
| Butyl / PTFE | 788880 | BF6490 | L74702 | U68650 |
| Rubber natural / TFE | A2UL10 | --- | --- | --- |
| Silicone / PTFE | 213910 | BU0690 | L74692 | BU0700 |
| Silicone / PTFE slit | DY1240 | DY1250 | DY1260 | DY1270 |
| PTFE / Silicone / PTFE | U73020 | DY1210 | DY1220 | DY1230 |
| Aluminium (phthalate free) | APSZLO | APSZNO | --- | --- |

HPLC and GC certified 11 mm vial kits

Each batch is controlled according to 15 essential parameters including the different technical characteristics, the tests by liquid chromatography UV, by gas chromatography FID, ...

Each kit is delivered with a certificate of analysis.

Packaging: 10 boxes of 100 units

| Volume of vials | Pre-assembled seals in capsules | Clear glass | Amber glass |
|-----------------|---------------------------------|-------------|-------------|
| 2 mL | Butyl / PTFE | AWJGLO | --- |

*Packaging by 100 units available.

2 mL pre-sealed vial kits with aluminum caps

| Description | Seals | Clear glass / 1000 u | Amber glass / 1000 u |
|----------------------------|-----------------|----------------------|----------------------|
| Crimped vials and capsules | Butyl / PTFE | 78888P | BD4680 |
| Crimped vials and capsules | Silicone / PTFE | 213912 | BI6240 |

2 mL pre-sealed vial kits with aluminum caps for sampling

Collect your hazardous samples (e.g. cytotoxics) in full safety.

Sampling is effortless with a double needle with protection.

No leakage: after sampling, the needle is "wiped" by the polymeric membrane then by a PTFE film.

The risk of external contamination is virtually eliminated. All external parts remain accessible for possible safety decontamination.

Precise and reproducible sampling of the desired volume.

Standard 12 x 32 bottle, compatible with most autosamplers.

| Description | Sucked-up volume (mL) | Capsule + seal | P/N | Qty |
|-------------------|-----------------------|----------------|--------|-------|
| Pre-crimped vials | ~1.1 | Polymer + PTFE | AYQTTO | 1 Kit |

Other configurations on request (type of vials, volume sucked, ...).
Customized services.



Crimp and snap vials double ring 15 x 45 mm - wide opening - neck 13 mm

Total volume = 5 mL, Usable volume = 4.1 mL



350642 R59942

| Description | Clear glass | Amber glass |
|-------------|-------------|-------------|
| No label | 350642 | R59942 |
| With label | T82651 | BC0761 |

Insert for crimp vials 15 x 45 mm

| Description | P/N / 1000 u |
|---|--------------|
| 300 µL Clear glass conical bottom with plastic spring | 294000 |
| 500 µL Clear glass flat bottom | 205360 |
| 300 µL Polypropylene conical bottom | 400320 |
| 300 µL Polypropylene conical bottom with plastic spring | 294010 |

13 mm aluminium crimp caps

| Description | Material seals | P/N / 1000 u |
|-----------------------------|------------------------|--------------|
| 13 mm crimp caps with seals | PTFE | 350890 |
| | Butyl / PTFE | 350900 |
| | Silicone / PTFE | 350920 |
| | PTFE / Silicone / PTFE | 351440 |



13 mm polyethylene snap caps

| Description | Material seals | P/N / 1000 u |
|----------------------------|------------------------|--------------|
| 13 mm snap caps with seals | PTFE | 350750 |
| | Butyl / PTFE | 350870 |
| | Silicone / PTFE | 350780 |
| | PTFE / Silicone / PTFE | 350880 |



RELATED PRODUCTS



VIALS

FILTERS

SPE COLUMNS

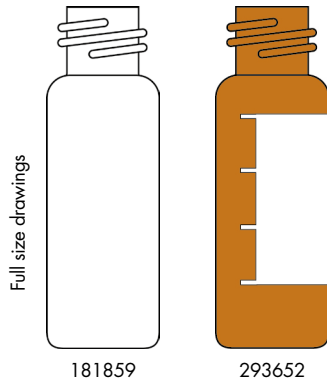
FLASH COLUMNS

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Online form: https://www.interchim.com/tailored_offer_form.php



UptiVial™ - Screw vials 13 mm



Screw vials 15 x 45 mm - 13 mm - 4 mL

Total volume = 5 mL, Usable volume = 4.1 mL

| Description P/N / 1000 u | Clear | | Amber | |
|-----------------------------|----------|------------|----------|------------|
| | Standard | With label | Standard | With label |
| Glass 4 mL | 181859 | 1E4130 | 360160 | 293652 |
| Silanized glass 4 mL | JQ4750 | --- | --- | --- |

Screw vials 15 x 45 mm - Reduced volume - 13 mm

| Description P/N / 1000 u | Usable volume | Reduced volume | P/N |
|------------------------------|---------------|----------------|---------------------|
| Glass 3.5 mL "high recovery" | 3.5 mL | 3.3 mL | DO8500 / 100 u |
| Polypropylene 2.5 mL | 2.5 mL | 2 mL | 661210 / 10 x 100 u |

Insert for screw-in vials 15 x 45 mm

| Description | P/N / 1000 u |
|---|--------------|
| 250 µL clear glass conical bottom | 202144* |
| 300 µL clear glass conical bottom with plastic spring | 294000 |
| Metal spring | 210365 |

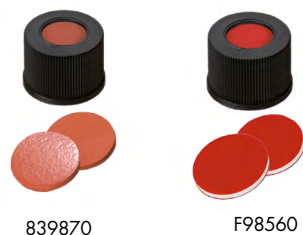
*Requires a metal spring.



13 mm screw caps - open

| Description | | Black P/N / 1000 u | Red P/N / 1000 u |
|---------------------------------------|--------|--------------------|------------------|
| Rubber natural red / PTFE transparent | 1.3 mm | 839870 | --- |
| Silicone / PTFE | | 530080 | --- |
| PTFE red / Silicone white / PTFE red | | F98560 | --- |
| Screw caps PP transparent molded | PP | B432W0 | --- |
| Open caps only | - | 181890 | 293280 |

Other colours on request.



12 mm seals

| Description | Thickness | P/N / 1000 u |
|--------------------------------------|-----------|--------------|
| PTFE | 0.25 mm | 452506 |
| Rubber red / PTFE | 1.50 mm | 293400 |
| Silicone / PTFE red | 1.50 mm | 293380 |
| Silicone / PTFE red | 1.90 mm | 189630 |
| Silicone / PTFE red slit | 1.50 mm | 293420 |
| PTFE red / Silicone white / PTFE red | 1.00 mm | 293430 |





13 mm polypropylene closed screw caps

| Description | Seals | Screw caps blacks |
|------------------------|---------------------------------------|-------------------|
| | Septa | P/N / 1000 u |
| Open caps | PTFE | 773820* |
| | Rubber natural red / PTFE transparent | CG0510 |
| | Butyl red / PTFE gray | GV4560 |
| | Silicone / PTFE | 1Q1630 |
| Open caps without seal | - | BJ0170 |

* Screw caps white



4 mL screw vials kits (vials + caps with seals)

| Description | Clear glass | Amber glass |
|--------------------------------------|--------------|--------------|
| 1000 vials + 1000 crimp caps + seals | P/N / 1000 u | P/N / 1000 u |
| Rubber / PTFE | BX3551 | BX3600 |
| Silicone / PTFE | 760430 | 760440 |
| Silicone / PTFE slit | FI5140 | --- |

4 mL screw vials kits (vials and caps assembled)

Delivered with cap screwed onto the bottle.

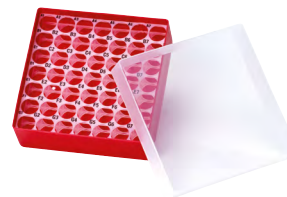
| Description | Clear glass | Amber glass |
|--------------------------------------|--------------|--------------|
| 1000 vials + 1000 crimp caps + seals | P/N / 1000 u | P/N / 1000 u |
| PTFE | 294080 | 294460 |
| Butyl / PTFE | 294210 | 294500 |
| Silicone / PTFE | 294330 | 294510 |
| PTFE / Silicone / PTFE | 294350 | 294520 |



294080

Red storage box for 4 mL vials

| Description | P/N / u |
|---|---------|
| Red storage box for 4 mL vials - 49 positions (130 x 130 x 52 mm) | 1Q4720 |



Racks for 15mm vials

| Material | Color | Dimensions | Number of positions | P/N / u |
|---------------|-------------|-------------------|---------------------|---------|
| Polypropylene | Blue | 230 x 117 x 28 mm | 50 | 1Q4730 |
| Acrylic | Transparent | 176 x 116 x 20 mm | 40 | CV9130 |



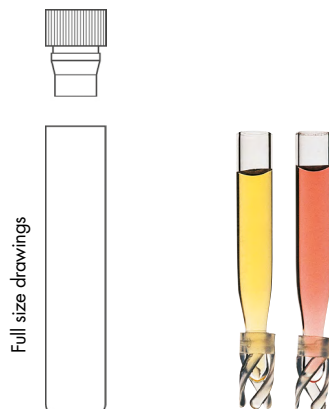
CV9130



1Q4730



UptiVial™ - "Shell vials"



Shell vials 8 x 40 mm + PE plugs

Total volume = 1.25 mL, Usable volume = 1.0 mL

| Volume | Clear glass - P/N / 1000 u | Amber glass - P/N / 1000 u | Polypropylene - P/N / 250 u |
|--------|----------------------------|----------------------------|-----------------------------|
| 1 mL | 197850 | 197860 | 847180 |

Vials are supplied with polyethylene caps.

Inserts for vials 1 mL 8 x 40 mm

| Description | | Glass - P/N / 100 u | Polypropylene - P/N / 100 u |
|----------------------------------|-----------|---------------------|-----------------------------|
| 250 µL with polypropylene spring | 5 x 34 mm | 329320 | --- |
| 300 µL with polypropylene spring | 5 x 29 mm | --- | CL9620 |

Shell vials 12 x 32 mm + PE plugs

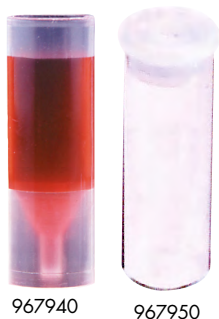
Total volume = 2.4 mL, Usable volume = 1.8 mL

| Volume | Clear glass - P/N / 1000 u | Amber glass - P/N / 1000 u | Polypropylene - P/N / 1000 u |
|--------|----------------------------|----------------------------|------------------------------|
| 2 mL | BB4980 | BB4940 | APB370 |

Shell vials 15 x 45 mm + PE plugs

Total volume = 5.5 mL, Usable volume = 4.0 mL

| Volume | Clear glass - P/N / 1000 u | Amber glass - P/N / 1000 u | Polypropylene - P/N / 1000 u |
|--------|----------------------------|----------------------------|------------------------------|
| 4 mL | 967950 | 967960 | 747246 |
| 3 mL | --- | --- | 967943 |



Inserts for 4 mL vials 15 x 45 mm

| Description | | P/N / 100 u |
|----------------------------------|-----------|-------------|
| 800 µL with polypropylene spring | 6 x 38 mm | BC3580 |

RELATED PRODUCTS

Find out more about our range of hydrophilic/ hydrophobic SPE polymers and PolyClean™ ion exchange polymers in chapter : Sample Preparation - Solid Phase Extraction





Crimp 6 x 32 mm vials - 8 mm neck

| Description | Total volume | Usable volume | Clear glass - P/N / 1000 u |
|----------------|--------------|---------------|----------------------------|
| Round bottom | 0.35 mL | 0.30 mL | 427866 |
| Conical bottom | 0.25 mL | 0.20 mL | 793340 |

Crimp 7 x 30 mm vials - 8 mm neck

| Description | Total volume | Usable volume | Amber glass - P/N / 1000 u |
|----------------|--------------|---------------|----------------------------|
| Conical bottom | 0.35 mL | 0.30 mL | CL0300 |

Crimp 7 x 40 mm vials - 8 mm neck

| Description | Total volume | Usable volume | Clear glass - P/N / 1000 u | Amber glass - P/N / 1000 u |
|----------------|--------------|---------------|----------------------------|----------------------------|
| Flat bottom | 0.9 mL | 0.8 mL | 391309 | 0B5905 |
| Conical bottom | 0.65 mL | 0.6 mL | 30375U | 392288 |

Crimp 8 x 30 mm vials - 8 mm neck

Total volume = 0.9 mL. Usable volume = 0.8 mL

| Description | Clear glass - P/N / 100 u |
|-------------|---------------------------|
| Flat bottom | 303826 |

Crimp 8 x 40 mm vials - 8 mm neck

Total volume = 1.2 mL. Usable volume = 1.0 mL

| Description | Clear glass - P/N / 1000 u | Amber glass - P/N / 1000 u |
|-------------|----------------------------|----------------------------|
| Flat bottom | BU2820 | CD1730 |

Aluminium crimp 8 mm caps with seals

| Seals | P/N / 1000 u |
|---|--------------|
| PTFE white - 0.25 mm | 303860 |
| Rubber red / PTFE - 1.0 mm | 1G0470 |
| Silicone white / PTFE red 1.3 mm | 304357 |
| Silicone white / PTFE red slit 1.3 mm | CD1770 |
| PTFE red / White silicone / PTFE red 1.0 mm | 304363 |
| Viton - 1.0 mm | 304392 |

Polyethylene snap 8 mm caps

| Seals | P/N / 1000 u |
|---------|--------------|
| PE blue | CL0360 |

Rack for vials Ø 8 mm

| Material | Color | Dimensions | Number of positions | P/N / u |
|----------|-------------|------------------|---------------------|---------|
| Acrylic | Transparent | 173 x 95 x 20 mm | 50 | IV9450 |



UptiVial™ - Headspace crimp vials



Long neck



Flat bottom



Bevelled neck



Round bottom



Headspace Crimp Vials

| Volume | Description | Dimensions | Clear glass P/N / 1000 u | Amber glass P/N / 1000 u | Autosampler brand |
|--------|---|----------------|-----------------------------|-----------------------------|---|
| 5 ml | Round bottom, bevelled neck | 38.2 x 22.0 mm | 793367 | --- | PerkinElmer |
| | Flat bottom | 38.0 x 20.0 mm | BF0780 | --- | Varian |
| 10 ml | Round bottom | 46.0 x 22.5 mm | BU3240 | BX7810 | Carlo Erba, CTC, Fisons, Varian (CP) |
| | Flat bottom + long neck | 46.0 x 22.5 mm | BU2831 | --- | Carlo Erba, Dani, Fisons, Agilent |
| | Flat bottom | 54.5 x 20.0 mm | BU3250 | --- | Varian |
| 20 ml | Round bottom | 75.5 x 23.0 mm | BF2560 BF1770* | AP1842 | PerkinElmer, Tekmar |
| | Round bottom + long neck | 75.5 x 22.5 mm | 426950 | BX7850 | CTC PAL (Varian, Gerstel, Atas, Shimadzu), TriPlus HS |
| | Round bottom for SPME | 75.5 x 22.5 mm | BE6340 | --- | CTC PAL (SPME) |
| | Flat bottom + long neck | 75.5 x 22.5 mm | BU2971 | --- | Carlo Erba, Dani, Fisons, Agilent |
| | Flat bottom + long neck + bevelled neck | 75.5 x 22.5 mm | BADZJ0 | --- | Agilent |

*with label and lines.

20 mm crimper and decrimper

| | Crimper | Decrimper |
|------------------|---------|-----------|
| Ergonomic | HO9160 | HO9180 |
| Standard | 177004 | --- |
| Inox | 1J0170 | 1J0200 |
| Electric crimper | BXCB40 | BXCB80 |



HO9160

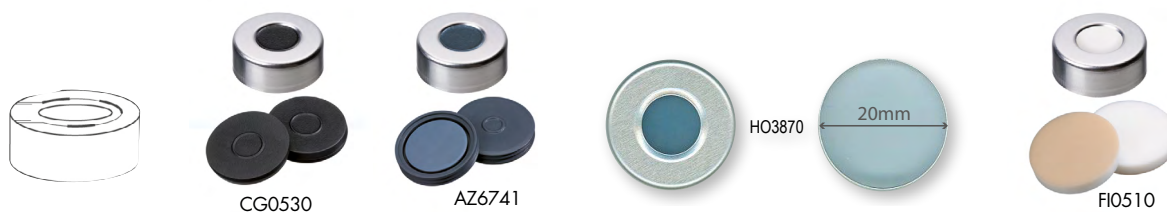
Complete range of crimping and uncrimping pliers at the end of the chapter B.



177004

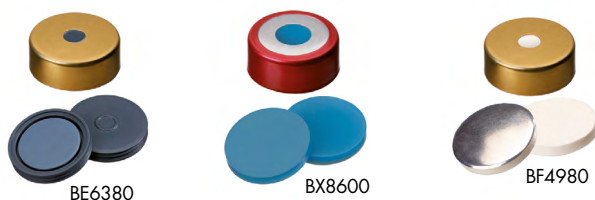


5191-5615



20 mm metallic crimp caps with seals

| Material | Operating temperature | Thickness | Standard hole 10 mm P/N / 1000 u | Security opening at 3.0 +/- 0.5 bar hole 8 mm - P/N / 1000 u |
|---|-----------------------|-----------|----------------------------------|--|
| Butyl dark gray | - 40 to 120°C | 3.0 mm | CG0530 | --- |
| Butyl / PTFE gray | - 40 to 120°C | 3.0 mm | 989827 | 356000 |
| Rubber synthetic | | | 119570 | 119580 |
| Pharma Fix | - 40 to 120°C | 3.0 mm | AZ6741 | BE6370 |
| Silicone blue transparent / PTFE white | - 40 to 200°C | 3.0 mm | HO3870 | 1D3350 |
| Silicone blue transparent / PTFE white Upti-trace | - 40 to 200°C | 3.2 mm | BE9960 | BE9982 |
| Silicone white / PTFE beige | - 40 to 200°C | 3.2 mm | FIO510 | 1G0990 |
| Silicone white / Aluminium | - 60 to 220°C | 3.0 mm | BF4960 | AA1511 |



TECHNICAL TIP

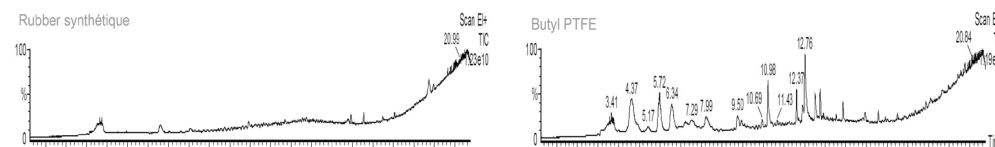
Magnetic bimetal caps:
Easier to crimp: aluminium contour and magnetic steel top.

20 mm magnetic crimp caps + seals

| Material | Operating temperature | Thickness | Magnetic, gold plated 5 mm hole P/N / 1000 u | Magnetic, gold plated 8 mm hole P/N / 1000 u | Magnetic bimetal, red hole 8 mm P/N / 1000 u |
|--|-----------------------|-----------|--|--|--|
| Butyl / PTFE gray | - 40 to 120°C | 3.0 mm | 356070 | 356071 | --- |
| Rubber synthetic | | | 119610 | 119590 | 119600 |
| Pharma fix | - 40 to 120°C | 3.0 mm | BE6380 | BE6390 | --- |
| Silicone blue / PTFE white | - 40 to 200°C | 3.0 mm | 1D3360 | --- | --- |
| Silicone blue / PTFE white ultra clean | - 40 to 200°C | 3.2 mm | BF0000 | BF0040 | BX8600 |
| Silicone / PTFE - white / beige | - 40 to 200°C | 3.2 mm | --- | ANEZOO | ANEZPO |
| Silicone white / aluminium | - 60 to 220°C | 3.0 mm | --- | BF4980 | --- |
| Silicone dark red / PTFE UHT* | - 60 to 300°C | 3.0 mm | BOD6A0 | --- | --- |

*UHT : Ultra High Temperature - can be used up to 300°C.

TECHNICAL TIP



Rubber synthetic:

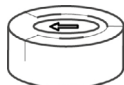
less contamination, more reliable analysis with a lower background level in GC (very useful for Headspace analysis), same mechanical characteristics as other red rubber seals.



UptiVial™ - Headspace Crimp Vials



361840



176973



296270



T06540



176811

BE9130

297480



Metallic crimp caps for SPME with seals

| Material | Color | Thickness | Magnetic, gold plated 8 mm hole P/N / 1000 u |
|-----------------|--------------|-----------|--|
| Silicone / PTFE | White / blue | 1.5 mm | BM9790 |
| Viton | Black | 1.0 mm | BH3840 |

For use with vials BE6340.

20 mm metallic crimp caps

| | Standard | Safety | Tearable |
|--------------|----------|--------|----------|
| P/N / 1000 u | 361840 | 296293 | 176970 |

20 mm magnetic crimp caps

| | Magnetic, silver plated 5 mm hole | Magnetic bimetal, red hole 8 mm |
|--------------|--------------------------------------|------------------------------------|
| P/N / 1000 u | 296270 | T06540 |

20 mm seals for metallic crimp caps

| Material | Operating temperature | Thickness | P/N / 1000 u |
|-----------------------------|-----------------------|-----------|--------------|
| Butyl dark gray molded | - 40 to 120°C | 3.0 mm | 793371 |
| Butyl / PTFE gray molded | - 40 to 120°C | 3.0 mm | 176811 |
| Pharma Fix Butyl / PTFE | - 40 to 120°C | 3.0 mm | 297480 |
| Silicone blue / PTFE white | - 40 to 200°C | 3.0 mm | 1G0550 |
| Silicone beige / PTFE white | - 40 to 200°C | 3.2 mm | 305600 |
| Silicone white / PTFE | - 40 to 200°C | 3.3 mm | JV0050 |
| Silicone / Aluminium | - 60 to 220°C | 3.0 mm | 1J0090 |
| Stopper Butyl gray | - | - | BE9130 |

Polyethylene snap caps with seals

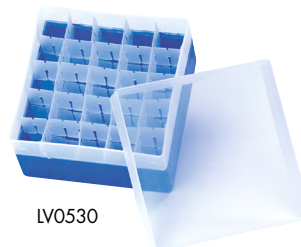
Snap caps to use with headspace vials, rinsing vials or sample vials.

| | | 22 x 8,4 mm Central hole 4,3 mm P/N / 1000 u | 22 x 9,1 mm Central hole 4,3 mm P/N / 1000 u | 22 x 9,1 mm Central hole 6 mm P/N / 1000 u |
|-----------------------------|--------------|--|--|--|
| Butyl / PTFE | Red | IK4131 | 728562 | --- |
| Butyl / PTFE | Red / gray | CD3190 | BV7690 | --- |
| Silicone / PTFE | Blue / white | CD3200 | BM3490 | --- |
| Silicone / PTFE slit (Y) | Blue / white | --- | 1F8850 | FK4760 |

Polyethylene caps are supplied with 19.5 mm seals.

Blue storage box for headspace vials 5, 10, 20 mL

| Nbre de pos. | Dimensions | P/N / u |
|--------------|--------------------|---------|
| 25 positions | 130 x 130 x 102 mm | LV0530 |



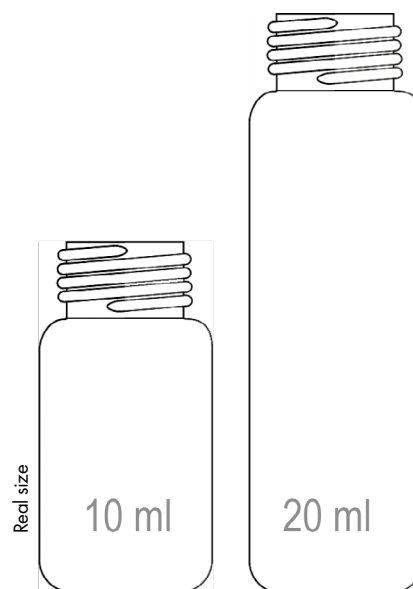
LV0530




Headspace screw vials

| Volume | Dimensions | Clear glass P/N / 1000 u | Amber glass P/N / 1000 u | Autosampler brand |
|--------|----------------|-----------------------------|-----------------------------|--|
| 10 mL | 46.0 x 22.5 mm | BE6350 | BX3500 | CTC PAL (Varian, Gerstel, Atas, Shimadzu, Agilent) |
| 20 mL | 75.5 x 22.5 mm | BC0641 BC0645* | BU8800 | CTC PAL (Varian, Gerstel, Atas, Shimadzu, Agilent) |
| 20 mL | 75.5 x 23.0 mm | BT1660 | --- | PerkinElmer |

*graduated.




Magnetic metal caps with pre-assembled seals

| Description | pre-assembled seals 17.5 mm | Thickness | P/N / 1000 u |
|--|---|-----------|--------------|
|  <p>BE7560 BE7550</p> | Butyl red / PTFE gray | 1.6 mm | BE7560 |
| | Silicone blue transparent / PTFE white | 1.3 mm | BE7550 |
| | Silicone white / PTFE blue | 1.5 mm | LV8500 |
| | Silicone white / PTFE red | 1.3 mm | LV8510 |
| | Silicone white / Aluminium | 1.3 mm | 119490 |
| | Silicone white / PTFE red slit (*) SPME | 1.5 mm | FK6080 |
| Magnetic closed screw caps + seals | Butyl red/ gray PTFE | 1.6 mm | CL0270 |
| | Silicone white / red PTFE | 1.3 mm | CL0281 |

Magnetic plastic screw caps

Easy to use:

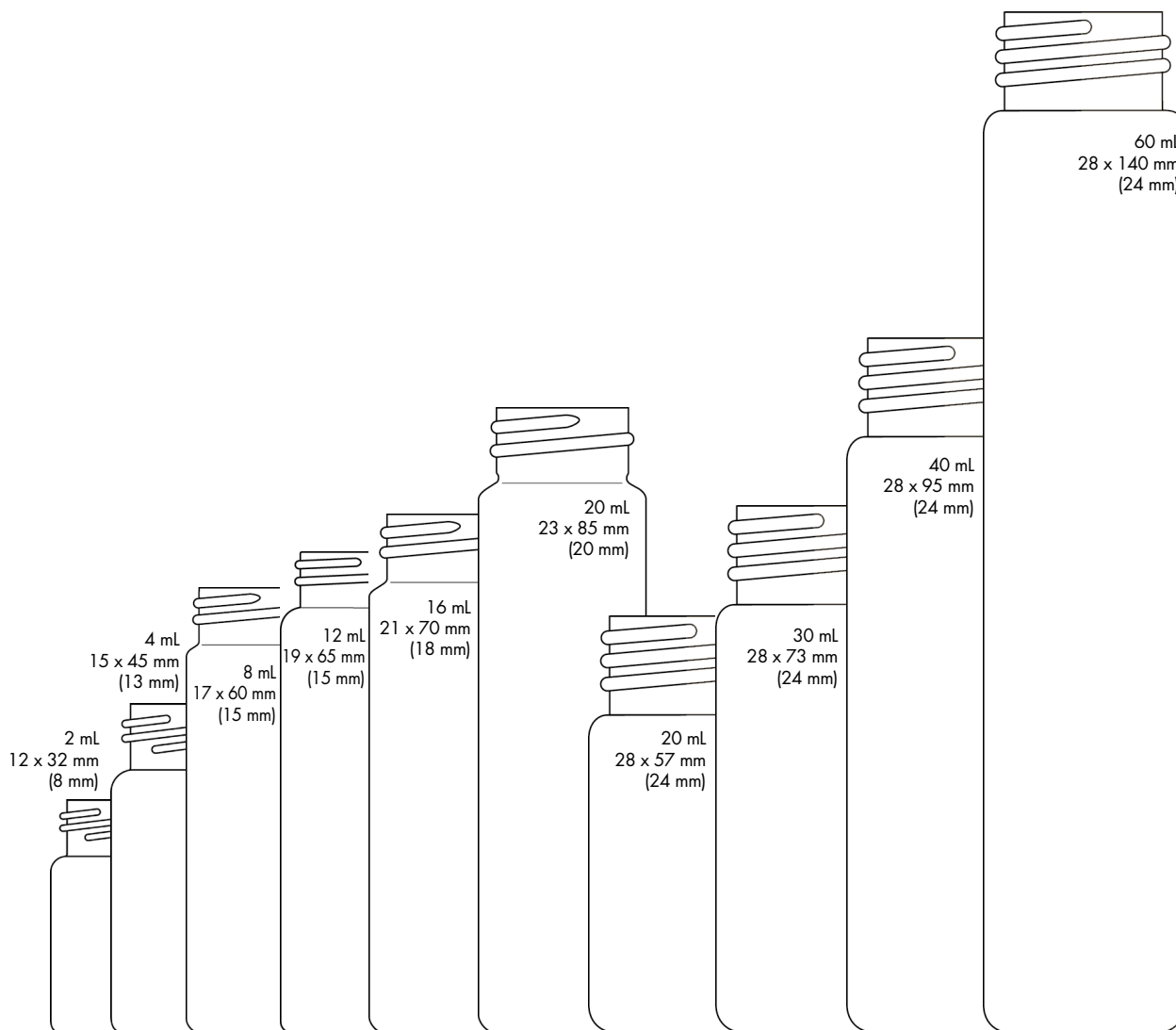
| Description | Material | P/N / 1000 u |
|---|--------------------------------------|--------------|
|  <p>AYQU00</p> | Butyl red / PTFE 3.2 mm | AYQU00 |
| | Silicone white / PTFE red 1.9 mm | AYQU00 |
| | Silicone white / PTFE blue 1.5 mm | AYQUT0 |
| | Silicone blue / PTFE white 1.8 mm | AYQUS0 |
| | Silicone white / PTFE natural 3.2 mm | AYQUP0 |
| | Silicone white / PTFE blue SPME | AYQU00 |

Polypropylene screw caps / BT1660

| Description | 16 mm Pre-set seals | Thickness | P/N |
|--|--|-----------|--------|
| Screw caps ND18 open orifice 12 mm + seals | Butyl red / gray PTFE | 1.60 mm | BF4990 |
| | Silicone blue transparent / PTFE white | 1.70 mm | BF5000 |
| ND18 closed screw caps + seals | Butyl red / PTFE gray | 1.60 mm | 1G0540 |
| | Silicone blue transparent / PTFE white | 1.70 mm | 116450 |



UptiVial™ - Screw sample vials



1 : 1 drawings

Screw sample vials

Packaged per 100 units except for "**".

| Volume | Ø Ext. | Ø Neck | Clear glass | Clear silanized glass | Amber glass | Amber silanized glass |
|--------|-------------|--------|-------------|-----------------------|-------------|-----------------------|
| 2 mL | 12 x 32 mm | 8 mm | 360193 | --- | 296624 | --- |
| 4 mL | 15 x 45 mm | 13 mm | 181854 | --- | 360163 | --- |
| 8 mL | 17 x 60 mm | 15 mm | 181860* | 181867* | 667620* | --- |
| 12 mL | 19 x 65 mm | 15 mm | 667630* | --- | 667640* | JV7320* |
| 16 mL | 21 x 70 mm | 18 mm | 181870* | --- | 167470* | --- |
| 20 mL | 23 x 85 mm | 20 mm | 181880* | --- | --- | --- |
| 20 mL | 28 x 57 mm | 24 mm | CK1541 | --- | CE0831 | --- |
| 30 mL | 28 x 73 mm | 24 mm | CH5491 | --- | CK8251 | --- |
| 40 mL | 28 x 95 mm | 24 mm | 217490 | CK4590 | 360250 | --- |
| 60 mL | 28 x 140 mm | 24 mm | CG0481 | --- | BX1611 | --- |

*Packaged per 200 units .



Screw caps

| | Screw caps Pre-assembled seals | 8- 425 8 mm | 13- 425 13 mm | 15- 425 15 mm | 18- 400 18 mm | 20- 400 20 mm | 24- 400 24 mm |
|------------------------------------|--|----------------|------------------|------------------|------------------|------------------|------------------|
| Closed screw caps - white - 100 u | PTFE | 97958A | 773820 | 582240 | 582340 | 177560 | 545940 |
| | Rubber natural / PTFE transparent | FH9990 | CG0510 | BX9360 | --- | --- | --- |
| Closed screw caps - black - 1000 u | BUTYL red / PTFE gray 1.3 mm | CG1610 | GV4560 | 1G0520 | 1G0540 (1,6 mm) | 119520* | FR3990 |
| | Silicone white / PTFE red 1.3 mm | F10000 | 1Q1630 | 1G0510 | --- | 119530 | --- |
| Open screw caps - white - 1000 u | Silicone white / light brown PTFE 3.2 mm | --- | --- | --- | --- | --- | CK7510 |

*Screw caps white.



Screw caps - open

| | Seals Pre-assembled seals | 8- 425 8 mm | 13- 425 13 mm | 15- 425 15 mm | 18- 400 18 mm | 20- 400 20 mm | 24- 400 24 mm |
|--|------------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|
| Black open screw caps - 100 u | - | 282940 | 181890 | 181900 | 181910 | 181920 | 360210* |
| Screw caps black open + Seals pre-assembled - 1000 u | Silicone white / PTFE red 1.5 mm | FJ5920** | JQ7750 | 119540 | 119550 | --- | --- |
| White open screw caps + pre-assembled seals - 1000 u | Silicone white / PTFE beige 3.2 mm | --- | --- | --- | --- | --- | CG1960 |

*Screw caps white. **Bonded : integral with the caps.

Open Screw Caps with lid for storage and transport

| | Seal 24 mm - 3,175 mm | 24 mm / 24- 400 |
|--|-----------------------|-----------------|
| White caps with cover + glued seal - 100 u | Silicone / PTFE | 1D0421 |



Seals for open screw caps

| | 8 mm | 13 mm | 15 mm | 18 mm | 20 mm | 24 mm |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|--------------------------------------|
| Seals Silicone cream / PTFE white - 100 u | 850550 (1.5 mm) | 438311 (1.5 mm) | 180230 (2.6 mm) | 185010 (2.6 mm) | 176880 (2.6 mm) | 360220 (2.6 mm) AOY780 (3.175 mm) |





Screw sample vials kit + solid plugs and pre-assembled PTFE seals

| Volume | Dimensions | Ø Neck | Clear glass / 100 u | Amber glass / 100 u |
|--------|------------|--------|---------------------|---------------------|
| 2 mL | 12 x 32 mm | 8 mm | 690230 | 690300 |
| 4 mL | 15 x 45 mm | 13 mm | 690240 | 690310 |
| 8 mL | 17 x 60 mm | 15 mm | 690250* | 690320* |
| 12 mL | 19 x 65 mm | 15 mm | 690260* | 690330* |
| 16 mL | 21 x 70 mm | 18 mm | 690270* | 690350* |
| 20 mL | 23 x 85 mm | 20 mm | 690280* | --- |
| 40 mL | 28 x 95 mm | 24 mm | 690290 | 690360 |

*Packaged by 200 u.

Sample bottles Kit + open caps + Silicone / PTFE seal

| Volume | Dimensions | Ø Neck | Clear glass / 100 u | Amber glass / 100 u |
|--------|------------|--------|---------------------|---------------------|
| 2 mL | 12 x 32 mm | 8 mm | 690370 | 690440 |
| 4 mL | 15 x 45 mm | 13 mm | 690380 | 690450 |
| 8 mL | 17 x 60 mm | 15 mm | 690390* | 690460* |
| 12 mL | 19 x 65 mm | 15 mm | 690400* | 690470* |
| 16 mL | 21 x 70 mm | 18 mm | 690410* | 690480* |
| 20 mL | 23 x 85 mm | 20 mm | 690420* | --- |
| 40 mL | 28 x 95 mm | 24 mm | 690430 | 690500 |

*Packaged by 200 u.

Sample bottle kit with assembled caps

| P/N / 1000 u | | Neck | Screw caps open + silicone seals PTFE | | Closed screw caps + joint PTFE | |
|--------------|-------------|-------|---------------------------------------|-------------|--------------------------------|-------------|
| Volume | Dim. | | clear glass | amber glass | clear glass | amber glass |
| 20 mL | 28 x 57 mm | 24 mm | 0A2620* | --- | AOY450* | AOY460* |
| 40 mL | 28 x 95 mm | 24 mm | CK1560 | CK1570 | --- | --- |
| 60 mL | 28 x 140 mm | 24 mm | BW9980 | --- | --- | --- |

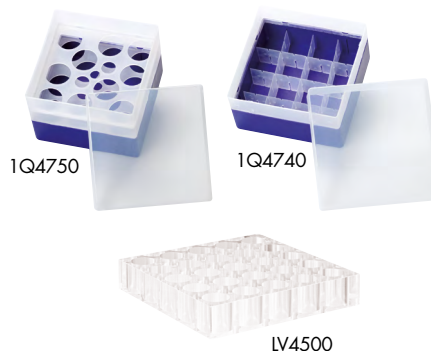
*Packaged by 100 u.

Storage box for 20, 30, 40 mL sample bottles with lid

| Number of positions | Dimensions | Color | P/N / u |
|---------------------------|--------------------|-------|---------|
| 16 positions (20 mL) | 130 x 130 x 80 mm | Blue | 1Q4740 |
| 10 positions (30 & 40 mL) | 130 x 130 x 105 mm | Blue | 1Q4750 |

Racks for 24 mm vials

| Material | Color | Dimensions | Number of positions | P/N / u |
|----------|-------------|-------------------|---------------------|---------|
| Acrylic | Transparent | 160 x 160 x 30 mm | 25 | LV4500 |





Sample vials - conical bottom

Borosilicate glass - Type 1

| Volume | Dim. | Neck | P/N / 100 u | P/N / 250 u | P/N / 500 u | P/N / 1000 u |
|--------|---------------|---------|-------------|-------------|-------------|--------------|
| 2 mL | 15 x 32 mm | 13- 425 | --- | ARYWE0 | --- | ARYWE1 |
| 4 mL | 15 x 45 mm | 13- 425 | --- | ARYWO0 | --- | ARYWO1 |
| 8 mL | 16,75 x 60 mm | 15- 425 | --- | ARYWQ0 | --- | ARYWQ1 |
| 10 mL | 19 x 70 mm | 22- 400 | 1E4161 | --- | 1E4162 | --- |
| 20 mL | 26,5 x 67 mm | 24- 400 | 1E4171 | --- | 1E4172 | --- |

Full size photographs



Screw caps

| Thread | Closed screw caps - black phenolics | Closed screw caps - PP white | Open screw caps - black | Open screw caps - PP white | Open screw caps - PP black |
|---------|-------------------------------------|------------------------------|-------------------------|----------------------------|----------------------------|
| | Rubber / PTFE | Silicone / PTFE | Silicone / PTFE | Silicone / PTFE | Silicone / PTFE slit |
| 13- 425 | ARZA00 / 250 u | ARZA40 / 250 u | ARZBTO / 250 u | ARZAA0 / 250 u | ARZAG0 / 250 u |
| 15- 425 | ARZA10 / 250 u | ARZA50 / 250 u | --- | ARZAB0 / 250 u | ARZAI0 / 250 u |
| 22- 400 | ARZA20 / 100 u | ARZA70 / 100 u | --- | ARZAD0 / 100 u | --- |
| 24- 400 | ARZA31 / 100 u | ARZA80 / 100 u | --- | ARZAE0 / 100 u | --- |



Minivials

| Minivial volume | 0.3 mL | 1.0 mL | 3.0 mL | 5.0 mL | 10.0 mL |
|---|-----------|------------|------------|------------|------------|
| Dimension Minivial | 8 x 35 mm | 13 x 48 mm | 19 x 47 mm | 19 x 62 mm | 25 x 70 mm |
| Neck Minivial | 13- 425 | 13- 425 | 20- 400 | 20- 400 | 20- 400 |
| Minivial vial + Open screw caps + Seals Silicone PTFE pre-assembled | 174321 | 174331 | 174352 | 174362 | 216381 |
| Open screw caps + Seals Silicone PTFE pre-assembled (/ 48 u) | 909910 | 909910 | 909920 | 909920 | 909920 |
| open phenolic caps (/ 72 u) | BX1GA0 | BX1GA0 | BX1GB0 | BX1GB0 | BX1GB0 |
| Seals Silicone PTFE pre-assembled (/ 72 u) | 438315 | 438315 | 174422 | 174422 | |



Minivial vials



UptiVial™ - Snap sample vials



Full size photographs



CG045A

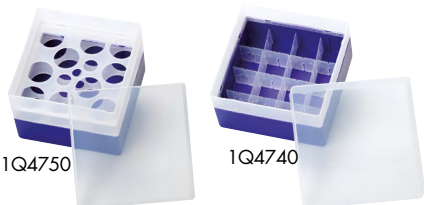
BG845A

FI023A

CV703A

Snap sample vials and polyethylene caps

| Volume | Dim. | Ø Neck | Clip-on vials - clear glass - type 3 - P/N / 1000 u | Clic-on caps - PE - P/N / 1000 u |
|--------|------------|--------|---|----------------------------------|
| 5 mL | 40 x 20 mm | ND18 | CG045A | BG846A |
| 10 mL | 50 x 22 mm | ND18 | BG845A | BG846A |
| 15 mL | 48 x 26 mm | ND22 | FI023A | 1G057A |
| 25 mL | 65 x 26 mm | ND22 | CV703A | 1G057A |



1Q4750

1Q4740

Storage box for 20, 30, 40 mL sample bottles with lid

| Number of positions | Dimensions | Color | P/N |
|---------------------------|--------------------|-------|--------|
| 16 positions (20 mL) | 130 x 130 x 80 mm | Blue | 1Q4740 |
| 10 positions (30 & 40 mL) | 130 x 130 x 105 mm | Blue | 1Q4750 |



LV4500

Racks for 24 mm vials

| Material | Color | Dimensions | Number of positions | P/N |
|----------|-------------|-------------------|---------------------|--------|
| Acrylic | Transparent | 160 x 160 x 30 mm | 25 | LV5400 |



Solvent bottles

Bottles, round shape

| Volume | Dim. | Thread | Cond. | Clear glass | | Amber glass |
|-----------|--------------|--------|-------|-----------------------------|-------------|-------------|
| | | | | Screw caps + anti-drop ring | Without cap | Without cap |
| 10 mL | 54 x 36 mm | GL25 | 10 u | B688W0 | B688V0 | B68AS0 |
| 25 mL | 70 x 36 mm | GL25 | 10 u | B688Y0 | B688X0 | B68AV0 |
| 50 mL | 88 x 46 mm | GL32 | 10 u | B4REPO | B688Z0 | BAREV0 |
| 100 mL | 100 x 56 mm | GL45 | 10 u | B689C0 | B689A0 | B68B00 |
| 150 mL | 105 x 62 mm | GL45 | 10 u | B689E0 | B689D0 | B68B20 |
| 250 mL | 138 x 70 mm | GL45 | 10 u | BV2762 | B4REQ0 | B68B50 |
| 500 mL | 176 x 86 mm | GL45 | 10 u | HP6192 | B689G0 | B68B80 |
| 750 mL | 203 x 95 mm | GL45 | 10 u | B4PQA0 | B689I0 | B68BA0 |
| 1 000 mL | 225 x 101 mm | GL45 | 10 u | HP6165 | B689K0 | HP6215 |
| 2 000 mL | 260 x 136 mm | GL45 | 10 u | HP6205 | B689M0 | B68BG0 |
| 3 500 mL | 295 x 160 mm | GL45 | 1 u | B4PQA1 | B689P0 | B4PQB0 |
| 5 000 mL | 330 x 181 mm | GL45 | 1 u | J16915 | B689Q0 | B68BK0 |
| 10 000 mL | 410 x 227 mm | GL45 | 1 u | JM5535 | B689S0 | B68BM0 |
| 15 000 mL | 465 x 258 mm | GL45 | 1 u | B689V0 | B689U0 | --- |
| 20 000 mL | 510 x 300 mm | GL45 | 1 u | B689X0 | B689W0 | --- |
| 500 mL | 153 x 101 mm | GL80 | 10 u | XF0965 | --- | --- |
| 1 000 mL | 223 x 101 mm | GL80 | 10 u | XF0975 | --- | --- |
| 2 000 mL | 510 x 300 mm | GL80 | 10 u | XF0985 | --- | --- |



Bottles, square shape and anti-drop ring

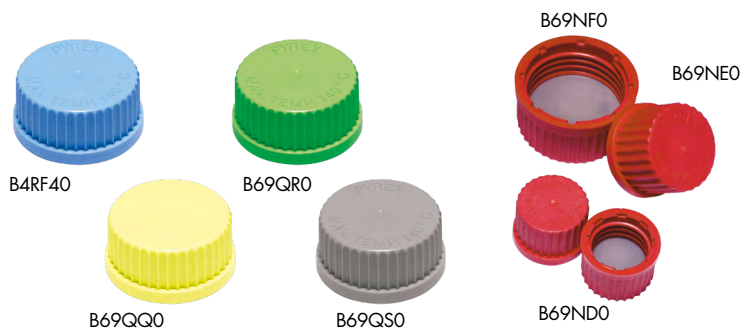
| Volume | Hauteur x Ø | Thread | Cond. | P/N |
|----------|-------------|--------|-------|--------|
| 100 mL | 109 x 50 mm | GL32 | 10 u | B68BW0 |
| 250 mL | 143 x 64 mm | GL45 | 10 u | HP6152 |
| 500 mL | 181 x 78 mm | GL45 | 10 u | B4REW0 |
| 1 000 mL | 222 x 94 mm | GL45 | 10 u | B4G2M0 |



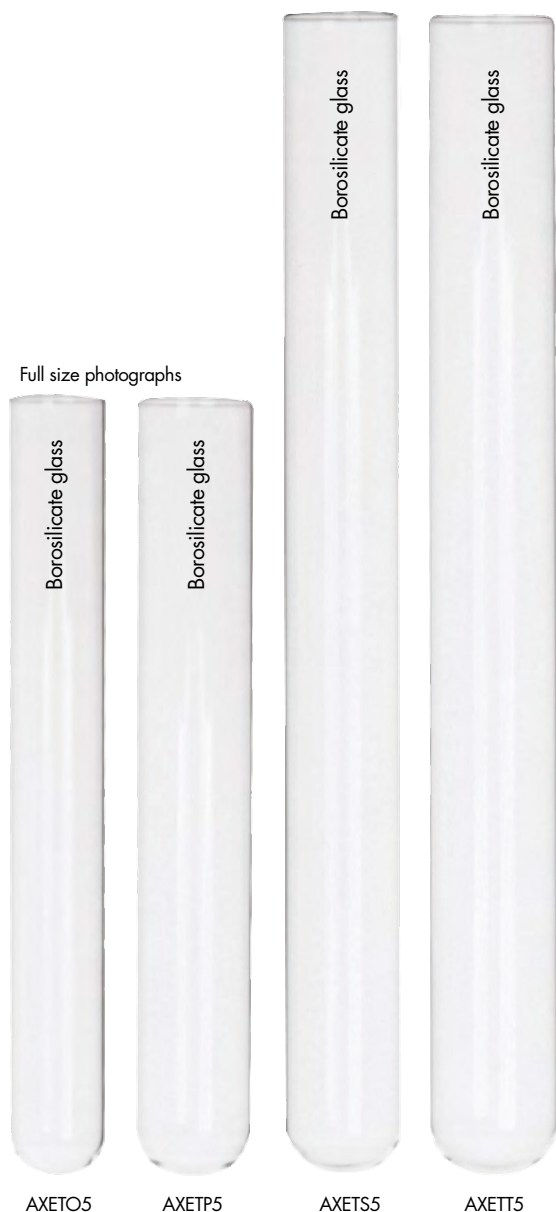
B4REW0

Screw caps and drop rings

| Thread | Cond. | Blue | Green | Yellow | Gray | Red |
|--------|-------|--------|--------|--------|--------|--------|
| GL25 | 10 u | B69N90 | --- | --- | --- | B69NDO |
| GL32 | 10 u | B69NA0 | --- | --- | --- | B69NE0 |
| GL45 | 10 u | B4RF40 | B69QR0 | B69QQ0 | B69QS0 | B69NF0 |



UptiVial™ - Sample tubes



Sample tubes

Test tubes - Borosilicate glass

Type 1 neutral glass, resistant to thermal shock.
Pharmaceutical grade.

| Volume | Dim. | Wall thickness | P/N | Cond. |
|---------|-------------|----------------|--------|-----------|
| 1 mL | 6 x 50 mm | 0.5 - 0.6 mm | B6AWB0 | 4 x 250 u |
| 4 mL | 10 x 75 mm | 0.5 - 0.6 mm | AXETM5 | 4 x 250 u |
| 6 mL | 12 x 75 mm | 0.5 - 0.6 mm | AXETN5 | 4 x 250 u |
| 10 mL | 13 x 100 mm | 0.5 - 0.6 mm | AXETO5 | 4 x 250 u |
| 11 mL | 15 x 85 mm | 0.5 - 0.6 mm | B6AW80 | 4 x 250 u |
| 15 mL | 16 x 100 mm | 0.5 - 0.6 mm | AXETP5 | 4 x 250 u |
| 19 mL | 16 x 125 mm | 0.5 - 0.6 mm | AXETR5 | 4 x 250 u |
| 23 mL | 16 x 150 mm | 0.5 - 0.6 mm | AXETS5 | 4 x 250 u |
| 28,5 mL | 18 x 150 mm | 0.8 mm | AXETT5 | 4 x 125 u |
| 36 mL | 20 x 150 mm | 0.8 mm | B4FI60 | 4 x 125 u |
| 55 mL | 25 x 150 mm | 0.8 mm | B4FI70 | 4 x 125 u |

Test tubes - Pyrex® glass

Pyrex® borosilicate glass: high resistance to thermal shock and solvents.

Use up to 500°C (for short periods only).

| Volume | Dim. | Wall thickness | P/N | Cond. |
|--------|-------------|----------------|--------|-------|
| 4 mL | 10 x 75 mm | 1.0 mm | AS2Q00 | 100 u |
| 6 mL | 12 x 75 mm | 1.0 mm | AS2Q10 | 100 u |
| 8 mL | 12 x 100 mm | 1.0 mm | AS2Q20 | 100 u |
| 15 mL | 16 x 100 mm | 1.2 mm | AS2Q30 | 100 u |
| 20 mL | 16 x 125 mm | 1.2 mm | AS2Q40 | 100 u |
| 22 mL | 16 x 150 mm | 1.2 mm | AS2Q50 | 100 u |
| 30 mL | 18 x 150 mm | 1.2 mm | AS2Q80 | 100 u |
| 34 mL | 18 x 180 mm | 1.2 mm | AS2Q70 | 100 u |
| 55 mL | 24 x 150 mm | 1.2 mm | AS2Q90 | 100 u |
| 73 mL | 24 x 200 mm | 1.2 mm | AS2QA0 | 50 u |

Caps for test tubes

Polyethylene

For use with glass or plastic test tubes.

| Ø tubes | P/N | Cond. |
|---------|--------|--------|
| 13 mm | B6AWD0 | 1000 u |
| 16 mm | B6AWE0 | 1000 u |
| 18 mm | B6AWF0 | 1000 u |
| 20 mm | B6AWG0 | 1000 u |
| 25 mm | B6AWH0 | 1000 u |





Culture tubes

Culture tubes - Borosilicated glass

| Volume | Dim. | Ø Neck | Wall thickness | P/N | Cond. |
|--------|-------------|--------|----------------|--------|--------|
| 10 mL | 13 x 100 mm | 13 mm | 0.90 mm | ARX3C0 | 1000 u |
| 15 mL | 16 x 100 mm | 15 mm | 1.05 mm | FK8505 | 1000 u |
| 19 mL | 16 x 125 mm | 15 mm | 1.05 mm | ARX3B0 | 1000 u |
| 22 mL | 16 x 150 mm | 15 mm | 1.05 mm | ARX3E0 | 1000 u |
| 25 mL | 20 x 125 mm | 18 mm | 1.20 mm | ARX3F0 | 500 u |

Full size photographs

Screw caps - polypropylene

| Ø Neck | P/N | Cond. |
|-----------------|--------|--------|
| 13 mm (13- 415) | ARY3G0 | 1000 u |
| 15 mm (15- 415) | ARY3H0 | 1000 u |
| 18 mm (18- 415) | B4FIA0 | 500 u |



Culture tubes - Pyrex® glass

Pyrex® borosilicate glass: high resistance to thermal shocks and solvents.
Can be used up to 500°C.

| Volume | Dim. | Ø Neck | Wall thickness | P/N / 40 u |
|--------|-------------|--------|----------------|------------|
| 12 mL | 16 x 100 mm | 15 mm | 1.8 mm | AS2QS0 |
| 15 mL | 16 x 125 mm | 15 mm | 1.8 mm | AS2QT0 |
| 19 mL | 16 x 160 mm | 15 mm | 1.8 mm | AS2QV0 |
| 16 mL | 18 x 100 mm | 18 mm | 1.8 mm | AS2QW0 |

Solid black phenolic caps with rubber/PTFE seals

| Ø Neck | Caps (PBT) + seal Rubber / PTFE - P/N | Cond. |
|-----------------|--|-------|
| 13 mm (13- 415) | B6AXO0 | 500 u |
| 15 mm (15- 415) | B4WHY0 | 500 u |
| 18 mm (18- 415) | B6AGK1 | 225 u |

Polypropylene racks for test tubes and culture tubes

| Ø ext. tubes | Number of tubes | Blue racks P/N / 5 u | White racks P/N / 5 u |
|--------------|-----------------|-------------------------|--------------------------|
| 13 mm | 84 | --- | ARZMIO |
| 18 mm | 55 | ARZMJO | ARZMKO |
| 21 mm | 40 | ARZMLO | ARZMMO |
| 26 mm | 32 | ARZMNO | ARZMOO |
| 31 mm | 21 | ARZMPO | ARZMQO |



ARX3C0

ARX3E0



UptiVial™ - Syrup bottles and wide opening



Syrup bottles



Tamper-proof caps



Syrup bottles

Glass type 3 - PP28

| Nominal volume | Volume flush with the edge | Clear glass | Qty | Amber glass | Qty |
|----------------|----------------------------|-------------|-----|-------------|-----|
| 30 mL | 37 mL | AA3770 | 156 | 991590 | 137 |
| 60 mL | 67 mL | AA3783 | 127 | 991602 | 105 |
| 90 mL | 97 mL | AA3791 | 130 | AA3681 | 130 |
| 100 mL | 108 mL | AA3800 | 86 | AA3692 | 104 |
| 125 mL | 133 mL | R23860 | 104 | 991610 | 104 |
| 150 mL | 156 mL | AA3811 | 59 | AA3702 | 8 |
| 180 mL | 187 mL | AA3820 | 80 | AA3710 | 80 |
| 200 mL | 209 mL | AA3831 | 67 | AA3720 | 67 |
| 250 mL | 260 mL | AA3841 | 49 | 991621 | 60 |
| 300 mL | 315 mL | AA3850 | 48 | AA3730 | 48 |
| 500 mL | 528 mL | AA3861 | 30 | 991631 | 35 |
| 1000 mL | 1040 mL | AA3880 | 20 | 991640 | 20 |

Screw caps 28 mm

| Description | P/N | Qty |
|--|--------|-------|
| White tamper-evident caps with polyethylene seal | 991680 | 100 u |
| Non-tampering black polyethylene caps without seal | 1M8120 | 100 u |

*Triseal: expanded polyethylene foam coated on each side with a polyethylene film.

Wide opening Vials

Glass type 3

| Glass | Volume | | H (mm) | dia.(mm) | Ring | P/N | Qty |
|-------|---------|---------------------|--------|----------|--------------|--------|-----|
| | Useful | flush with the edge | | | | | |
| Clear | 10 mL | | | | Pharmacie 18 | CE0310 | 195 |
| | 15 mL | | | | Pharmacie 18 | CD4310 | 216 |
| | 30 mL | 40 mL | 68.0 | 36.0 | GL32 | R58852 | 126 |
| | 50 mL | 64 mL | 75.0 | 44.0 | GL32 | CE0321 | 85 |
| | 75 mL | 88 mL | 79.0 | 48.5 | GL40 | CE0330 | 99 |
| | 100 mL | 115 mL | 92.5 | 50.0 | GL40 | CE0342 | 63 |
| | 125 mL | 140 mL | 98.0 | 54.0 | GL40 | R58862 | 80 |
| | 250 mL | 280 mL | 113.0 | 70.0 | GL55 | CE0350 | 48 |
| | 500 mL | 565 mL | 154.0 | 84.0 | GL55 | AZ3380 | 20 |
| | 1000 mL | 1080 mL | 180.5 | 103.5 | GL68 | AZ3370 | 18 |
| Amber | 10 mL | | | | Pharmacie 18 | AYUGKO | 195 |
| | 15 mL | | | | Pharmacie 18 | CE0380 | 216 |
| | 30 mL | 40 mL | 68.0 | 36.0 | GL32 | BM6051 | 126 |
| | 50 mL | 64 mL | 75.0 | 44.0 | GL32 | CE0400 | 85 |
| | 75 mL | 88 mL | 79.0 | 48.5 | GL40 | CE0412 | 99 |
| | 100 mL | 115 mL | 92.5 | 50.0 | GL40 | BY2441 | 63 |
| | 125 mL | 140 mL | 98.0 | 54.0 | GL40 | BY2451 | 84 |
| | 250 mL | 280 mL | 113.0 | 70.0 | GL55 | BT9893 | 42 |
| | 500 mL | 565 mL | 154.0 | 84.0 | GL55 | BT9901 | 20 |
| | 1000 mL | 1080 mL | 180.5 | 103.5 | GL68 | BT9920 | 12 |

Triseal black screw caps*

| Pharmacie 18 P/N / 100 u | GL32 P/N / 100 u | GL40 P/N / 100 u | GL55 P/N / 400 u | GL68 P/N / 250 u |
|-----------------------------|---------------------|---------------------|---------------------|---------------------|
| CV5090 | CE1210 | DO1680 | BZ2540 | GV3350 |

*Triseal: expanded polyethylene foam coated on both sides with a polyethylene film.



Penicillin vials

| Description | 2 mL | 5 mL | 10 mL | 20 mL | 30 mL | 50 mL | 100 mL |
|---------------------------------------|------------|------------|-------------|------------|------------|------------|-------------|
| Diam. Neck mm | Neck 13 mm | Neck 20 mm | Neck 20 mm | Neck 20 mm | Neck 20 mm | Neck 20 mm | Neck 20 mm |
| Dim. mm | 15 x 32 | 22 x 44 | 25,4 x 53,5 | 32 x 58 | 36 x 62,8 | 42,5 x 73 | 51,6 x 94,5 |
| Clear glass | IE2561 | 177175 | 177185 | 592625 | 177203 | 177215 | 177225 |
| | 144 u | 100 u | 100 u | 100 u | 100 u | 100 u | 100 u |
| Amber glass | --- | 280405 | 177235 | 177245 | CE9813 | 177255 | 177265 |
| | --- | 100 u | 100 u | 100 u | 100 u | 100 u | 100 u |
| Butyl/PTFE gray molded | --- | 176811 | 176811 | 176811 | 176811 | 176811 | 176811 |
| | --- | 100 u | 100 u | 100 u | 100 u | 100 u | 100 u |
| Silicone transparent/PTFE white seals | --- | --- | 305600 | 305600 | 305600 | 305600 | 305600 |
| | --- | --- | 100 u | 100 u | 100 u | 100 u | 100 u |
| Bromo butyl seals | 176780 | 176799 | 176799 | 176799 | 176799 | 176799 | 176799 |
| | 100 u | 500 u | 500 u | 500 u | 500 u | 500 u | 500 u |
| Silicone seals | --- | --- | 176845 | 176845 | 176845 | 176845 | 176845 |
| | --- | --- | 100 u | 100 u | 100 u | 100 u | 100 u |
| Butyl/PTFE seals | --- | --- | 236241 | 236241 | 236241 | 236241 | 236241 |
| | --- | --- | 1000 u | 1000 u | 1000 u | 1000 u | 1000 u |
| Aluminium crimp caps with center hole | --- | 361840 | 361840 | 361840 | 361840 | 361840 | 361840 |
| | --- | 100 u | 100 u | 100 u | 100 u | 100 u | 100 u |
| Aluminium tear-off crimps caps | 176961 | 176970 | 176970 | 176970 | 176970 | 176970 | 176970 |
| | 100 u | 100 u | 100 u | 100 u | 100 u | 100 u | 100 u |



RELATED PRODUCTS



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Crimper and decapper



Ergonomic Crimper and decapper: Upti-Grip

- Innovative design for an easier grip, with an ergonomic and comfortable handle
- Lighter material to reduce the weight of the pliers
- Crimp setting knob on top of the pliers

| Ø Caps | Crimper | Decapper |
|--------|---------|----------|
| 8 mm | 1J0100 | --- |
| 11 mm | HO9150 | HO9170 |
| 13 mm | JQ5250 | JQ5260 |
| 20 mm | HO9160 | HO9180 |



Crimper
HO9150

Crimper and decapper

| Ø Caps | Crimper | Decapper |
|--------|---------|----------|
| 8 mm | 359804 | 824163 |
| 11 mm | 176984 | 177047 |
| 13 mm | 176994 | 177055 |
| 20 mm | 177004 | --- |
| 28 mm | 1J0120 | 1J0130 |
| 32 mm | D10571 | 1J0140 |



Stainless steel cleanroom crimper and decapper

- The mechanism is corrosion and heat resistant
- Eliminates the need for a protective coating on the handle and crimping head
- Clean room applications, can be sterilized
- Crimp settings possible

| Ø Caps | Crimper | Decapper |
|--------|---------|----------|
| 11 mm | 1J0150 | --- |
| 13 mm | 1J0160 | 1J0190 |
| 20 mm | 1J0170 | 1J0200 |



Electronic crimper and decapper

- Easy to use, convenient and fast
- Less hand fatigue: less effort
- Convenient for both left and right hand
- Crimping adjustment
- Battery status display

| Ø Caps | Crimper | Decapper |
|--------|---------|----------|
| 8 mm | BXCB50 | --- |
| 11 mm | BXCB30 | BXCB70 |
| 13 mm | BXCB60 | BXCB90 |
| 20 mm | BXCB40 | BXCB80 |



BXCB30



Silicone lids

Silicone lids are versatile, secure (sticks to the container), color-coded, durable (can be used in a wide range of applications) and easy to use.

Due to their technical characteristics, Silicone lids are made of stretchable silicone, resistant to chemicals and heat.

The recommended temperature range for use is -40°C to +180°C.



| Size | Opening diameter | Pink | Cyan | Green |
|---------------------|------------------|--------|--------|--------|
| S (10 u) | 42.2 - 61 mm | B4G4L0 | B4G4M0 | B4G4N0 |
| M (10 u) | 63.7 - 76 mm | B4G4P0 | B4G4Q0 | B4G4R0 |
| L (10 u) | 83.7 - 100 mm | B4G4S0 | B4G4T0 | B4G4U0 |
| XL (10 u) | 98.7 - 120 mm | B69JH0 | B69JI0 | B69JJ0 |
| XXL (10 u) | 128 - 147 mm | B69JK0 | B69JL0 | B69JM0 |
| Kit S - M - L (3 u) | | B4G4V0 | B4G4W0 | B4G4X0 |
| Kit XL - XXL (2 u) | | B69JE0 | B69JF0 | B69JG0 |

HANDLING THE SILICONE LID



Align the opening edge of the vessel with the groove on the inner face of the lid.



Then, hold the silicone lid onto the outer edge with one hand and pull over the rest of the lid with the other hand to cover the entire opening.



To ensure that the silicone lid fits correctly, it must be tightly seated on the vessel.

Material resistance

| Substance groups + 23°C | Silicone |
|---------------------------|----------|
| Acetone | ++ |
| Acetonitrile | + |
| Chloroform | ++ |
| Dichloromethane | ++ |
| Dimethylformamide (DMF) | + |
| Dimethylsulfoxyde (DMSO) | ++ |
| Ether (ether diethylique) | ++ |
| Ethano | ++ |
| Hexane | ++ |
| Isopropyl Alcohol (IPA) | ++ |
| Methanol | ++ |
| Tetrahydrofurane (THF) | ++ |
| Toluene | + |

++ = very good resistance

+ = good to conditional resistance



| | | | |
|--|--------------------|---|--------------------|
| Filtration | C.2 - C.20 | Solid Phase Extraction - QuEChERS | C.56 - C.59 |
| Selection guide - Syringe filters UptiDisc™ | C.2 - C.3 | Methodology - QuEChERS | C.56 - C.57 |
| Chemical resistance table - Syringe filters UptiDisc™ | C.4 - C.5 | Extraction & purification kit - QuEChERS | C.58 - C.59 |
| Select the syringe filter UptiDisc™ | C.6 | | |
| Syringe filters - UptiDisc™ - 4/13/25/30 mm | C.7 - C.13 | Solid Phase Extraction - Accessories | C.60 |
| Disc membranes - UptiDisc™ | C.14 | Empty SPE columns & accessories | C.60 |
| Filtration plates - UptiPlate™ Protein Crash | C.15 | | |
| Filter tubes - UptiDisc™ | C.16 | Instrumentations | C.61 - C.71 |
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| | | Vacuum manifold for SPE columns - 12 & 24 positions | C.63 - C.64 |
| Liquide/Liquide extraction (SLE columns, toxicology analysis) | C.21 - C.22 | Vacuum manifold for SPE well plates | C.65 |
| Clean-Elut | C.21 | puriFlash® XS-Vap - Evaporator | C.66 - C.69 |
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| Silica normal phase - UptiClean® Série S | C.35 | | |
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| Atoll™ XC-Trem capacity | C.51 | | |
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| Upti-Trap™ - SPE online | C.54 - C.55 | | |



Filtration through a specific membrane is an essential step in the preparation of samples to remove a fluid from the solid particles which are in suspension.

It covers various application fields:

- In biology or biochromatography, this technique eliminates viruses, bacteria or even to isolate high molecular weight proteins from a matrix. Filters are commonly used for sterilization.
- In chromatography or in chemistry, whether it is in pharmaceutical, cosmetic or agrochemical, we talk about filtration of insoluble suspended material. The use of filtration limits the early deterioration of consumables (GC-HPLC).

The use of appropriate filters allows the fast treatment of a very large number of samples. Thus, it is possible to carry out between 96 to 384 filtrations simultaneously on the same plate.

Other manufacturers such as Sotax or Zymark offer filtration machines using syringe filters with specific geometry for the filtration of samples coming from the dissolution of pharmaceutical formulations.

Less expensive, manual filtration on syringe filters, paper or membrane filters is still the most common method used in laboratories to treat liquid samples or solvents. These products meet the needs of a large number of users.

The syringe filters or filter vials are the latest innovations in terms of filtration. They considerably reduce the time of sample preparation and can be directly injected with autosamplers coupled to the analysis systems.

How to choose your filtration ?

The various types of membranes play a very important role in the speed and quality of filtration.

It is fundamental to work with membranes that are chemically compatible with the sample matrix or the solvent used. They must have a very low rate of adsorption with the substances of the sample to be analyzed.

The porosity of the membrane determines the filtration threshold, i.e. It generally varies between 5 and 0.20 μm . The choice of the filter diameter and the porosity of the membrane must always consider the volume of the sample and the type of analysis that will be performed later. A porosity of 0.45 μm is required for all solvents and samples before HPLC analysis. This precaution limits the pressure raise problems of the systems. For the use of columns with a particle diameter less than 3 μm , filtration at 0.2 μm becomes mandatory.

In gas chromatography, the fouling of the injection insert is limited if the sample is properly filtered.

| | | | | | | | |
|-----------------|---|---|--|---|--|---|--|
| Filtration type | Buffer exchange salt removal | Virus removal | Bacteria removal | HPLC clarification | Dissolution | Prefiltration | |
| Cut off | 30 - 100KD | < 0.1 μm | 0.2 μm | 0.45 μm | 0.45 - 1.2 μm | 0.8 - 25 μm | |
| Sample volume | 0.1 - 50 mL | 1 - 2mL | 2 - 10mL | 10 - 100mL | 10 - 250mL | 0.2 - 2mL | 0.05 - 0.125mL |
| Filter type | μ centrifuge filter hold up volume: < 5 μl | 4mm hold up volume: < 15 μl | 13mm hold up volume: < 30 μl | 25mm hold up volume: < 100 μl | 25mm + GF hold up volume: < 150 μl | 96-well plates hold up volume: < 5 μl | 384-well plates hold up volume: < 5 μl |
| Membrane type | Cellulose ester, regenerated cellulose, polyethersulfone, nitrocellulose, glass fiber, polypropylene, polyethylene, nylon, PVDF, PTFE | | | | | | |



I Selection guide I

Regenerated Cellulose - RC:

Hydrophilic membrane that has the same properties as cellulose acetate but stable with most HPLC solvents. This membrane is used for HPLC solvents, degassing and filtration and is compatible with aqueous samples in a pH range from 2 to 12.

With a non-specific low protein binding, this membrane is the right choice for protein filtration when maximum recovery is required.

Mix of cellulose esters (MEC)

Ideal hydrophilic membrane for the filtration of aqueous sample with low solvent resistance. A Glass prefilter membrane is used for tissue culture media filtration, biological sample filtration, and clarification and sterilization of aqueous samples. Very low protein binding (binding < PVDF, PS). The Glass prefilter increases filtrate volume yield by 3.

Nylon & Nylon Low Extractables (LE)

Commonly used for HPLC sample filtration prior to injection, with good solvent resistance.

Having hydrophilic properties, it gives good results with aqueous samples.

It should not be used when maximum protein recovery is required.

PP - polypropylene

High resistance. It may be used with virtually all solvents, acids and bases.

PVDF - polyvinylidene difluoride

Hydrophobic membrane with a good solvent resistance.

Ideal for filtration of HPLC mobile phase solvents and for most biological samples. PVDF membrane is also considered to have the lowest protein binding.

PVDF-HLC (hydrophilic)

Hydrophilic membrane without extractables. Very good compatibility with 100% aqueous samples.

Very low protein binding for the filtration of biological matrix.

PTFE - polytetrafluoroethylene

Hydrophobic membrane chemically resistant to solvents, acids and bases.

This membrane is ideal for filtration of chromatography solvents. It has no extractables thanks to the PTFE membrane.

PTFE-HLC (hydrophilic)

Hydrophilic membrane without extractables. Very good compatibility with aqueous and organic mixtures.

High pH and temperature resistance with a low protein binding.

Glass Fiber - GMF / GF

Commonly used as a pre-filter for most filtrations devices.

It increases the filtration capacity by 3 times.

Typically used for crude samples and used for the cleaning and purification of DNA.

Polyethersulfone (PES)

Hydrophilic membrane with very low protein and nucleic acid binding. High mechanical resistance that allows the fast filtration of high sample volume. Mainly dedicated to the filtration of cell cultures. Good compatibility with alcohols and strong bases.

Nitrocellulose (NO2)

Hydrophilic membrane dedicated to clarify and filter aqueous samples as well as MEC membranes can do.

Cellulose Acetate - CA

Ideal hydrophilic membrane for the filtration of aqueous samples, with low solvent resistance.

Less chemical resistance versus RC membranes.

A Glass pre-filter membrane is used for tissue culture media filtration, biological sample filtration, and as clarification and sterilization of aqueous samples.

Very low protein binding (binding < PVDF, PS). The Glass prefilter increases filtrate volume yield by 3.

PTFE: Polytetrafluoroethylene

PTFE-HLC: Polytetrafluoroethylene Hydrophilic

PVDF: Polyvinylidene difluoride

PVDF-HLC: Polyvinylidene difluoride Hydrophilic

RC: Regenerated Cellulose

MEC: Mixing of cellulose esters

PES: Polyethersulfone

NO2: Nitrocellulose

GF: Glass Fiber

GMF: Glass Microfiber

NYLON: Polyamide 6

NYLON LE: Nylon Low Extractables

PP: Polypropylene

PP-2: Hydrophilic Polypropylene

PE: Polyethylene

UH-PE: High Density Polyethylene

CA: Cellulose Acetate





C: Compatible
LC: Limited compatibility
NC: Not compatible
ND: No data available

NYLON: Polyamide 6-6
PTFE: Polytetrafluoroethylene
PVDF: Polyvinylidene difluoride
RC: Regenerated Cellulose
PP: Polypropylene
GF: Glass Fiber
CA: Cellulose Acetate
PES: Polyethersulfone
MEC: Mixing of cellulose esters

| | Nylon | PTFE | PVDF | RC | PP | CA | PES | MEC | GF |
|----------------------------|-------|------|------|----|----|----|-----|-----|----|
| Acid | | | | | | | | | |
| Acetic, Glacial | LC | C | C | C | C | NC | C | NC | C |
| Acetic, 25% | C | C | C | C | C | NC | C | C | C |
| Hydrochloric, Concentrated | NC | C | C | NC | C | NC | C | NC | C |
| Hydrochloric, 25% | NC | C | C | NC | C | NC | C | NC | C |
| Sulfuric, Concentrated | NC | C | NC | NC | C | NC | NC | NC | C |
| Sulfuric, 25% | NC | C | C | LC | C | NC | C | NC | C |
| Nitric, Concentrated | NC | C | C | NC | C | NC | NC | NC | LC |
| Nitric, 25% | NC | C | C | NC | C | NC | C | NC | LC |
| Phosphoric, 25% | NC | C | ND | LC | C | NC | ND | C | ND |
| Formic, 25% | NC | C | ND | C | C | NC | ND | LC | ND |
| Trichloroacetic, 10% | NC | C | ND | C | C | NC | ND | C | ND |

Basis

| | | | | | | | | | |
|----------------------------|---|---|----|----|---|----|---|----|----|
| Ammonium Hydroxide, 25% | C | C | LC | LC | C | LC | C | C | C |
| Sodium Hydroxide, 3 Normal | C | C | C | LC | C | NC | C | NC | ND |

Alcohol

| | | | | | | | | | |
|-------------------------|----|---|---|---|---|----|----|----|----|
| Methanol, 98% | C | C | C | C | C | LC | C | C | C |
| Ethanol, 98% | C | C | C | C | C | LC | C | C | C |
| Ethanol, 70% | LC | C | C | C | C | LC | C | LC | C |
| Isopropanol, n-Propanol | C | C | C | C | C | LC | C | C | C |
| Amyl alcohol, Butanol | C | C | C | C | C | LC | C | C | C |
| Benzyl Alcohol | C | C | C | C | C | LC | ND | LC | NC |
| Ethylene glycol | C | C | C | C | C | LC | C | C | C |
| Propylene glycol | C | C | C | C | C | LC | C | LC | C |
| Glycerol | C | C | C | C | C | LC | C | C | C |

Hydrocarbons

| | | | | | | | | | |
|--------------------|----|---|---|---|----|----|---|---|----|
| Hexane, Xylene | C | C | C | C | NC | LC | C | C | C |
| Toluene, benzene | C | C | C | C | NC | C | C | C | C |
| Kerosene, Gasoline | C | C | C | C | LC | LC | C | C | ND |
| Tetralin, Decalin | ND | C | C | C | ND | C | C | C | ND |

Halogenated hydrocarbons

| | | | | | | | | | |
|--------------------------|----|---|---|---|----|----|----|----|---|
| Methylene Chloride | LC | C | C | C | LC | NC | NC | NC | C |
| Chloroform | C | C | C | C | LC | NC | NC | NC | C |
| Trichloroethylene | C | C | C | C | LC | LC | NC | C | C |
| Monochlorobenzene, Freon | C | C | C | C | C | LC | LC | C | C |
| Carbon Tetrachloride | C | C | C | C | LC | LC | NC | LC | C |

Ketone

| | | | | | | | | | |
|------------------------|----|---|----|---|----|----|----|----|---|
| Acetone, Cyclohexanone | C | C | C | C | C | NC | NC | NC | C |
| Methyl Ethyl Ketone | C | C | LC | C | LC | NC | NC | LC | C |
| Isopropylacetone | C | C | NC | C | ND | NC | NC | C | C |
| Methyl Isobutyl Ketone | ND | C | LC | C | LC | NC | NC | ND | C |



| Chemical | Nylon | PTFE | PVDF | RC | PP | CA | PES | MEC | GF |
|---------------------------------|-------|------|------|----|----|----|-----|-----|----|
| Esters | | | | | | | | | |
| Ethyl Acetate, & Methyl Acetate | C | C | C | C | LC | LC | NC | NC | C |
| Amyl, Propyl & Butyl Acetate | C | C | ND | C | LC | LC | NC | LC | C |
| Propyl Acetate | C | C | NC | C | LC | LC | NC | LC | ND |
| Propylene Glycol Acetate | ND | C | ND | C | C | LC | NC | NC | ND |
| 2-Ethoxyethyl Acetate | ND | C | ND | C | ND | LC | NC | LC | ND |
| Methyl Cellulose Acetate | ND | C | ND | C | ND | LC | NC | LC | C |
| Benzyl Benzoate | C | C | ND | C | ND | LC | NC | C | ND |
| Isopropyl Myristate | C | C | ND | C | ND | LC | NC | C | ND |
| Tricresyl Phosphate | ND | C | ND | C | ND | LC | NC | C | ND |
| Ethers Oxides | | | | | | | | | |
| Ethyl Ether | C | C | C | C | C | LC | C | C | C |
| Dioxane & Tetrahydrofuran | C | C | LC | C | ND | NC | NC | NC | C |
| Dimethylsulfoxide (DMSO) | C | C | NC | C | C | NC | NC | NC | C |
| Isopropyl Ether | ND | C | C | C | C | LC | C | C | ND |
| Nitrogen solvents | | | | | | | | | |
| Dimethyl Formamide | LC | C | NC | LC | C | LC | NC | NC | C |
| Diethylacetamide | C | C | ND | C | ND | LC | ND | NC | C |
| Triethanolamine | C | C | ND | C | ND | NC | ND | C | ND |
| Aniline | ND | C | ND | C | ND | NC | ND | NC | ND |
| Pyridine | C | C | C | C | LC | NC | NC | NC | C |
| Acetonitrile | C | C | C | C | LC | NC | LC | NC | C |
| Others | | | | | | | | | |
| Phenol, Aqueous, 10% | ND | C | LC | NC | C | ND | NC | NC | C |
| Formaldehyde Solution, 30% | C | C | C | LC | C | ND | C | C | C |
| Hydrogen Peroxide, 30% | C | C | ND | C | ND | ND | ND | C | ND |
| Silicone Oil & Mineral Oil | ND | C | C | C | C | ND | C | C | C |
| pH range | | | | | | | | | |
| 1 - 14 | NC | C | NC | NC | C | NC | NC | ND | C |
| 3 - 12 | C | C | NC | C | C | NC | C | ND | C |
| 4 - 8 | C | C | C | C | C | C | C | ND | C |



1- Select the membrane

| Biological matrix & protein analysis | Aqueous samples | Aq./Organic mixtures | Organic samples |
|--|---------------------------------|-----------------------------|-----------------|
| Cellulose acetate (hydrophilic membrane) | | | |
| Regenerated cellulose (hydrophilic membrane) | | | |
| | Nylon (hydrophilic membrane) | | |
| | | PVDF (hydrophobic membrane) | |
| PVDF-HLC (hydrophilic membrane) | | | |
| | | PTFE (hydrophobic membrane) | |
| | PTFE-HLC (hydrophilic membrane) | | |

2- Select the syringe filter size

| Sample volume | < 2 mL | 2 - 10 mL | 10 - 100 mL | up to 120 mL |
|---------------------|--------|-----------|-------------|--------------|
| Syringe filter size | 4 mm | 13 mm | 25 mm | 30 mm |

3- Select pore size

0.20 μm 0.45 μm Additional prefilter 1.00 μm GF

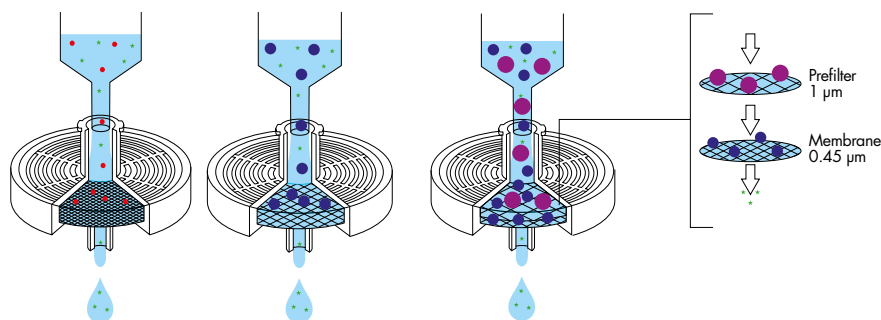
Viscous sample with high suspended solids

Technology UptiDisc™
GFX multi-layered

● Particle size 0.20 μm
★ Analyte

● Particle size 0.45 μm
★ Analyte

● Particle 1 μm
● Particle 0.45 μm
★ Compound of interest



Filtration of highly charged solutions
● Biological fluids
● Dissolution tests



Syringe filters UptiDisc™

UptiDisc™ syringe filters are the highest quality. They allow fast and efficient filtration thanks to optimized sample diffusion hardware.

The retention volumes have been drastically reduced. The maximum operating pressure is about 7 bar for the 13 and 25 mm filters. They allow the safe filtration of aqueous, organic and biological samples.

All 13, 25 and 30 mm filters are easily identifiable thanks to their color code specific to each membrane.

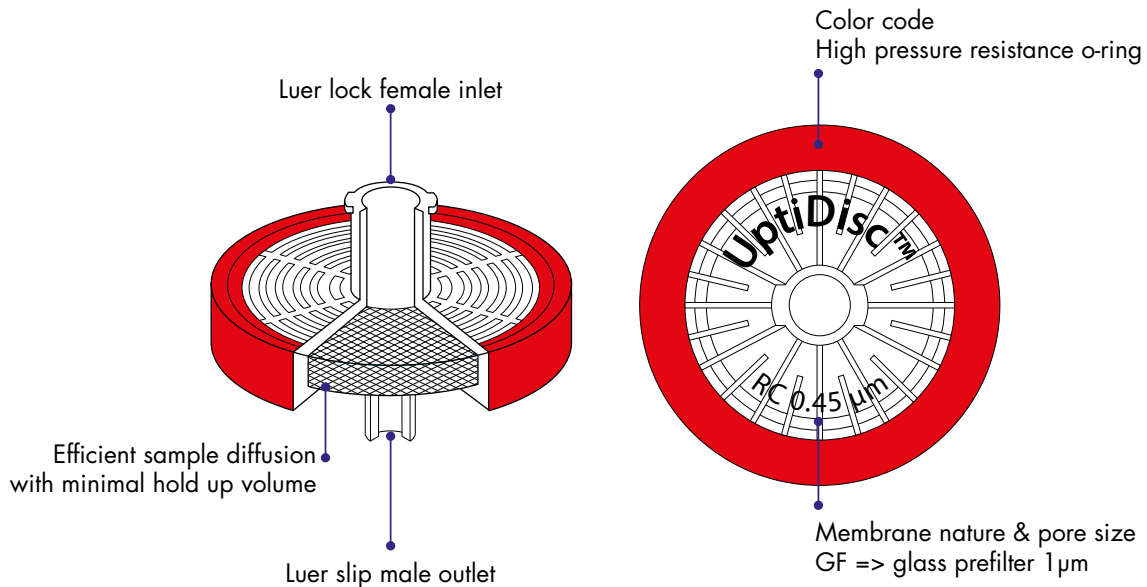
All 25 and 30 mm filters are available with a 1.0 µm glass fiber pre-filter. They reduce membrane clogging problems and avoid multiple replacements during filtration.

TECHNICAL TIP

| Syringe volume | Pressure |
|----------------|----------|
| 1 mL | ~ 10 bar |
| 3 mL | ~ 7 bar |
| 5 mL | ~ 5 bar |
| 10 mL | ~ 3 bar |
| 20 mL | ~ 2 bar |

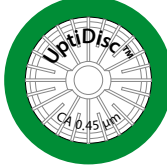
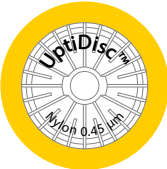

Features:

- Filter type: non-sterile
- Housing: PP
- Inlet: Female Luer-Lock
- Outlet: male Luer
- Diameters: 13 - 25 - 30 mm
- Porosities: 0.20 - 0.45 µm
- Membranes: CA, Nylon, PP, PTFE, PVDF, RC
- Packaging: 100 or 500 units
- Samples for testing on request






Filtration - Syringe filters UptiDisc™ 13/25/30 mm



| Membrane | Ø (mm) | Porosity (µm) | Prefilter | Inlet | Outlet | Housing | Filtration area (cm ²) | Hold up (µL) | Max. sample volume (mL) | Max. pressure (psi) | P/N | Qty | |
|--|--|---------------|------------------|-----------|-----------|---------------|------------------------------------|--------------|-------------------------|---------------------|--------|--------|-------|
| Cellulose acetate  | 13 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | EV3860 | 100 u | |
| | 13 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | EV3850 | 100 u | |
| | 25 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | EV3830 | 100 u | |
| | 25 | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | EV3820 | 100 u | |
| | 25 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | EV3810 | 100 u | |
| | 25 | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | EV3840 | 100 u | |
| | 30 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCD20 | 100 u | |
| | 30 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCD21 | 500 u | |
| | 30 | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCD30 | 100 u | |
| | 30 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCD40 | 100 u | |
| | 30 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCD41 | 500 u | |
| | 30 | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCD50 | 100 u | |
| | Nylon  | 13 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | P00500 | 100 u |
| | | 13 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | P00510 | 100 u |
| 25 | | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11410 | 100 u | |
| 25 | | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11411 | 500 u | |
| 25 | | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11720 | 100 u | |
| 25 | | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11721 | 500 u | |
| 25 | | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | U54670 | 100 u | |
| 30 | | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCISO | 100 u | |
| 30 | | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCIS1 | 500 u | |
| 30 | | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCITO | 100 u | |
| 30 | | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCIU0 | 100 u | |
| 30 | | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCIU1 | 500 u | |
| 30 | | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCIVO | 100 u | |
| Polypropylene hydrophobic  | | 13 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | P00580 | 100 u |
| | 13 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | P00590 | 100 u | |
| | 25 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11790 | 100 u | |
| | 25 | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11791 | 500 u | |
| | 25 | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | U54690 | 100 u | |
| | 25 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11800 | 100 u | |
| | 25 | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11801 | 500 u | |
| | 25 | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | U54700 | 100 u | |
| | 30 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCU30 | 100 u | |
| | 30 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCU31 | 500 u | |
| | 30 | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCU40 | 100 u | |
| | 30 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCU50 | 100 u | |
| | 30 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCU51 | 500 u | |
| | 30 | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCU60 | 100 u | |

Filtration - Syringe filters UptiDisc™ 13/25/30 mm

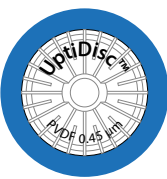

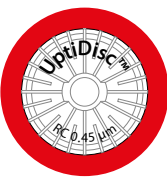


| Membrane | Ø (mm) | Porosity (µm) | Prefilter | Inlet | Outlet | Housing | Filtration area (cm²) | Hold up (µL) | Max. sample volume (mL) | Max. pressure (psi) | P/N | Qty | |
|---|--|------------------|------------------|-----------|---------------|---------------|-----------------------|--------------|-------------------------|---------------------|--------|--------|-------|
|  PTFE | 13 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | P00520 | 100 u | |
| | 13 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | P00530 | 100 u | |
| | 25 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11730 | 100 u | |
| | | | | | | | | | | | | N11731 | 500 u |
| | 25 | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | U54710 | 100 u | |
| | 25 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11740 | 100 u | |
| | | | | | | | | | | | | N11741 | 500 u |
| | 25 | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | U54720 | 100 u | |
| | 30 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CU70 | 100 u | |
| | 30 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CU71 | 500 u | |
| | 30 | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CU80 | 100 u | |
| | 30 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CU90 | 100 u | |
| | 30 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CU91 | 500 u | |
| | 30 | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CUA0 | 100 u | |
| |  PTFE-HLC | 13 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | <10 | <10 | 87 | 1L3570 | 100 u |
| 13 | | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | <10 | <10 | 87 | 1L3580 | 100 u | |
| 25 | | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | 1L3590 | 100 u | |
| | | | | | | | | | | | 1L3591 | 500 u | |
| 25 | | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | 1L3600 | 100 u | |
| 25 | | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | 1L3610 | 100 u | |
| | | | | | | | | | | | 1L3611 | 500 u | |
| 25 | | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | 1L3620 | 100 u | |
| 30 | | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CUB0 | 100 u | |
| 30 | | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CUB1 | 500 u | |
| 30 | | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CUC0 | 100 u | |
| 30 | | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CUD0 | 100 u | |
| 30 | | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CUD1 | 500 u | |
| 30 | | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | B0CUE0 | 100 u | |
|  PVDF | | 13 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | P00560 | 100 u |
| | 13 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | P00570 | 100 u | |
| | 25 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11770 | 100 u | |
| | | | | | | | | | | | N11771 | 500 u | |
| | 25 | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | U54730 | 100 u | |
| | 25 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | N11780 | 100 u | |
| | | | | | | | | | | | N11781 | 500 u | |
| 25 | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | < 100 | < 100 | 87 | U54740 | 100 u | | |



Filtration - Syringe filters UptiDisc™ 13/25/30 mm



| Membrane | Ø (mm) | Porosity (µm) | Prefilter | Inlet | Outlet | Housing | Filtration area (cm²) | Hold up (µL) | Max. sample volume (mL) | Max. pressure (psi) | P/N | Qty |
|---|---|------------------|------------------|-----------|---------------|---------------|-----------------------|--------------|-------------------------|---------------------|--------|--------|
| PVDF  | 30 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUF0 | 100 u |
| | 30 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUF1 | 500 u |
| | 30 | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUG0 | 100 u |
| | 30 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUH0 | 100 u |
| | 30 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUH1 | 500 u |
| | 30 | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUI0 | 100 u |
| PVDF-HLC  | 13 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | <10 | <10 | 87 | 1L3630 | 100 u |
| | 13 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | <10 | <10 | 87 | 1L3640 | 100 u |
| | 25 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | 1L3650 | 100 u |
| | | | | | | | | | | | 1L3651 | 500 u |
| | 25 | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | 1L3660 | 100 u |
| | 25 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | 1L3670 | 100 u |
| | | | | | | | | | | | 1L3671 | 500 u |
| | 25 | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | 1L3680 | 100 u |
| | 30 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUK0 | 100 u |
| | 30 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUK1 | 500 u |
| | 30 | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUL0 | 100 u |
| | RC  | 13 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | T38090 |
| 13 | | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.92 | < 10 | < 10 | 87 | T38080 | 100 u |
| 25 | | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | T38110 | 100 u |
| | | | | | | | | | | | T38111 | 500 u |
| 25 | | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | U54650 | 100 u |
| 25 | | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | T38100 | 100 u |
| | | | | | | | | | | | T38101 | 500 u |
| 25 | | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 2.98 | <100 | <100 | 87 | U54660 | 100 u |
| 30 | | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUO0 | 100 u |
| 30 | | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUO1 | 500 u |
| 30 | | 0.20 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUP0 | 100 u |
| 30 | | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUQ0 | 100 u |
| 30 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUQ1 | 500 u | |
| 30 | 0.45 | yes 1.0 µm GF | Luer-Lock | Luer slip | Polypropylene | 4.9 | <100 | <120 | 87 | BOCUI0 | 100 u | |

Plastic syringes

- Sterile syringes 3 pieces
- Transparent polypropylene
- Elastomeric gasket for watertightness
- Luer or Luer Lock tip

| Plastic syringe | Luer P/N | Qty | Luer lock - P/N | Qty |
|-----------------|----------|-------|-----------------|-------|
| 1 mL | AN0660 | 100 u | | |
| 2 mL | 839820 | 100 u | | |
| 5 mL | 910160 | 100 u | DT2552 | 100 u |
| 10 mL | U50760 | 100 u | DT2560 | 120 u |
| 20 mL | 491970 | 50 u | R48210 | 120 u |
| 30 mL | U75440 | 50 u | I05990 | 60 u |
| 50 mL | U75450 | 25 u | AA8170 | 25 u |
| 100 mL | | | OO2390 | 25 u |



UptiDisc™ 4mm syringe filters are intended for filtration of small sample volumes generally less than 2 mL.

The very low retention volume minimizes sample loss on the membrane and allows safe filtration of aqueous, organic and biological samples.



Features:

- Type: non sterile
- Membranes : RC, CA, Nylon, PTFE, PVDF, PP

| Membrane | Ø (mm) | Porosity (µm) | Prefilter | Inlet | Outlet | Housing | Filtration area (cm ²) | Hold up (µL) | Max. sample volume (mL) | Max. pressure (psi) | P/N | Qty |
|-------------------|--------|---------------|-----------|-----------|-----------|---------------|------------------------------------|--------------|-------------------------|---------------------|--------|-------|
| Cellulose acetate | | | | | | | | | | | | |
| | 4 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | P00600 | 100 u |
| | 4 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | P00610 | 100 u |
| Nylon | | | | | | | | | | | | |
| | 4 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | P00620 | 100 u |
| | 4 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | P00630 | 100 u |
| PP hydrophobe | | | | | | | | | | | | |
| | 4 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | P00640 | 100 u |
| | 4 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | P00650 | 100 u |
| PTFE | | | | | | | | | | | | |
| | 4 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | P00660 | 100 u |
| | 4 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | P00670 | 100 u |
| PVDF | | | | | | | | | | | | |
| | 4 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | P00680 | 100 u |
| | 4 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | P00690 | 100 u |
| RC | | | | | | | | | | | | |
| | 4 | 0.20 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | T38070 | 100 u |
| | 4 | 0.45 | no | Luer-Lock | Luer slip | Polypropylene | 0.125 | < 1 | < 5 | 75 | T38060 | 100 u |



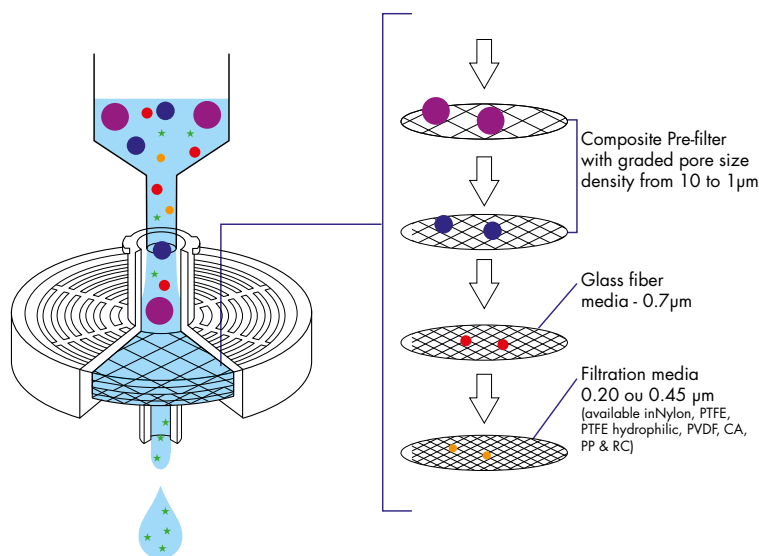


Syringe filter UptiDisc™ GFX

Multi-Layer technology

Unique filter design dedicated to filtration of very high particulate solutions (Biological, Dissolution testing, Environmental samples, Food analysis, Biofuel analysis...).

Our special membrane materials allow you to filter difficult samples with less hand pressure and faster flow rate. They prevent back pressure typically caused by the clogging of an unprotected membrane. Increased volume capacity (sample volume can be three to seven times larger than conventional filters).



| Membrane | Ø (mm) | Porosity (µm) | Pre-filter | Inlet | Outlet | Housing | Filtration area (cm ²) | Hold up (µL) | Max. sample volume (mL) | Max. pressure (psi) | P/N | Qty |
|-----------------|--------|---------------|-------------------|-----------|-----------|---------------|------------------------------------|--------------|-------------------------|---------------------|--------|-------|
| GFX Nylon | 25 | 0.20 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3060 | 100 u |
| | 25 | 0.45 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3070 | 100 u |
| GFX PTFE | 25 | 0.20 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3080 | 100 u |
| | 25 | 0.45 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3090 | 100 u |
| GFX PTFE PHILIC | 25 | 0.20 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3100 | 100 u |
| | 25 | 0.45 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3110 | 100 u |
| GFX PVDF | 25 | 0.20 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3120 | 100 u |
| | 25 | 0.45 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3130 | 100 u |
| GFX CA | 25 | 0.20 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3140 | 100 u |
| | 25 | 0.45 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3150 | 100 u |
| GFX PP | 25 | 0.20 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3670 | 100 u |
| | 25 | 0.45 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3680 | 100 u |
| GFX RC | 25 | 0.20 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3690 | 100 u |
| | 25 | 0.45 | yes, multi-layers | Luer-Lock | Luer slip | Polypropylene | 4.08 | < 400 | < 100 | 75 | 1A3700 | 100 u |









Specially designed for automated filtration of samples from dissolution tests, UptiDisc™ Robotic syringe filters are compatible with Sotax filtration machines.

All filters are easily identifiable by their specific color code for each membrane.

Features:

- Filter type: non-sterile
- Housing: PP
- Inlet: Female Luer Lock
- Outlet: Luer slip male
- Diameter: 25 mm
- Porosities: 0.20 - 0.45 μm
- Membranes: MEC, Nylon, PP, PVDF, PTFE, CA, RC, GMF
- Maximum pressure: 5.5 bar
- Packaging: 1,000 units

| Ø | Porosity | Housing | | P/N | Qty |
|---------------------------------------|--------------------|---------|---|--------|---------|
| Regenerated cellulose (RC) | | | | | |
| 25 mm | 0.20 μm | PP |  | BH7120 | 1 000 u |
| 25 mm | 0.45 μm | PP | | BH7130 | 1 000 u |
| Cellulose ester (MEC) | | | | | |
| 25 mm | 0.20 μm | PP |  | BH7040 | 1 000 u |
| 25 mm | 0.45 μm | PP | | BH7050 | 1 000 u |
| Cellulose acetate (CA) | | | | | |
| 25 mm | 0.20 μm | PP |  | EV3980 | 1 000 u |
| 25 mm | 0.45 μm | PP | | EV3990 | 1 000 u |
| Nylon | | | | | |
| 25 mm | 0.20 μm | PP |  | BH7000 | 1 000 u |
| 25 mm | 0.45 μm | PP | | BH7010 | 1 000 u |
| Polytetrafluoroethylene (PTFE) | | | | | |
| 25 mm | 0.20 μm | PP |  | BH7020 | 1000 u |
| 25 mm | 0.45 μm | PP | | BH7030 | 1000 u |

| Ø | Porosity | Housing | | P/N | Qty |
|--------------------------------|--------------------|---------|--|--------|---------|
| PVDF | | | | | |
| 25 mm | 0.20 μm | PP |  | BH7060 | 1 000 u |
| 25 mm | 0.45 μm | PP | | BH7070 | 1 000 u |
| PP | | | | | |
| 25 mm | 0.20 μm | PP |  | BH7080 | 1 000 u |
| 25 mm | 0.45 μm | PP | | BH7100 | 1 000 u |
| Glass micro-fiber (GMF) | | | | | |
| 25 mm | 1,0 μm | PP |  | BH7180 | 1 000 u |



UptiDisc™ filter membranes are used for aqueous and organic solvent filtration with the appropriate filtration apparatus.
The membrane cutoff allows direct use of the filtrate with a HPLC.

Features:

- Diameter: 13 - 25 - 47 mm
- Pore size: 0.20 - 0.45 µm
- Membrane: RC, NO2, MEC, GMF, Nylon, PP, PVDF, PTFE

| Ø | Porosity | P/N | Qty |
|--------------------------------------|----------|--------|-------|
| Regenerated cellulose (RC) | | | |
| 13 mm | 0.20 µm | T38130 | 100 u |
| 13 mm | 0.45 µm | T38120 | 100 u |
| 25 mm | 0.20 µm | T38150 | 50 u |
| 25 mm | 0.45 µm | T38140 | 50 u |
| 47 mm | 0.20 µm | T38180 | 50 u |
| 47 mm | 0.45 µm | T38160 | 50 u |
| Mixture cellulose ester (MEC) | | | |
| 13 mm | 0.20 µm | N11940 | 100 u |
| 13 mm | 0.45 µm | N11930 | 100 u |
| 25 mm | 0.20 µm | N11960 | 50 u |
| 25 mm | 0.45 µm | N11950 | 50 u |
| 47 mm | 0.20 µm | N11980 | 50 u |
| 47 mm | 0.45 µm | N11970 | 50 u |
| Nylon | | | |
| 13 mm | 0.20 µm | N11820 | 100 u |
| 13 mm | 0.45 µm | N11810 | 100 u |
| 25 mm | 0.20 µm | N11840 | 50 u |
| 25 mm | 0.45 µm | N11830 | 50 u |
| 47 mm | 0.20 µm | N11860 | 50 u |
| 47 mm | 0.45 µm | N11850 | 50 u |
| Glass fiber (GMF) | | | |
| 25 mm | 1.0 µm | BH1880 | 50 u |
| 47 mm | 1.0 µm | BH1890 | 25 u |

| Ø | Porosity | P/N | Qty |
|---------------------------------------|----------|--------|-------|
| Polypropylene | | | |
| 13 mm | 0.20 µm | N12060 | 100 u |
| 13 mm | 0.45 µm | N12050 | 100 u |
| 25 mm | 0.20 µm | N12080 | 50 u |
| 25 mm | 0.45 µm | N12070 | 50 u |
| 47 mm | 0.20 µm | N12100 | 50 u |
| 47 mm | 0.45 µm | N12090 | 50 u |
| PVDF | | | |
| 13 mm | 0.20 µm | N12000 | 100 u |
| 13 mm | 0.45 µm | N11990 | 100 u |
| 25 mm | 0.20 µm | N12020 | 50 u |
| 25 mm | 0.45 µm | N12010 | 50 u |
| 47 mm | 0.20 µm | N12040 | 50 u |
| 47 mm | 0.45 µm | N12030 | 50 u |
| PTFE (Polytetrafluoroethylene) | | | |
| 13 mm | 0.20 µm | N11880 | 100 u |
| 13 mm | 0.45 µm | N11870 | 100 u |
| 25 mm | 0.20 µm | N11900 | 50 u |
| 25 mm | 0.45 µm | N11890 | 50 u |
| 47 mm | 0.20 µm | N11920 | 50 u |
| 47 mm | 0.45 µm | N11910 | 50 u |



Designed for the filtration of protein precipitates from whole blood or plasma, the "Uptiplate™ Protein Crash" filtration plates have a very low adsorption rate of the analytes on the membrane. The membrane is impermeable to organic solvents and its porosity is 0.20 µm.

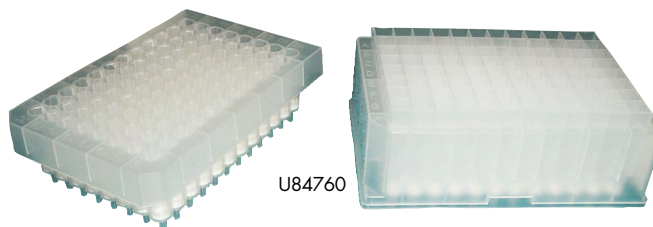
The centrifugation step is no longer necessary and the filtration of 96 samples is achieved in a record time of about 10 minutes. The clear and cloudless filtrate can then be directly analyzed in liquid or gas chromatography.

The precipitation of the samples can be carried out directly in the wells of the plate ("Solvent First" method).

These 96-well plates "Uptiplate Protein Crash" are specially developed and adapted to drug discovery, pre-clinical and clinical steps.

Features:

- Type of plate: non-sterile
- Nature of the plate : PP
- Dimensions: 127.76 x 85.47 x 19.74 mm
- Available in 96 well plates
- Volume of wells: 1 - 2 mL
- Porosity: 0.2 µm



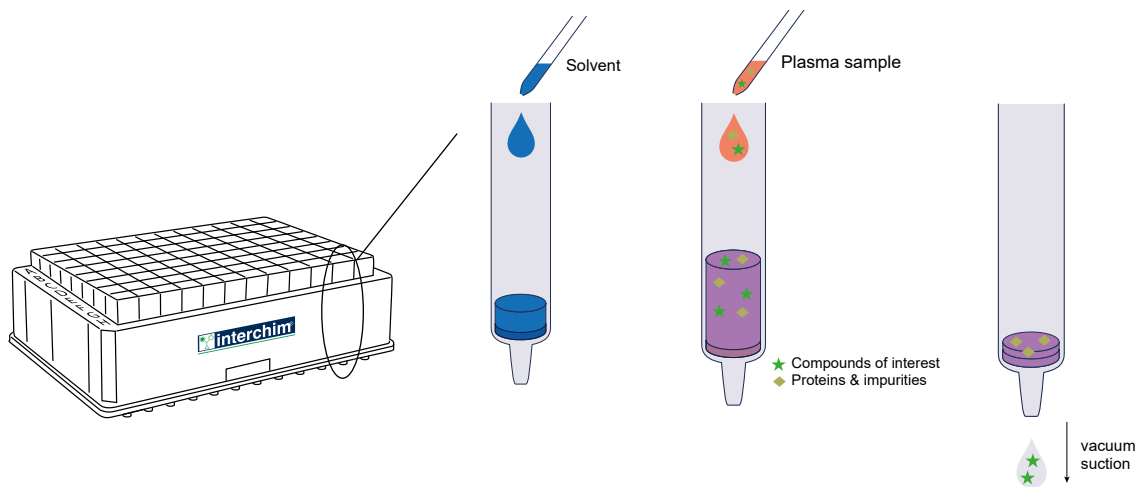
| Description | P/N | Qty |
|---|--------|------|
| Uptiplate Protein Crash 0.20 µm 1 mL | U84752 | 10 u |
| | U84753 | 50 u |
| Uptiplate Protein Crash 0.20 µm 2 mL | U84762 | 10 u |
| | U84763 | 50 u |
| Pre-slitted cover for 2 mL square well plates | B13520 | 50 u |

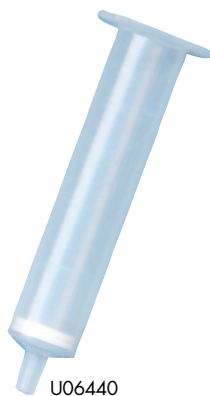
The precipitation of the samples can be carried out directly in the wells of the plate ("Solvent First" method).

Step 1
Solvent loading

Step 2
Sample loading - Step of protein precipitation

Step 3
Collection elution





U06440

UptiDisc™ filter tubes are syringe barrel designed and manufactured from inert polypropylene. They include a frit on the top for pre-filtration and the membrane of your choice.

- 1 mL to 60mL sample loading
- Membrane: Nylon, PE, PTFE, Cellulose
- PTFE frits and membranes are dedicated to organic samples
- Filter tubes can be used as either as gravity flow devices or with a vacuum manifold to improve the fluid flow.

| Membrane | Porosity 1 | Porosity 2 | Vol. | Tube | P/N | Qty |
|----------|------------|------------|-------|------|--------|-----|
| Nylon | 0.45 µm | 20 µm PE | 1 mL | PP | U05790 | 100 |
| Nylon | 0.45 µm | 20 µm PE | 3 mL | PP | U06130 | 100 |
| Nylon | 0.45 µm | 20 µm PE | 6 mL | PP | U06230 | 100 |
| Nylon | 0.45 µm | 20 µm PE | 12 mL | PP | U06310 | 100 |
| Nylon | 0.45 µm | 20 µm PE | 60 mL | PP | U06320 | 100 |
| PE | 20.0 µm | | 1 mL | PP | U06340 | 100 |
| PE | 20.0 µm | | 3 mL | PP | U06350 | 100 |
| PE | 20.0 µm | | 6 mL | PP | U06360 | 100 |
| PE | 20.0 µm | | 12 mL | PP | U06370 | 100 |
| PE | 20.0 µm | | 60 mL | PP | U06380 | 100 |
| PE | 70.0 µm | | 1 mL | PP | U06390 | 100 |
| PE | 70.0 µm | | 3 mL | PP | U06400 | 100 |
| PE | 70.0 µm | | 6 mL | PP | U06410 | 100 |
| PE | 70.0 µm | | 12 mL | PP | U06420 | 100 |
| PE | 70.0 µm | | 60 mL | PP | U06430 | 100 |
| PTFE | 0.45 µm | 5 µm PTFE | 1 mL | PP | U06440 | 100 |
| PTFE | 0.45 µm | 5 µm PTFE | 6 mL | PP | U06460 | 100 |
| PTFE | 0.45 µm | 5 µm PTFE | 12 mL | PP | U06470 | 100 |
| PTFE | 0.45 µm | 5 µm PTFE | 60 mL | PP | U06480 | 100 |



Filtration by centrifugation

Fast and simple

Wide range of centrifugal filtration systems from micro-volume (50 µL) to the largest volumes (50 mL).

- Our offer includes 6 filter holders of different sizes and shapes. The combination of these 2 elements allows filtration of all types of samples and volumes.
- The filter holder consists of an external tank in which a spin column is inserted. These two elements are made of Polypropylene FDA to avoid contamination of the sample.
- The filters are classically of 0.2 and 0.45 µm porosity in Nylon, PTFE, cellulose acetate, nitrocellulose, glass fibers, paper and polyethylene. This list is not exhaustive, ask us for your specific needs.

| System: | Spin-850™ | Spin-4™ | Spin-25™ |
|----------------------------|----------------------|---------------------|---------------------|
| Capacity: | 850 µL | 4 mL | 25 mL |
| Rec, Centrifuge strength: | 10,000 G | 5,000 G | 2,500 G |
| Reservoir volume: | 1.9/2.0 mL | 12 mL ou 15 mL | 50 mL |
| Centrifuge: | Micro | Bench top | 50 mL Rotor |
| Reservoir: | Polypropylene | Polypropylene | Polypropylene |
| Effective filtration area: | 0.62 cm ² | 0.8 cm ² | 1.1 cm ² |
| Filter diameter: | 7.55 mm | 12.65 mm | 24.35 mm |
| Dimensions - Length: | 23.65 mm | 44.59 mm | 60.0 mm |
| External diameter: | 8.65 mm | 13.10 mm | 25.30 mm |



Filtration - Spin tubes



Capacity: 850 μ L
 Max centrifuge: 10,000 G
 Reservoir: 1.5 mL, 1.9 mL, 2.0 mL
 Centrifuge micro centrifuge standard
 Material : Polypropylene Grade FDA
 Effective surface area: 0.62 cm²
 Membrane diameter: 7.06 mm
 Sizes:
 . Length: 23.65 mm
 . External diameter 8.65 mm
 . ID: 7.68 mm
 . Colors: several color available



Coumns Spin-850™

Columns Spin-850™

Disposable filtration systems for volumes up to 850 μ L

- Marking and labeling window
- Flat bottom
- Ideal for small volume filtration and purification
- Fits all commercially available tanks

Filtration unit: Spin-850™ - Capacity 850 μ L

| Membrane | Porosity | Reservoir | Sterile | P/N | Qty |
|----------|--------------|-----------------|---------|--------|-------|
| Nylon | 0.20 μ m | 2 mL with a cap | No | CD3220 | 100 u |
| PES | 0.20 μ m | 2 mL with a cap | No | CD3230 | 100 u |
| PVDF | 0.20 μ m | 2 mL with a cap | No | BX4270 | 100 u |
| RC | 0.20 μ m | 2 mL with a cap | No | CD3240 | 100 u |
| PTFE | 0.20 μ m | 2 mL with a cap | No | BY0940 | 100 u |
| CA | 0.20 μ m | 2 mL with a cap | No | BU8190 | 100 u |
| CA | 0.45 μ m | 2 mL with a cap | No | CD3290 | 100 u |
| Nylon | 0.45 μ m | 2 mL with a cap | No | CD3310 | 100 u |
| RC | 0.45 μ m | 2 mL with a cap | No | CD3320 | 100 u |
| PTFE | 0.45 μ m | 2 mL with a cap | No | CD3340 | 100 u |
| PES | 0.45 μ m | 2 mL with a cap | No | CD3350 | 100 u |
| PVDF | 0.45 μ m | 2 mL with a cap | No | AL5131 | 100 u |



Columns Spin-4™

Intermediate filtration unit

Disposable filtration systems for volumes up to 4 mL

- Marking and labeling window
- Various custom sizes available
- Ideal for filtration and purification of intermediate volumes
- Unique luer tip for high flow rate

Filtration unit: Spin-4™ - Capacity 4 mL

| Membrane | Porosity | Reservoir | Sterile | P/N | Qty |
|----------|----------|-----------------|---------|--------|------|
| Nylon | 0.20 µm | 7 mL with a cap | No | CD3400 | 25 u |
| PES | 0.20 µm | 7 mL with a cap | No | CD3650 | 25 u |
| PVDF | 0.20 µm | 7 mL with a cap | No | BI6500 | 25 u |
| RC | 0.20 µm | 7 mL with a cap | No | CD3670 | 25 u |
| PTFE | 0.20 µm | 7 mL with a cap | No | CD3680 | 25 u |
| CA | 0.20 µm | 7 mL with a cap | No | CD3690 | 25 u |
| CA | 0.45 µm | 7 mL with a cap | No | CD3710 | 25 u |
| Nylon | 0.45 µm | 7 mL with a cap | No | CD3720 | 25 u |
| RC | 0.45 µm | 7 mL with a cap | No | CD3760 | 25 u |
| PTFE | 0.45 µm | 7 mL with a cap | No | CD3780 | 25 u |
| PES | 0.45 µm | 7 mL with a cap | No | CD3750 | 25 u |
| PVDF | 0.45 µm | 7 mL with a cap | No | BI6510 | 25 u |

Capacity: 4 mL
 Max centrifuge: 5,000 XG
 Reservoirs: 5 mL, 12 mL, 15 mL
 Centrifuge: benchtop/ fixed centrifuge
 Material : Polypropylene Grade FDA
 Effective surface area: 0.8 cm²
 Membrane diameter: 12.65 mm
 Sizes:
 . Length: 11.59 mm
 . External diameter: 13.10 mm
 . ID : 12.60 mm
 . Colors: several color available



Columns Spin-4™





Capacity: 25 mL
 Max centrifuge: 2,500 XG
 Reservoir: 50 mL
 Centrifuge: 50 mL rotor
 Material : Polypropylene Grade FDA
 Effective surface area: 1.1 cm²
 Membrane diameter: 24, 35 mm
 Sizes:
 . Length: 60 mm
 . External diameter 25, 30 mm
 . ID : 24,30 mm
 . Colors: several colors available



Columns Spin-25™

Columns Spin-25™

Disposable filtration systems for volumes up to 25 mL

- Largest centrifugal filtration unit available
- Marking and labeling window
- Various custom sizes available
- Ideal for high filtration volume and purification
- Fits all commercially available 50 mL tanks

Filtration unit: Spin-25™ - Capacity 25 mL

| Membrane | Taille | Réservoir | Stérilité | Réf. | Qté |
|----------|---------|------------------------|-----------|--------|------|
| Nylon | 0.20 µm | 50 mL with a screw cap | No | CD3790 | 50 u |
| PES | 0.20 µm | 50 mL with a screw cap | No | CD3800 | 50 u |
| PVDF | 0.20 µm | 50 mL with a screw cap | No | CD3810 | 50 u |
| RC | 0.20 µm | 50 mL with a screw cap | No | CD3840 | 50 u |
| PTFE | 0.20 µm | 50 mL with a screw cap | No | CD3830 | 50 u |
| CA | 0.20 µm | 50 mL with a screw cap | No | CD3820 | 50 u |
| CA | 0.45 µm | 50 mL with a screw cap | No | CD3870 | 50 u |
| Nylon | 0.45 µm | 50 mL with a screw cap | No | CD3880 | 50 u |
| RC | 0.45 µm | 50 mL with a screw cap | No | CD3910 | 50 u |
| PTFE | 0.45 µm | 50 mL with a screw cap | No | CD3900 | 50 u |
| PES | 0.45 µm | 50 mL with a screw cap | No | CD3890 | 50 u |
| PVDF | 0.45 µm | 50 mL with a screw cap | No | CD3920 | 50 u |



Liquid/liquid extraction (or LLE) is one of the oldest sample preparation techniques. It allows, by a physical process, to purify or extract classes of compounds (or solutes) from the matrix (or eluent) in which they are solubilized. The extraction solvent must not be miscible with the eluent while solubilizing the maximum of solutes. The mixture obtained includes the extract (extraction solvent rich in solutes) and the raffinate (eluent depleted of solutes).

Multiplying the extraction steps allows the eluent to be depleted of solutes in favor of an enrichment of the extract. This extract is then evaporated to increase the concentration of compounds of interest in the extraction solvent.

This technique is still a widely used sample preparation step but it shows multiple disadvantages when it is done with a decanting funnel:

- Multiplication of extraction steps to obtain an optimum yield
- Use of large volumes of organic solvents whose recycling costs are becoming more and more expensive
- Difficult of emulsification which does not allow the recovery of 100% of the extract
- Traces of eluent in the raffinate which requires additional treatment of the sample before the evaporation stage.

To overcome these problems, manufacturers have developed new solutions allowing liquid/liquid extraction on a solid support (or SLE) made of diatomaceous earth. After the sample is deposited in the eluent, preferably 100% water, it is then adsorbed onto the solid support, like ink on a blotting paper.

After a few minutes, the extraction solvent is added into the column. By gravity, the extraction of the eluent is performed without generating an emulsion. The recovered extract is free of eluent traces. The extraction becomes faster and more efficient. The volume of extract to evaporate are lower. The significant time savings largely compensates the other constraints.

Advion Interchim Scientific Clean-Elut

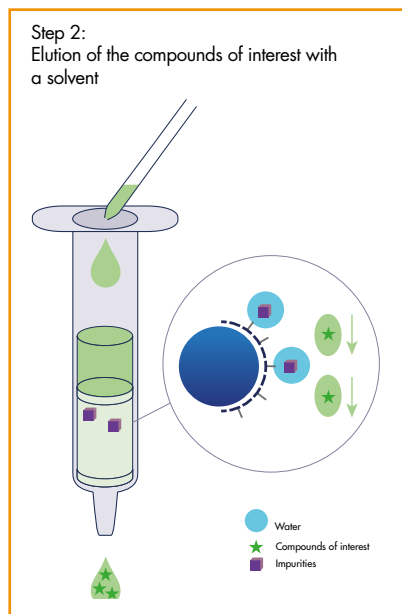
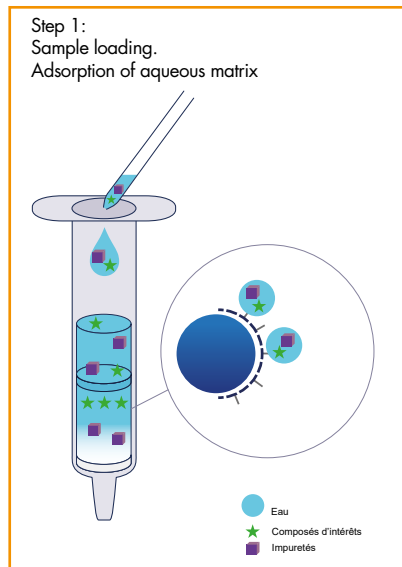
Developed to multiply and accelerate liquid/liquid extractions in the laboratory, Advion Interchim Scientific Clean-Elut columns are filled with high purity diatomaceous earth of high purity and chemically stable to solvents.

These columns are packed in standard medical grade polypropylene tubes minimizing the amount of extractable impurities during the passage of organic solvents. They operate simply by gravity, without making use of vacuum, for reproducible and repeatable flow from column to column. The recovered extract is free of eluent traces. Their high exchange capacity allows a very high extraction efficiency without emulsification.

Select of the Clean-Elut columns

The volume of sample must be at the most equal to the volume indicated on the extraction column. The extraction of acidic compounds can be performed with buffered columns at pH 4.5, whereas buffered columns at pH 9 are more suitable for the extraction of basic compounds.

| Max sample volume | Buffer | P/N | Qty |
|-------------------|--------|-----------|-------|
| 0.3 mL | No | CET-0,3ML | 100 u |
| 1 mL | No | CET-1ML | 100 u |
| 3 mL | No | CET-3ML | 100 u |
| 3 mL | pH 9 | CET-3ML/B | 100 u |
| 3 mL | pH 4.5 | CET-3ML/A | 100 u |
| 5 mL | No | CET-5ML | 100 u |
| 10 mL | No | CET-10ML | 100 u |
| 20 mL | No | CET-20ML | 100 u |





Advion Interchim Scientific ToxiVials™

Increase your LC/MS or GC/MS productivity for toxicological analysis.

An easy, fast and inexpensive extraction process for neutral, basic and acidic drugs that increases your instrument lifetime by using a clean procedure in only 5 steps:

Step 1: Sample introduction



ToxiVials type A**:
 Add 5 mL of sample w/
 internal standard*
 ToxiVials type B** :
 Add 4.5 mL of sample w/
 internal standard*

Step 2: Mixing



Shake manually
 for 2 to 5 minutes

Step 3: Centrifugation



Centrifuge at high speed
 (≈2500 rpm) for 5 minutes

Step 4: Supernatant treatment



Transfer the organic supernatant
 into appropriate concentration
 cups then evaporate to dryness

Step 5: Reconstitution



Reconstitute using
 the appropriate solvent
 and smallest volume and
 get ready for the analysis.

| Description | P/N | Qty |
|-------------------|--------|-------|
| ToxiVials™ Type A | 1D7960 | 100 u |
| ToxiVials™ Type B | 1D7970 | 100 u |

**Results can vary depending on the analysis technique used following the ToxiVials™ extraction

TECHNICAL TIP

ToxiVials™ extraction tubes are made of borosilicate white glass SCHOTT quality. The caps with electrochemically bonded seals (without added solvent), ensure perfect sealing and preserve the integrity of your samples.



Preamble

As an integral part of an analysis, sample preparation has considerably evolved in the last few years. It is the most important step of the analytical process. Some studies show that sample preparation generally represents about 60% of a laboratory technician's work time and is one of the main sources of errors affecting the analysis result. With this in mind, it is easy to understand why good sample preparation has a direct impact on the detection limit, reproducibility and repeatability of the analysis. Its impact on the quality of the analysis is fundamental.

The matrices to be treated (blood, plasma, water, organs, meats, poisons, vegetables,...) require the use of various techniques: filtration, dialysis, liquid-liquid extraction, solid phase extraction (SPE). Among these, the solid phase extraction is certainly the technique that has evolved the most in the last years.

It is now present in most laboratories and allows efficient purification and concentration of the sample before HPLC, GC or GC/MS analysis. The level of quality required for SPE products has therefore increased. Thus, new technological innovations such as high surface area polymers, ion exchange polymers and pure spherical silicas have become essential.

Efficiency, capacity, selectivity and reproducibility are the main virtues that analysts expect from their sample processing methods. Thanks to our experience, our laboratories have developed the Upti-Clean® brand, pure spherical silica supports, as well as the Atoll™ and PolyClean™ brands, ultra-pure spherical polymers.

These product lines are perfectly suited to the needs of modern methods and contribute to making them more reliable, more reproducible and more robust.

General SPE Methodology

All sorbents filled in cartridges, columns or 96 well plates are single use (except for the on-line trapping columns used with an LC system).

Using an automated SPE workstation is recommended for the percolation of the different solvents (vacuum manifold, positive pressure automate, syringes).

The choice of the column is defined by the volume of the sample, the concentration of analytes and the types of exchanges sought. In environmental application areas, volumes of multiple hundred milliliters may be necessary for a good pre-concentration (e.g. organic pollutants). On the other hand, in the pharmaceutical industry, the volume of samples to be purified is only a few milliliters. The sorbent selected must have an excellent affinity with the target compounds. It must also have a minimum affinity with the matrix interferents.

A SPE protocol consists of several steps:

1. Conditioning

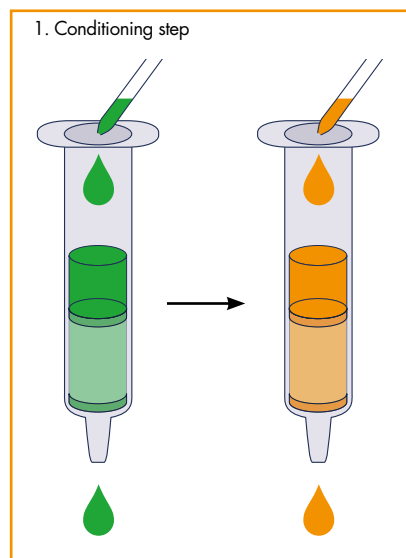
Activation step with an organic solvent or a mixture of solvents allows the removal of the contaminants and promotes exchanges in the sorbent. This step allows to "wet" the column frits.

Hexane, cyclohexane or dichloromethane are solvents regularly used in "normal phase" mode to condition virgin or bonded silica aminopropyl (R-NH₂), dihydroxypropyl (R-R'¹OH-R''OH), cyanopropyl (R-CN), ...

In "reverse phase" mode, for C18, C8, C2, phenyl, cyclohexyl grafted silicas, methanol or even acetonitrile are commonly used.

TECHNICAL TIP

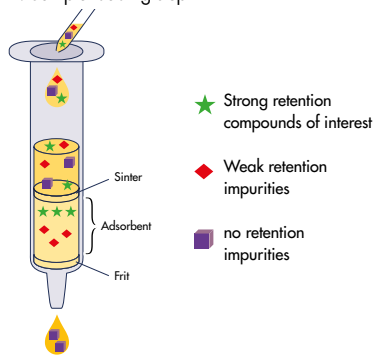
- Check the miscibility of the solvents to be used.
- Always leave the solvent level above the sorbent to maintain its activation.
- For silicas bonded with an ion exchanger activate with methanol, water and then with buffered water at the desired pH.



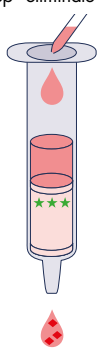
Solid phase extraction - SPE technique



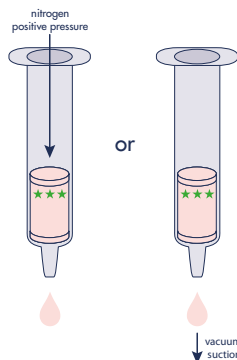
2. Sample loading step



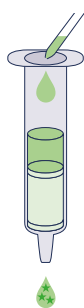
3. Washing step - eliminate impurities



4. Drying step - remove solvent



5. Elution step - 100% compounds of interest



2. Sample Loading Step

Load the sample onto the upper part of the sorbent bed. Matrix contaminants may pass through the column unretained, and additionally, other matrix components may be more or less strongly retained on the sorbent surface. To get a maximum purification efficiency, the sample flow must be controlled.

[It is necessary to analyze the unretained fraction to check if all compounds of interest have been retained]

The experimental values of the flows observed for particle sizes of approximately 50 μm are:

- 0.7-1 mL/min for 1 mL columns
- 2-3 mL/min for 3 mL columns
- 5-7 mL/min for 6 mL columns
- 7-10 mL/min for 15 mL columns
- 10-15 mL/min for 25 mL columns
- 0.6-1.1 mL/min for 96 well plates
- 4-5 mL/min for closed cartridges

During the first tests, it is imperative to verify that all the compounds of interest in the sample have been fixed on the sorbent to analyze the elution fraction. In ion exchange, the pH of the sample must be identical to the pH of the buffer used during the sorbent activation step.

The percolation of viscous samples through a column can be facilitated by using sorbents of 90 to 140 μm . The exchange capacity and selectivity are not affected.

3. Washing Step

Passing solvents through columns washes away interfering compounds, leaving the analyte undisturbed on the sorbent bed. Different solvents or solvent mixtures may be used to improve the rinsing efficiency.

4. Drying Step

A drying step may sometimes be necessary. Solvent traces are evaporated by circulating air through the column over a 2 to 10 minute time period. This improves the extraction yield.

5. Elution Step

An appropriate solvent is passed through the column to disrupt the analyte-sorbent interaction and to elute 100% of the compounds of interest.

The appropriate solvent must have maximum interaction with the compound of interest and a minimal interaction with the remaining impurities, leaving them undisturbed on the sorbent bed. In addition, the volume of the elution solvent needs to be as small as possible to maximize the concentration factor.

[Sorbent with low particle size (e.g 30, 50 μm) gives a lower elution volume than larger sorbent particle size (e.g 90, 140 μm)].

6. Drying

If necessary, the eluate can be dried with anhydrous sodium sulfate to remove any traces of water.

7. Concentration

The purpose of this step is to concentrate the compounds of interest in the elution fraction. It is generally carried out by evaporation of a part of the solvent. The concentrate obtained is either directly usable, or taken up in an analysis solvent. Once optimized, these steps guarantee a more sensitive analysis (increased concentration of the compounds of interest), more reproducible and resolute (elimination of impurities that can modify the robustness of the analysis).

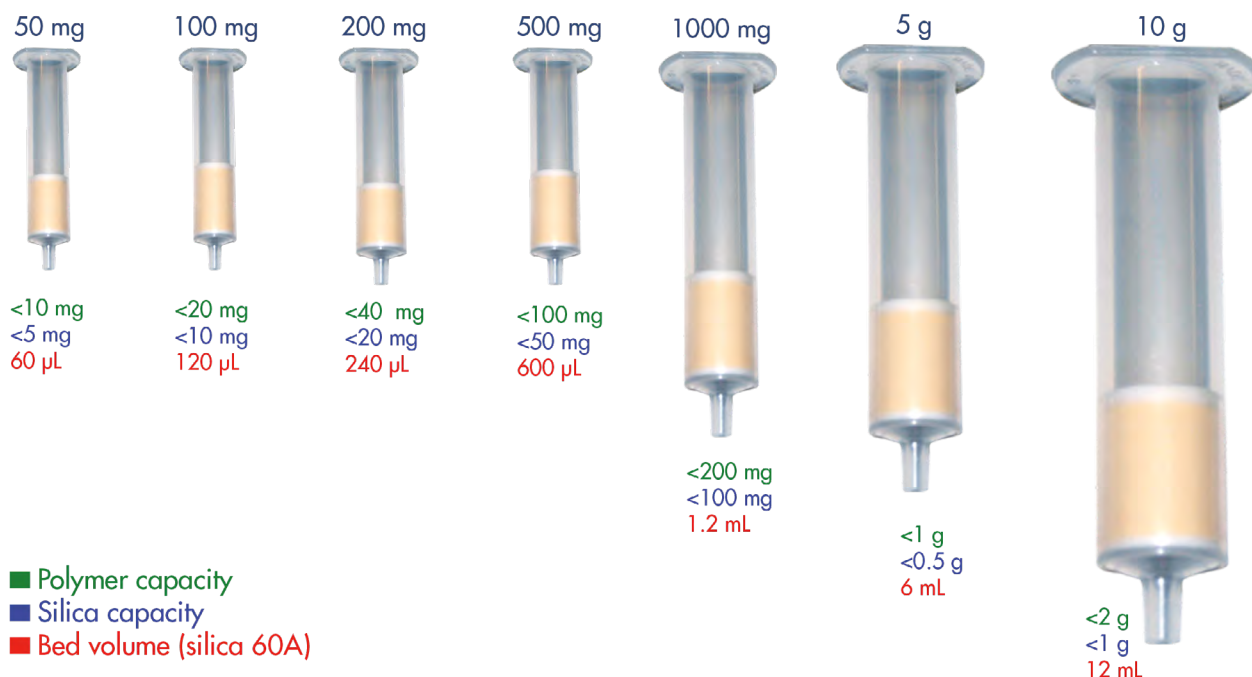


Bed volume

The bed volume is defined as the minimum volume of necessary solvent to wet the defined amount of sorbent within the column. This can vary depending on the nature of the sorbent.

e.g. :

- ~ 120 μL per 100mg of silica gel sorbent 60 Å
- ~ 180 μL per 100mg of polymeric sorbent



Incomplete elution of the compound of interest will occur if the sorbent mass is too large for the volume of solvent used. Incomplete retention of the compounds of interest will occur if there is an inadequate sorbent mass leading to compound eluting in the fraction or in the washing solvent. Such cases lead to lower recovery rates.

Sorbent Selection?

Sorbent selection requires consideration of sample volume, the nature of the analyte, analyte concentration and the inherent properties of the sorbent itself.

For environmental studies, a volume of several hundred milliliters might be necessary for a good pre-concentration (e.g., organic pollutants) whereas in the pharmaceutical industry, the sample volumes that require cleaning may only be milliliters.

The selected sorbent needs to have an excellent affinity for the compounds of interest and at the same time a weak affinity for irrelevant compounds within the matrix.

Choosing the correct sorbent results in a specific selectivity for the compounds of interest. A sufficient loading capacity also needs to be identified to optimize retention volumes of the desired compound.

There are four general modes used in Solid Phase Extraction: reversed phase, normal phase and ion exchange that require different sorbent types, namely hydrophobic, hydrophilic, ion-exchange and mixed mode.



Solid phase extraction - SPE technique



Polymer Atoll™ & PolyClean™

- Very chemically stable, they usually resist to a pH between 1 and 14.
- Weakly selective compared to grafted silicas (except ion exchange polymers).
- They have a much higher loading capacity than traditional silicas and allow the purification of a very large number of molecules or families of molecules whatever the matrix (water, oil, plasma, urine, ...)

The mass of adsorbable compounds can be up to 30% of the mass of polymer contained in the column. It is therefore possible to perform the same purification process with a quantity of polymer of 2 to 3 times less than a silica. The elution volume is much smaller, which leads to a higher concentration, a reduced evaporation time and finally a faster sample preparation.

| Sorbent | Weight sorbent | Surface area | Capacity of charge |
|-----------------------|----------------|------------------------|--------------------|
| Silica | 500 mg | 500 m ² /g | 5 - 50 mg |
| Polymer | 500 mg | 800 m ² /g | 15 - 100 mg |
| Polymer high capacity | 500 mg | 1500 m ² /g | 15 - 150 mg |

Silica Upti-Clean®

- Less chemically stable than polymers, they are stable at a pH between 2 and 7.5.
- Much more selective and specific than polymers with a lower loading capacity due to their lower specific surface (about 3 to 10 % of the sorbent mass) silicas are still used as reference sorbents.

We distinguish 4 families of silicas by their mode of operation as well as by their selectivity:

Silica for "Reverse Phase" mode

In "Reverse Phase" mode, the hydrophobic grafts work according to Van der Waals type interactions. The extraction allows an isolation of apolar or weakly polar compound families.

The addition of buffer is preferable when the compounds are ionizable (acids, bases).

The apolar phases not post-silanized (non-end capped) give, with the surface silanol groups, additional polar interactions which can improve the polar interactions with the surface silanol groups. Therefore, it can improve the retention of compounds containing polar functionalities.

For the same eluent, the shorter the carbon chain, the lower the retention of a compound.

For aromatic compounds, phenyl shows better interactions.

Methanol or acetonitrile are elution solvents regularly used.

Silica for "Normal Phase" mode

The "normal phase" mode remains a very interesting compromise for the extraction of molecules or families of molecules whose structure presents polar functions. The choice of the solvent is very important and directly influences on the type of interaction implemented for the extraction (an apolar solvent favors polar interactions between the sorbent and the compounds).

- Cyano bonded sorbent (CN) can be used either in "normal phase" for the extraction of polar compounds or in "reverse phase" for medium polar molecules.
- Diol bonded sorbent is an alternative to virgin silica for the extraction of polar compounds. Mixed phase, amino silica (NH₂) can be used as a weak anion exchanger (for very strong acids) or as a polar sorbent that can interact with functional groups.
- Mixed phase, amino silica (NH₂) can be used as a weak anion exchanger (for very strong acids) or as a polar sorbent that can interact with functional groups -OH, -NH, -SH, ...

Silica for ion exchange mode

With "ion exchange" mode, the retention mechanism is ionic interaction based. The sorbent creates a strong attraction on the sample compound(s) with antagonistic ionizable function(s). The interaction of the ion exchange phases depends mainly on the pH and the ionic strength of the counterion. The stronger acid and base pairing, the stronger of the bond strength, which can be problematic for the elution step and for obtaining a good recovery rate. This is why there are different ion exchange phases:

- Anion exchange phases (SAX) are usually a very strong quaternary amine. They are used to extract weak acids with negative charge(s).
- Cation exchange phases (SCX) with a sulfonic functionality are used to extract all weak basic compounds carrying a positive charge(s).



- Anion exchange phases, (DEAE, DEA, NH₂,...) on a less strong amine base than SAX, are used to extract strong acids with negative charge(s).
- Cation exchange phases (WCX) are functionalized by a carboxylic acid and are used to extract all strong basic compounds with positive charge(s).

Mixed mode silicas

One of the most selective techniques of bonded silica sorbent is the "mixed mode" technique. The double grafting (ion exchange and hydrophobic carbon chains) brings new selectivities. The compounds of interest, which must imperatively have an acid or basic function, are retained on the ion exchange graft. To begin, a powerful washing using pH eliminates the ionizable impurities. It is then possible to remove the other impurities retained on the hydrophobic grafting by an organic solvent. This technique is widely used for the extraction of basic compounds (drugs, medicines and metabolites) in biological fluids (blood, plasma, urine, ...).

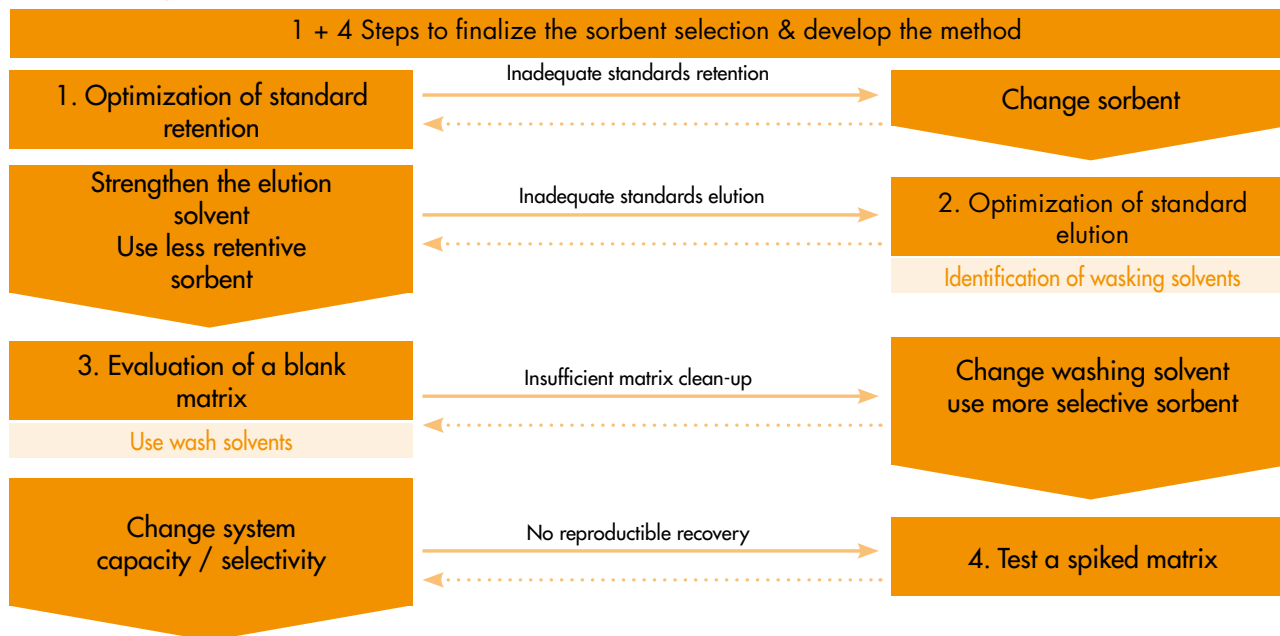
As in "ion exchange," there are different grafts specific to the compounds of interest:

The "mixed mode" phases (RP/SCX) are composed of a strong acid (sulfonic) and a hydrophobic graft. They are used to extract weak bases carrying one or more positive charges.

- The "mixed mode" phases (RP/SAX) are based on a quaternary amine and hydrophobic graft. They are used to extract weak acids carrying negative charge(s).
- The "mixed mode" phases (RP/WCX) are based on a weak acid (carboxylic) and hydrophobic grafts. They are used to extract strong bases carrying one or more negative charges.
- The "mixed mode" phases (RP/NH₂) are based on a weak amine and hydrophobic grafts. They are used to extract strong acids with negative charge(s).

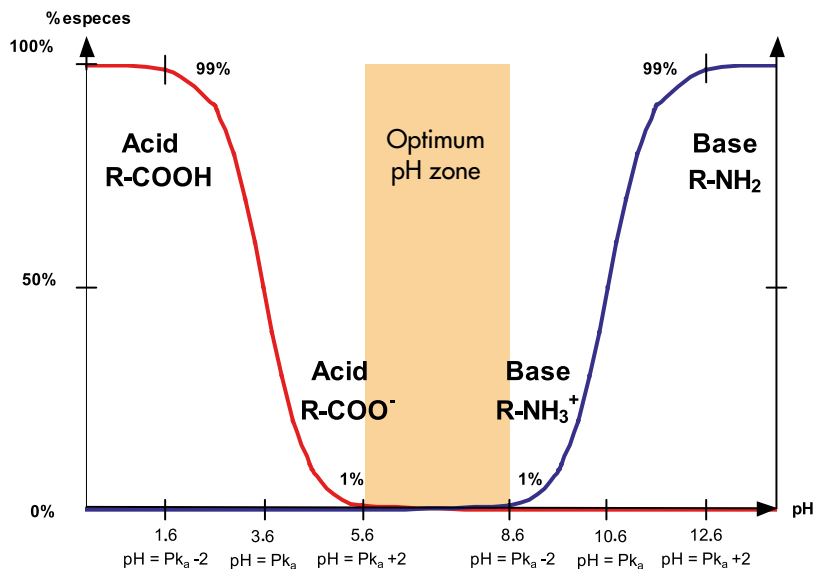
| | | |
|----------------------------------|---|----------------------------------|
| Compounds of interest properties | Polar - non polar - ionic | Potential extraction mechanisms |
| Matrix properties | Aqueous - organic - ionic strength - pH | |
| Matrix components | Proteins - fats - salts - surfactants | Treatment type to use & to avoid |

Selection of potential sorbents



Solid phase extraction - SPE technique

Distribution according to the pH of the acid/conjugated base of an acidic (red) and basic (blue) ionizable compound in solution



TECHNICAL TIP

SPE extraction methods based on "Ion Exchange" and "Mixed Modes" are relatively complex to implement. At the sample level, the acids and bases in solution must be in their ionized forms to develop interactions with the sorbent.

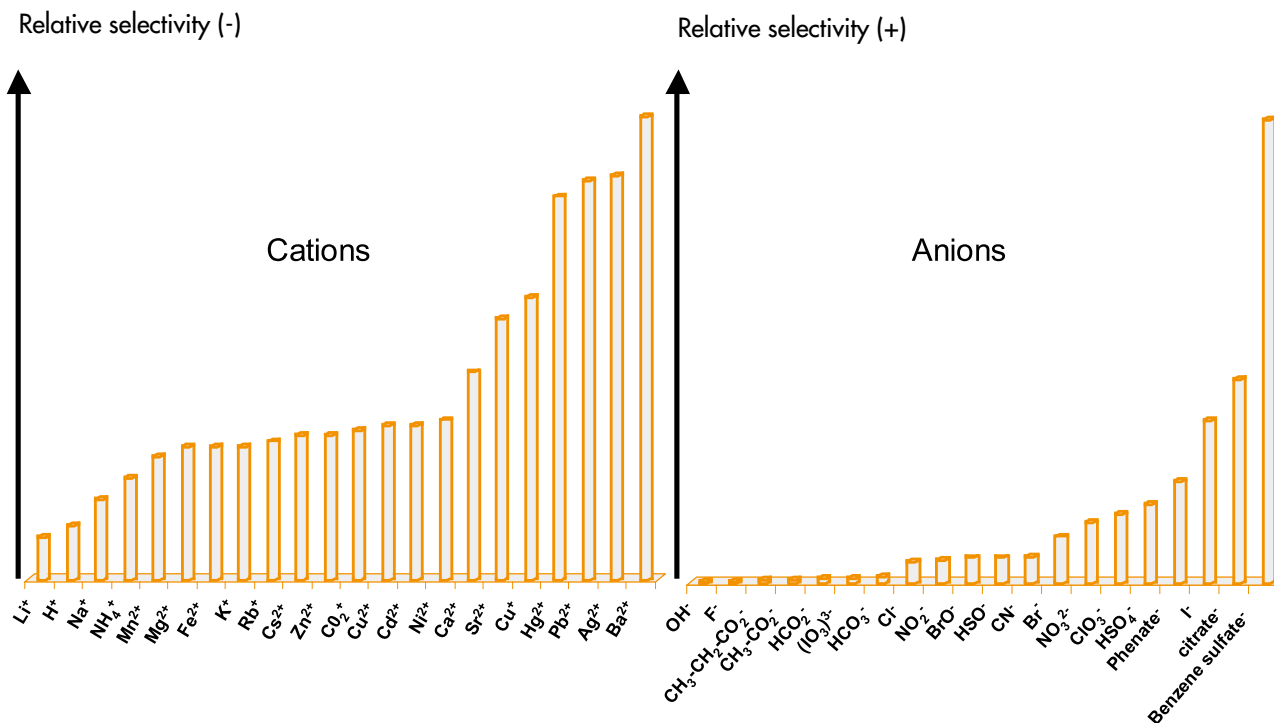
To make the recovery rates reproducible and repeatable, it is essential to buffer the sample and the sorbent at the optimum pH.

Ex: For the pH range between 5.6 and 8.6 in the attached example, all acidic (pK_a 3.6) and basic (pK_a 10.6) compounds pair up to form a strong ionic bond.

Relative selectivity of the counter-ions

A counter-ion is an ionic entity able to interact with an ion exchange sorbent.

It improves the efficiency of cleaning steps including elution according to its concentration in solution and its affinity with the exchanger sorbent.





To develop a **robust, reproducible and repeatable** SPE method, it is fundamental to adequately choose: The type of sorbent (silicas or polymers), **the nature of the sorbent, the mass of sorbent and the volume of the container.** These four parameters are essential to obtain:

A purification selectivity intrinsic to the sample, a necessary and sufficient **loading capacity**, a preconcentration **factor** and an **optimum extraction yield**.

Implementing a SPE extraction requires, at minimum, knowledge about the matrix, the impurities and the analytes to be extracted which will be analyzed afterwards. The method development kits are powerful and relevant tools to quickly assess the type of sorbent to use and the selectivity it provides to perform your extractions.

For more information, our service is committed to providing you with the best support and customized solutions do not hesitate to contact us.

Indicative protocol for the development of SPE methods on polymers



*Sample pre-treatment (Soxhlet, Lig/Liq extraction (LLE), Liquid/Solid extraction (SLE), Filtration, Protein precipitation...)

1- Sample pre-treatment:

Different protocols may be necessary before loading the sample on a SPE column (filtration, liquid/liquid extraction, extraction with a Soxhlet Soxhlet type equipment). These steps depend on the nature of the sample (mainly solid or liquid).

2 - Conditioning:

We use mainly organic solvents like Methanol, Acetonitrile, Dichloromethane. For aqueous samples, a second conditioning with water may be necessary.

3 - Sample loading

5 - Washing:

Washing removes interfering compounds from the matrix that would have a slight affinity with the stationary phase of the SPE column.

- A slightly acidic wash eliminates the weak acids present in the medium.
- A slightly basic wash eliminates the weak bases present in the medium.

6 - Elution:

The compounds of interest are desorbed from the stationary phase.

- An organic solvent (Methanol, Acetonitrile, Dichloromethane) is generally used for the elution of the compounds by order of decreasing polarity (here reverse phase).

- In ion exchange it is necessary to adjust the pH corresponding to the zone in where the analyte is in neutral form.





Custom manufacturing on demand

We manufacture columns and multi-well plates according to your specifications.

To do so, simply send a request to :

instrumentation@advion-interchim.com |

consumables.eu@advion-interchim.com

Tel.: +33 4 70 03 88 55

Specify the following points:

- the type of sorbent desired
- the mass of sorbent
- the nature of the column and the container
- the volume of the column and the container
- the nature and porosity of the frit
- the quantity of columns desired

One of our specialists will contact you within 48 hours to validate the project feasibility.

A confidentiality agreement can be signed between the two parties.

Type of sorbent

It can be:

- a sorbent manufactured by you. In this case, you must specify its nature and physical characteristics as well as its safety data sheet.
- a sorbent marketed and/or manufactured by another company
- an Advion Interchim Scientific sorbent

Sorbent weight

It can be between 15 mg and 70 g (depending on the volume of the column or the chosen plate). The accuracy of our weighing can go up to 1%.

Three types of columns are available:

- Straight polypropylene tank
- Large capacity tank (LRC) in polypropylene
- Straight glass tank

We can fill any other type of container if it is compatible with our filling systems.

Volume of the column or container

- 1 - 3 - 6 - 15 - 25 - 75 - 150 mL for straight polypropylene tubes
- 15 mL for polypropylene LRC tanks
- 6 mL for glass straight tubes

Nature and porosity of the frit





- Polyethylene for polypropylene straight tubes and LRC tubes
- PTFE for glass straight tubes

Printed SPE columns





Hardwares

| Format | Picture | Material | Volumes | Frits |
|---------------|---|------------------|------------------------------------|--------------------|
| Columns |  | PP Medical Grade | 1 - 3 - 6 - 15 - 25 - 75 - 150 mL | 20 µm Polyethylene |
| LRC columns |  | PP Medical Grade | Robotic Large Capacity (LRC) 15 mL | 20 µm Polyethylene |
| Glass columns |  | Glass | 6 mL | 20 µm PTFE |
| Cartridges |  | PP Medical Grade | Type 300 - 600 - 900 mg | 20 µm Polyethylene |

Advion Interchim Scientific Accurate Bed Technology™

The manufacturing process Interchim® Accurate Bed Technology™ has been developed to ensure a unique batch to batch and column to column reproducibility.

Our SPE sorbents have an optimized particle size distribution and are drastically controlled.

The amount of sorbents are loaded by weighing with an accuracy of +/- 1%.

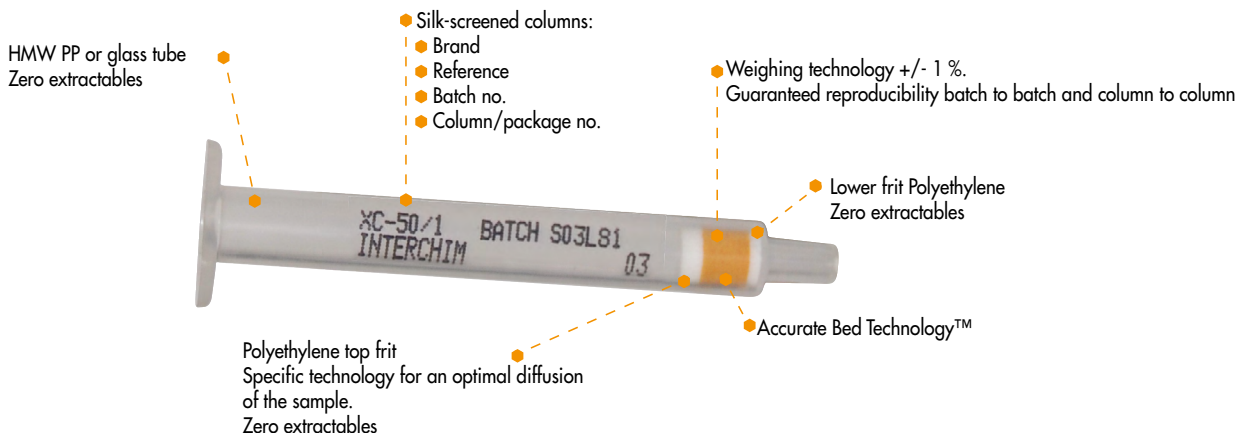
A weighing certificate is delivered.

This allows the optimization of the analysis technique and the interpretation of the results.

Our SPE columns are supplied in HDPE / Al packaging dedicated to long-term storage.

Our flexibility and our experience give us full confidence in satisfying any custom manufacturing request.

This approach provides technical solutions to our customers to ensure the development and optimization of their sample preparation.



SAMPLE PREPARATION

Solid Phase Extraction - Sorbent selection guide



Phases & Features Advion-Interchim Scientific

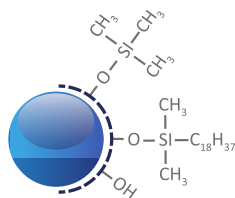
| Type | Code | Bonding | Pore size Å | Surface area m ² /g | Modification | % C | IE Capacity meq/g | Particule size µm |
|----------------------|----------|------------------|-------------|--------------------------------|----------------------------|-----|-------------------|-------------------|
| Atoll Xtrem Capacity | XC | PSDVB | 60 | 1500 | | | | 70 |
| Atoll X | X | PSDVB | 100 | 800 | | | | 40 |
| PolyClean 2H | 302H | Polymer modified | 100 | 850 | Hydrophile / Lipophile | | | 30 |
| PolyClean 2H | 2H | Polymer modified | 100 | 850 | Hydrophile / Lipophile | | | 60 |
| PolyClean HCX | 30HCX | Polymer modified | 100 | 850 | Strong cation exchange | | 1.0 | 30 |
| PolyClean HCX | HCX | Polymer modified | 100 | 850 | Strong cation exchange | | 1.0 | 60 |
| PolyClean HAX | 30HAX | Polymer modified | 100 | 850 | Strong anion exchange | | 0.3 | 30 |
| PolyClean HAX | HAX | Polymer modified | 100 | 850 | Strong anion exchange | | 0.3 | 60 |
| Recovery C18 | REC18 | Spherical silica | 120 | 350 | C18 | 15 | | 50 |
| Recovery Silice | RESI | Spherical silica | 120 | 350 | Silica | | | 50 |
| Upti-Clean C18-S | C18-S | Spherical silica | 60 | 500 | C18 | 18 | | 50 |
| Upti-Clean C18U-S | C18U-S | Spherical silica | 60 | 500 | C18 No end-capped | 16 | | 50 |
| Upti-Clean C18 RPAQ | C18-RPAQ | Spherical silica | 60 | 500 | C18 Hydrophile | 14 | | 50 |
| Upti-Clean C18-S2F | C18-S2F | Spherical silica | 60 | 500 | C18 High flowrate | | | 140 |
| Upti-Clean C8-S | C8-S | Spherical silica | 60 | 500 | C8 | 11 | | 50 |
| Upti-Clean CN-S | CN-S | Spherical silica | 60 | 500 | Cyano | 8 | | 50 |
| Upti-Clean PHS | PHS | Spherical silica | 60 | 500 | Phenyl | 9 | | 50 |
| Upti-Clean NH2-S | NH2-S | Spherical silica | 60 | 500 | Amino | 4 | | 50 |
| Upti-Clean Silice | SI-S | Spherical silica | 60 | 500 | | | | 50 |
| Upti-Clean Diol | OH | Spherical silica | 60 | 500 | Diol | 7 | | 50 |
| Upti-Clean SCX | SCX | Spherical silica | 100 | 400 | Strong cation exchange | | 0.5 | 50 |
| Upti-Clean MM1 | MM1 | Spherical silica | 100 | 400 | RP /Strong cation exchange | | 0.09 | 50 |
| Upti-Clean WCX | WCX | Spherical silica | 100 | 400 | Weak cation exchange | | 0.22 | 50 |
| Upti-Clean SAX | SAX | Spherical silica | 100 | 400 | Weak anion exchange | | 0.5 | 50 |
| Upti-Clean DEAE | DEAE | Spherical silica | 60 | 450 | Weak anion exchange | | 0.33 | 60 |
| Alumine Acid | ALA | Alumine | 60 | 200 | Acid | | | 32/63 |
| Alumine Neutral | ALN | Alumine | 60 | 200 | Neutral | | | 32/63 |
| Alumine Basic | ALB | Alumine | 60 | 200 | Basic | | | 32/63 |
| Florisil 60/100 | FL | Florisil | 150/250 | | Standard | | | 200 |
| Florisil PR 60/100 | FLPR | Florisil | 150/250 | | Grade Pesticides | | | 200 |
| Polyamide | P6 | Polyamide | | | P6 | | | 100 |



| pH range | Capacity of charge | General application |
|-----------|--------------------|---|
| 0.0 - 14 | 30 | Ultra high capacity universal polymer designed for cleaning a wide range of hydrophobic compounds from various matrices (water, oil, plasma, urine ...). |
| 0.0 - 14 | 20 | Universal high capacity polymer designed for cleaning a wide range of hydrophobic compounds from various matrices (water, oil, plasma, urine ...). |
| 1.0 - 13 | 20 | Universal high capacity polymer designed for cleaning a wide range of hydrophilic / hydrophobic compounds from various matrices (water, oil, plasma, urine ...). |
| 1.0 - 13 | 20 | |
| 1.0 - 13 | | High selectivity and sensitivity for the extraction of charged and basic cationic organic compounds (pKa <11). |
| 1.0 - 13 | | |
| 1.0 - 13 | | High selectivity and sensitivity for the extraction of charged organic and acidic anionic compounds (pKa >3). |
| 1.0 - 13 | | |
| 1.0 - 8.0 | 6 | Extraction of polar and non-polar compounds from aqueous matrices. |
| 1.0 - 7.5 | 10 | Extraction of non-ionic polar organic compounds from a non-polar matrix. |
| 1.0 - 8.0 | 5 | Extraction of polar and non-polar compounds from aqueous matrices. |
| 1.0 - 7.0 | 5 | Extraction of polar and non-polar compounds from an aqueous matrix. |
| 1.0 - 7.5 | 5 | Extraction of polar, mid polar and non-polar compounds from an aqueous matrix- 100% water compatible. |
| 1.0 - 8.0 | 5 | Extraction of polar and non-polar compounds from a complex aqueous matrix such as serum, plasma, urine, ... |
| 1.5 - 7.5 | 7 | Extraction of polar and medium polar compounds from an aqueous matrix. |
| 1.5 - 7.0 | 7 | Extraction of polar compounds from non-polar solvents or medium polar compounds from an aqueous matrix. |
| 1.5 - 7.0 | 5 | Extraction of polar and medium polar aromatic compounds from aqueous matrix or non-polar solvents. |
| 2.0 - 6.5 | 7 | Weak anion exchanger (for strong acids) (pH <8), or polar media that can interact with OH, NH, SH ... Amino groups are nitrogen scavengers for acid chlorides, isocyanates. |
| 1.5 - 6.5 | 10 | Cleaning of non-ionic polar organic compounds from non-polar solvents. |
| 1.5 - 7.0 | 7 | Provides a totally neutral surface to the silica. It allows a better cleaning of basic compounds compared to regular silica. |
| 1.0 - 7.5 | | Extraction of weak bases. |
| 1.0 - 7.5 | | Highly selective extraction of non-polar and cationic compounds. |
| 1.0 - 7.5 | | Extraction of strong bases. |
| 1.5 - 7.0 | | Extraction of weak acids. |
| 1.5 - 7.0 | | Weak exchanger for the extraction of negatively charged polar organic compounds. Polar selectivity complementary to NH ₂ and SAX. |
| 1.0 - 12 | 5 | The acid treatment of alumina allows an ideal selectivity for cationic compounds. |
| 1.0 - 12 | 5 | Extraction of non-ionizable polar compounds. Used for the extraction of dioxin. |
| 1.0 - 12 | 5 | The basic treatment of alumina allows an important selectivity for anionic compounds. |
| | 8 | Extraction of polar compounds. Separation of lipids, decoloration ... |
| | 8 | Special "residue" grade for the extraction of pesticides. |
| | | Flavonoids and other natural compounds. |



Solid Phase Extraction - Columns Upti-Clean®



Upti-Clean® C18-S

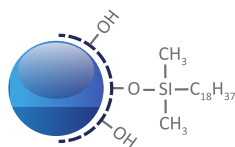
60 Å - 500 m²/g - 50 µm

C18 end-capped

% C: 18

pH range: 1.0 - 8.0

Extraction of apolar and moderately polar compounds in aqueous matrices.



Upti-Clean® C18US

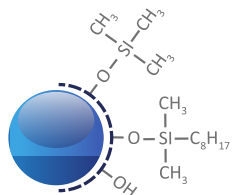
60 Å - 500 m²/g - 50 µm

C18

% C: 16

pH range: 1.0 - 7.0

Extraction of apolar, moderately polar and polar compounds in aqueous matrices.



Upti-Clean® C8-S

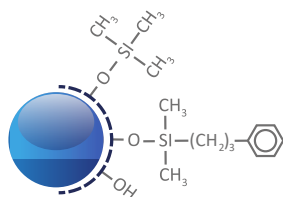
60 Å - 500 m²/g - 50 µm

C8 end-capped

% C: 11

pH range: 1.0 - 7.5

Extraction of polar and moderately polar compounds in aqueous matrices.



Upti-Clean® PH-S

60 Å - 500 m²/g - 50 µm

Phenyl

% C: 9

pH range: 1.5 - 7.0

Extraction of polar and medium polar aromatic compounds in aqueous matrices or apolar organic solvents.

Upti-Clean® S-Series

Upti-Clean® S-Series columns are easy to use, efficient SPE cleaning devices with widespread applications throughout the pharmaceutical, toxicology and clinical areas.

Reverse Phase Columns

| Weight | Vol. | Qty | C18-S | C18U-S | RPAQ |
|-----------------------------|-------|-------|-------------|--------------|------------|
| Standard columns - frits PE | | | | | |
| 50 mg | 1 mL | 50 u | C18-S-50/1 | C18U-S-50/1 | RPAQ-50/1 |
| 100 mg | 1 mL | 100 u | C18-S-100/1 | C18U-S-100/1 | RPAQ-100/1 |
| 100 mg | 3 mL | 50 u | C18-S-100/3 | C18U-S-100/3 | RPAQ-100/3 |
| 200 mg | 3 mL | 50 u | C18-S-200/3 | C18U-S-200/3 | RPAQ-200/3 |
| 500 mg | 3 mL | 50 u | C18-S-500/3 | C18U-S-500/3 | RPAQ-500/3 |
| 500 mg | 6 mL | 30 u | C18-S-500/6 | C18U-S-500/6 | RPAQ-500/6 |
| 1000 mg | 6 mL | 30 u | C18-S-1G/6 | C18U-S-1G/6 | RPAQ-1G/6 |
| 2000 mg | 6 mL | 20 u | C18-S-2G/6 | C18U-S-2G/6 | RPAQ-2G/6 |
| 2000 mg | 15 mL | 20 u | C18-S-2G/15 | C18U-S-2G/15 | RPAQ-2G/15 |
| 2000 mg | 25 mL | 20 u | C18-S-2G/25 | C18U-S-2G/25 | RPAQ-2G/25 |

LRC columns - Frits PE

| | | | | | |
|--------|--------|------|--------------|---------------|-------------|
| 100 mg | LRC 15 | 50 u | C18-S-100LRC | C18U-S-100LRC | RPAQ-100LRC |
| 200 mg | LRC 15 | 50 u | C18-S-200LRC | C18U-S-200LRC | RPAQ-200LRC |
| 500 mg | LRC 15 | 50 u | C18-S-500LRC | C18U-S-500LRC | RPAQ-500LRC |

Glass columns - Frits PTFE

| | | | | | |
|---------|------|------|--------------|---------------|-------------|
| 200 mg | 6 mL | 30 u | C18-S-200/6G | C18U-S-200/6G | RPAQ-200/6G |
| 500 mg | 6 mL | 30 u | C18-S-500/6G | C18U-S-500/6G | RPAQ-500/6G |
| 1000 mg | 6 mL | 30 u | C18-S-1G/6G | C18U-S-1G/6G | RPAQ-1G/6G |

| Weight | Vol. | Qty | C8-S | PH-S |
|-----------------------------|-------|-------|------------|------------|
| Standard columns - frits PE | | | | |
| 50 mg | 1 mL | 50 u | C8-S-50/1 | PH-S-50/1 |
| 100 mg | 1 mL | 100 u | C8-S-100/1 | PH-S-100/1 |
| 100 mg | 3 mL | 50 u | C8-S-100/3 | PH-S-100/3 |
| 200 mg | 3 mL | 50 u | C8-S-200/3 | PH-S-200/3 |
| 500 mg | 3 mL | 50 u | C8-S-500/3 | PH-S-500/3 |
| 500 mg | 6 mL | 30 u | C8-S-500/6 | PH-S-500/6 |
| 1000 mg | 6 mL | 30 u | C8-S-1G/6 | PH-S-1G/6 |
| 2000 mg | 6 mL | 20 u | C8-S-2G/6 | PH-S-2G/6 |
| 2000 mg | 15 mL | 20 u | C8-S-2G/15 | PH-S-2G/15 |
| 2000 mg | 25 mL | 20 u | C8-S-2G/25 | PH-S-2G/25 |

LRC columns - Frits PE

| | | | | |
|--------|--------|------|-------------|-------------|
| 100 mg | LRC 15 | 50 u | C8-S-100LRC | PH-S-100LRC |
| 200 mg | LRC 15 | 50 u | C8-S-200LRC | PH-S-200LRC |
| 500 mg | LRC 15 | 50 u | C8-S-500LRC | PH-S-500LRC |

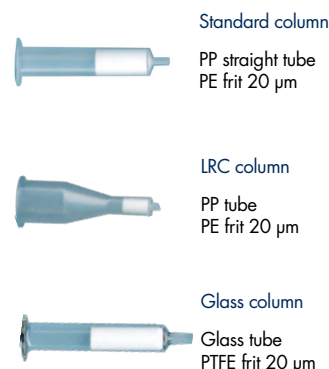
Glass columns - Frits PTFE

| | | | | |
|---------|------|------|-------------|-------------|
| 200 mg | 6 mL | 30 u | C8-S-200/6G | PH-S-200/6G |
| 500 mg | 6 mL | 30 u | C8-S-500/6G | PH-S-500/6G |
| 1000 mg | 6 mL | 30 u | C8-S-1G/6G | PH-S-1G/6G |

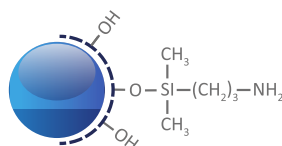


Columns - Normal phase

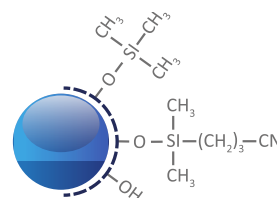
| Weight | Vol. | Qty | SI-S | NH2-S | CN-S | OH |
|----------------------------|--------|-------|-------------|--------------|-------------|-----------|
| SPE columns - Frits PE | | | | | | |
| 50 mg | 1 mL | 50 u | SI-S-50/1 | NH2-S-50/1 | CN-S-50/1 | OH-50/1 |
| 100 mg | 1 mL | 100 u | SI-S-100/1 | NH2-S-100/1 | CN-S-100/1 | OH-100/1 |
| 100 mg | 3 mL | 50 u | SI-S-100/3 | NH2-S-100/3 | CN-S-100/3 | OH-100/3 |
| 200 mg | 3 mL | 50 u | SI-S-200/3 | NH2-S-200/3 | CN-S-200/3 | OH-200/3 |
| 500 mg | 3 mL | 50 u | SI-S-500/3 | NH2-S-500/3 | CN-S-500/3 | OH-500/3 |
| 500 mg | 6 mL | 30 u | SI-S-500/6 | NH2-S-500/6 | CN-S-500/6 | OH-500/6 |
| 1000 mg | 6 mL | 30 u | SI-S-1G/6 | NH2-S-1G/6 | CN-S-1G/6 | OH-1G/6 |
| 2000 mg | 6 mL | 20 u | SI-S-2G/6 | NH2-S-2G/6 | CN-S-2G/6 | OH-2G/6 |
| 2000 mg | 15 mL | 20 u | SI-S-2G/15 | NH2-S-2G/15 | CN-S-2G/15 | OH-2G/15 |
| 2000 mg | 25 mL | 20 u | SI-S-2G/25 | NH2-S-2G/25 | CN-S-2G/25 | OH-2G/25 |
| LRC columns - PE frits | | | | | | |
| 100 mg | LRC 15 | 50 u | SI-S-100LRC | NH2-S-100LRC | CN-S-100LRC | OH-100LRC |
| 200 mg | LRC 15 | 50 u | SI-S-200LRC | NH2-S-200LRC | CN-S-200LRC | OH-200LRC |
| 500 mg | LRC 15 | 50 u | SI-S-500LRC | NH2-S-500LRC | CN-S-500LRC | OH-500LRC |
| Glass columns - PTFE frits | | | | | | |
| 200 mg | 6 mL | 30 u | SI-S-200/6G | NH2-S-200/6G | CN-S-200/6G | OH-200/6G |
| 500 mg | 6 mL | 30 u | SI-S-500/6G | NH2-S-500/6G | CN-S-500/6G | OH-500/6G |
| 1000 mg | 6 mL | 30 u | SI-S-1G/6G | NH2-S-1G/6G | CN-S-1G/6G | OH-1G/6G |



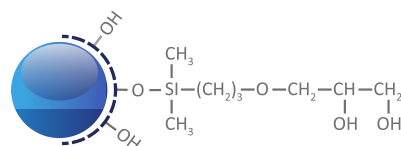
Upti-Clean® SI-S
60 Å - 500 m²/g - 50 µm
pH range: 1.5 - 6.5
Clean-up of polar, non-ionic organic compounds in apolar solvents.



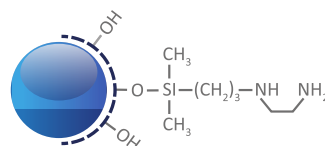
Upti-Clean® NH2-S
60 Å - 500 m²/g - 50 µm
Amino
% C: 4
pH range: 2.0 - 6.5
Weak anion exchanger (for strong acids at pH < 8), good polar selectivity with OH, NH, SH GROUPS. Scavenger for chlorinated acids and isocyanates.



Upti-Clean® CN-S
60 Å - 500 m²/g - 50 µm
Cyano
% C: 8
pH range: 100 - 7.0
Extraction of polar compounds in apolar solvents and of moderately polar compounds in aqueous matrices.



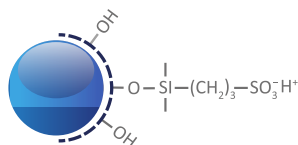
Upti-Clean® OH
60 Å - 500 m²/g - 50 µm
Diol
% C: 7
pH range: 1.5 - 7.0
The surface of the silica is globally neutral, allowing a better clean-up of basic compounds compared to silica without bonding.



Upti-Clean® PSA-S
60 Å - 500 m²/g - 50 µm
% C: 7
pH range: 2.0 - 6.5
Weak anion exchanger (pKa: 10.5) for the extraction of charged polar organic compounds.



Solid phase extraction - Upti-Clean® Columns



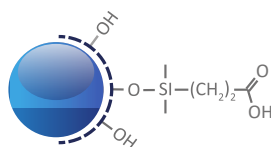
Upti-Clean® SCX

100 Å - 400 m²/g - 50 μm

Exchange capacity: 0.5 meq/g

pH range: 1.0 - 7.5

Strong cation exchanger for the extraction of weak bases.



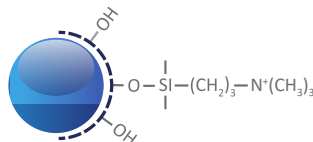
Upti-Clean® WCX

100 Å - 400 m²/g - 50 μm

Exchange capacity: 0.22 meq/g

pH range: 1.0 - 7.5

Weak cation exchanger for the extraction of strong bases.



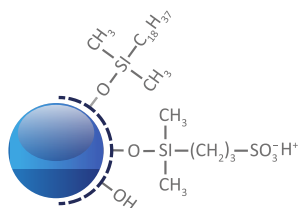
Upti-Clean® SAX

100 Å - 400 m²/g - 50 μm

Exchange capacity: 0.5 meq/g

pH range: 1,5 - 7,0

Strong anion exchanger for the extraction of weak acids.



Upti-Clean® MM1

100 Å - 400 m²/g - 50 μm

Reverse phase/SCX

Exchange capacity: 0.09 meq/g

pH range: 1.0 - 7.5

Selective extraction of apolar and cationic compounds.

Upti-Clean® Series-S Ion exchange columns

| Weight | Vol. | Qty | SCX | WCX | SAX |
|-----------------------------|-------|-------|-----------|-----------|-----------|
| Standard columns - PE frits | | | | | |
| 50 mg | 1 mL | 50 u | SCX-50/1 | WCX-50/1 | SAX-50/1 |
| 100 mg | 1 mL | 100 u | SCX-100/1 | WCX-100/1 | SAX-100/1 |
| 100 mg | 3 mL | 50 u | SCX-100/3 | WCX-100/3 | SAX-100/3 |
| 200 mg | 3 mL | 50 u | SCX-200/3 | WCX-200/3 | SAX-200/3 |
| 500 mg | 3 mL | 50 u | SCX-500/3 | WCX-500/3 | SAX-500/3 |
| 500 mg | 6 mL | 30 u | SCX-500/6 | WCX-500/6 | SAX-500/6 |
| 1000 mg | 6 mL | 30 u | SCX-1G/6 | WCX-1G/6 | SAX-1G/6 |
| 2000 mg | 6 mL | 20 u | SCX-2G/6 | WCX-2G/6 | SAX-2G/6 |
| 2000 mg | 15 mL | 20 u | SCX-2G/15 | WCX-2G/15 | SAX-2G/15 |
| 2000 mg | 25 mL | 20 u | SCX-2G/25 | WCX-2G/25 | SAX-2G/25 |

LRC columns - PE frits

| | | | | | |
|--------|--------|------|------------|------------|------------|
| 100 mg | LRC 15 | 50 u | SCX-100LRC | WCX-100LRC | SAX-100LRC |
| 200 mg | LRC 15 | 50 u | SCX-200LRC | WCX-200LRC | SAX-200LRC |
| 500 mg | LRC 15 | 50 u | SCX-500LRC | WCX-500LRC | SAX-500LRC |

Glass columns - PTFE frits

| | | | | | |
|---------|------|------|------------|------------|------------|
| 200 mg | 6 mL | 30 u | SCX-200/6G | WCX-200/6G | SAX-200/6G |
| 500 mg | 6 mL | 30 u | SCX-500/6G | WCX-500/6G | SAX-500/6G |
| 1000 mg | 6 mL | 30 u | SCX-1G/6G | WCX-1G/6G | SAX-1G/6G |

Mixed mode columns

| Weight | Vol. | Qty | MM1 |
|-----------------------------|-------|-------|-----------|
| Standard columns - PE frits | | | |
| 50 mg | 1 mL | 50 u | MM1-50/1 |
| 100 mg | 1 mL | 100 u | MM1-100/1 |
| 100 mg | 3 mL | 50 u | MM1-100/3 |
| 200 mg | 3 mL | 50 u | MM1-200/3 |
| 500 mg | 3 mL | 50 u | MM1-500/3 |
| 500 mg | 6 mL | 30 u | MM1-500/6 |
| 1000 mg | 6 mL | 30 u | MM1-1G/6 |
| 2000 mg | 6 mL | 20 u | MM1-2G/6 |
| 2000 mg | 15 mL | 20 u | MM1-2G/15 |
| 2000 mg | 25 mL | 20 u | MM1-2G/25 |

LRC columns - PE frits

| | | | |
|--------|--------|------|------------|
| 100 mg | LRC 15 | 50 u | MM1-100LRC |
| 200 mg | LRC 15 | 50 u | MM1-200LRC |
| 500 mg | LRC 15 | 50 u | MM1-500LRC |

Glass tube - PTFE frits

| | | | |
|---------|------|------|------------|
| 200 mg | 6 mL | 30 u | MM1-200/6G |
| 500 mg | 6 mL | 30 u | MM1-500/6G |
| 1000 mg | 6 mL | 30 u | MM1-1G/6G |



Upti-Clean® Series S2F

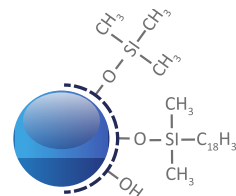
Filled with pure 140 µm spherical particles, Upti-Clean S2F Series columns enable to purify apolar and medium polar compounds from viscous matrices without clogging or plugging.

The columns are available in medical grade polypropylene for use with standard solvents. Glass columns remain the most reliable container when using strong organic solvents. They avoid contamination of samples by extractables from frit or standard plastic tubes.

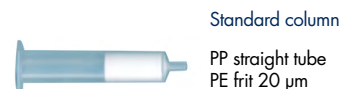
- Applications: urine, plasma, oil, ...

Reverse phase columns

| Weight | Vol. | Qty | C18-S2F |
|-----------------------------|--------|-------|----------------|
| Standard columns - PE frits | | | |
| 50 mg | 1 mL | 50 u | C18-S2F-50/1 |
| 100 mg | 1 mL | 100 u | C18-S2F-100/1 |
| 100 mg | 3 mL | 50 u | C18-S2F-100/3 |
| 200 mg | 3 mL | 50 u | C18-S2F-200/3 |
| 500 mg | 3 mL | 50 u | C18-S2F-500/3 |
| 500 mg | 6 mL | 30 u | C18-S2F-500/6 |
| 1000 mg | 6 mL | 30 u | C18-S2F-1G/6 |
| 2000 mg | 6 mL | 20 u | C18-S2F-2G/6 |
| 2000 mg | 15 mL | 20 u | C18-S2F-2G/15 |
| 2000 mg | 25 mL | 20 u | C18-S2F-2G/25 |
| LRC columns - PE Frits | | | |
| 100 mg | LRC 15 | 50 u | C18-S2F-100LRC |
| 200 mg | LRC 15 | 50 u | C18-S2F-200LRC |
| 500 mg | LRC 15 | 50 u | C18-S2F-500LRC |



Upti-Clean® C18-S2F
 60 Å - 500 m²/g - 140 µm
 C18 end-capped
 pH range : 1.0 - 8.0
 Extraction of apolar and moderately polar compounds in complex aqueous matrices (serum, plasma, urine...).



Standard column
 PP straight tube
 PE frit 20 µm



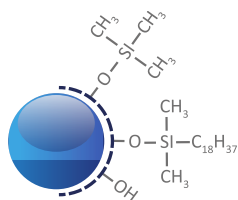
LRC column
 PP tube
 PE frit 20 µm

RELATED PRODUCTS

UptiVial Advion-Interchim Scientific GC / LC certified vials kit:
 Vials and caps are tested and delivered with a certificate.
 See chapter: Vials & Capsules



Solid phase extraction - Upti-Clean® Columns



Upti-Clean® Recovery™ REC18

120 Å - 350 m²/g - 50 µm

C18 end-capped

% C: 15

pH range: 1.0 - 8.0

Extraction of apolar and moderately polar compounds in aqueous matrices.



Upti-Clean® Recovery™ RESI

120 Å - 350 m²/g - 50 µm

pH range: 1.0 - 7.5

Extraction of non polar compounds in apolar matrices.

Upti-Clean Recovery®

Advion Interchim Scientific Recovery™ columns address recovery and reproducibility problems, highlighted in recent studies, that are associated with only a part of the standard 60 Å silica's specific surface area accessibility in SPE silica based cleanup procedures.

Recovery™ columns extractables use an optimized version of Upti-prep™ silica. They prevent from physical phenomena related to older generations of silica sorbent and use 100% of their specific surface area. Recovery™ can be used in all solvent conditions (including 100% water) achieving greater reproducibility and consistency.

Upti-Clean Recovery® REC18

C18, fully end-capped for non-polar, mid-polar & polar compounds in aqueous environments.

Upti-Clean Recovery® RESI

Virgin silica for polar and mid-polar compounds from organic matrices.

Applications: Pharmaceutical & Environmental.

| Weight | Vol. | Qty | REC18 | RESI |
|-----------------------------|--------|-------|--------------|-------------|
| Standard columns - PE frits | | | | |
| 50 mg | 1 mL | 50 u | REC18-50/1 | RESI-50/1 |
| 100 mg | 1 mL | 100 u | REC18-100/1 | RESI-100/1 |
| 100 mg | 3 mL | 50 u | REC18-100/3 | RESI-100/3 |
| 200 mg | 3 mL | 50 u | REC18-200/3 | RESI-200/3 |
| 500 mg | 3 mL | 50 u | REC18-500/3 | RESI-500/3 |
| 500 mg | 6 mL | 30 u | REC18-500/6 | RESI-500/6 |
| 1000 mg | 6 mL | 30 u | REC18-1G/6 | RESI-1G/6 |
| 2000 mg | 6 mL | 20 u | REC18-2G/6 | RESI-2G/6 |
| 2000 mg | 15 mL | 20 u | REC18-2G/15 | RESI-2G/15 |
| 2000 mg | 25 mL | 20 u | REC18-2G/25 | RESI-2G/25 |
| LRC columns - PE frits | | | | |
| 100 mg | LRC 15 | 50 u | REC18-100LRC | RESI-100LRC |
| 200 mg | LRC 15 | 50 u | REC18-200LRC | RESI-200LRC |
| 500 mg | LRC 15 | 50 u | REC18-500LRC | RESI-500LRC |
| Glass columns - PTFE frits | | | | |
| 200 mg | 6 mL | 30 u | REC18-200/6G | RESI-200/6G |
| 500 mg | 6 mL | 30 u | REC18-500/6G | RESI-500/6G |
| 1000 mg | 6 mL | 30 u | REC18-1G/6G | RESI-1G/6G |

RELATED PRODUCTS

For annual subscriptions and bulk orders, contact Advion Interchim Scientific teams:

analyticalsciences@advion-interchim.com - Tel +33 470037309

Online form:

https://www.interchim.com/vials_and_filters_subscription.php





Upti-Clean® Special Series

Complementing the S and S2F Series, the Upti-Clean® Special Series column range offers users new selectivity for SPE extraction. The medical grade polypropylene column hardware are compatible with most extraction solvents. The ultra-pure polyethylene frit provides excellent wettability. Solvent and sample flows are perfectly reproducible, thus avoiding extraction yield variability.

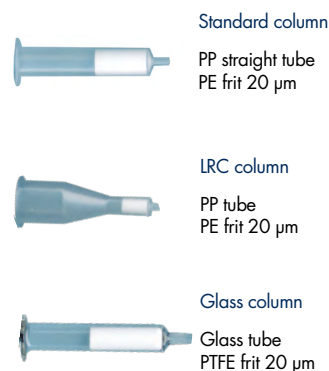
Resistant to aggressive solvents, glass columns with PTFE frits guarantee purifications without any extractables.

Florisil

Working on the basis of polar interactions, Florisil or magnesium silicate is ideal for rapidly trapping polar impurities within non-polar matrices.

It can be used as an alternative to traditional virgin silica when working with viscous solvents. The PR (Pesticides Residus) grade is perfectly suited to the methods of purification of chlorinated pesticides in organic media.

| Weight | Vol. | Qty | FL | FLPR |
|-----------------------------|--------|------|-----------|-------------|
| Standard columns - PE frits | | | | |
| 200 mg | 3 mL | 50 u | FL-200/3 | FLPR-200/3 |
| 500 mg | 3 mL | 50 u | FL-500/3 | FLPR-500/3 |
| 500 mg | 6 mL | 30 u | FL-500/6 | FLPR-500/6 |
| 1000 mg | 6 mL | 30 u | FL-1G/6 | FLPR-1G/6 |
| 2000 mg | 6 mL | 20 u | FL-2G/6 | FLPR-2G/6 |
| 2000 mg | 15 mL | 20 u | FL-2G/15 | FLPR-2G/15 |
| 2000 mg | 25 mL | 20 u | FL-2G/25 | FLPR-2G/25 |
| LRC columns - PE frits | | | | |
| 200 mg | LRC 15 | 50 u | FL-200LRC | FLPR-200LRC |
| 500 mg | LRC 15 | 50 u | FL-500LRC | FLPR-500LRC |
| Glass columns - PTFE frits | | | | |
| 200 mg | 6 mL | 30 u | FL-200/6G | FLPR-200/6G |
| 500 mg | 6 mL | 30 u | FL-500/6G | FLPR-500/6G |
| 1000 mg | 6 mL | 30 u | FL-1G/6G | FLPR-1G/6G |



Solid phase extraction - Upti-Clean® Columns



Upti-Clean® ALN

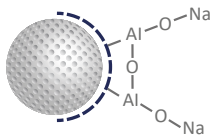
60 Å - 200 m²/g - 32/63 μm

Alumina

pH range: 1.0 - 12.0

Extraction of non-ionizable polar compounds.

Extraction of dioxins.



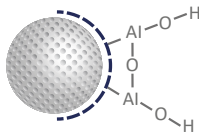
Upti-Clean® ALB

60 Å - 200 m²/g - 32/63 μm

Activated alumina, basic

pH range: 1.0 - 12.0

The basic treatment gives a good selectivity for anionic compounds.



Upti-Clean® ALA

60 Å - 200 m²/g - 32/63 μm

Activated alumina, acid

pH range: 1.0 - 12.0

The acid treatment gives a good selectivity for cationic compounds.

Upti-Clean® Special Series

Alumina

The aluminum atom lacks two electrons within its center that are responsible for ion pairing interaction.

The acidic treatment of Alumina favors the retention of cationic species whilst a basic treatment of Alumina leads to the retention of anionic species.

Neutral Alumina is suitable to clean non ionizable compounds with polar function.

Applications: Environmental (dioxines, PCBs,..)

| Weight | Vol. | Qty | Acidic Alumina | Basic Alumina | Neutral Alumina |
|-----------------------------|-------|------|----------------|---------------|-----------------|
| Standard columns - PE frits | | | | | |
| 200 mg | 3 mL | 50 u | ALA-200/3 | ALB-200/3 | ALN-200/3 |
| 500 mg | 3 mL | 50 u | ALA-500/3 | ALB-500/3 | ALN-500/3 |
| 500 mg | 6 mL | 30 u | ALA-500/6 | ALB-500/6 | ALN-500/6 |
| 1000 mg | 6 mL | 30 u | ALA-1G/6 | ALB-1G/6 | ALN-1G/6 |
| 2000 mg | 6 mL | 20 u | ALA-2G/6 | ALB-2G/6 | ALN-2G/6 |
| 2000 mg | 15 mL | 20 u | ALA-2G/15 | ALB-2G/15 | ALN-2G/15 |
| 2000 mg | 25 mL | 20 u | ALA-2G/25 | ALB-2G/25 | ALN-2G/25 |
| LRC columns - PE frits | | | | | |
| 200 mg | LRC15 | 50 u | ALA-200LRC | ALB-200LRC | ALN-200LRC |
| 500 mg | LRC15 | 50 u | ALA-500LRC | ALB-500LRC | ALN-500LRC |

Amberlite™

Amberlite™ is the first generation of polymer resins. They are used for fast separation of a variety of compounds from biological fluids. Amberlite™ suffers from weak selectivity.

| Weight | Vol. | Qty | XAD-2 |
|-----------------------------|-------|-------|-------------|
| Standard columns - PE frits | | | |
| 100 mg | 1 mL | 100 u | XAD2-100/1 |
| 200 mg | 3 mL | 50 u | XAD2-200/3 |
| 500 mg | 3 mL | 50 u | XAD2-500/3 |
| 500 mg | 6 mL | 30 u | XAD2-500/6 |
| 1000 mg | 6 mL | 30 u | XAD2-1G/6 |
| 1000 mg | 12 mL | 20 u | XAD2-1G/12 |
| 2000 mg | 6 mL | 30 u | XAD2-2G/6 |
| 2000 mg | 12 mL | 20 u | XAD2-2G/12 |
| 5000 mg | 35 mL | 20 u | XAD2-5G/35 |
| 10000 mg | 60 mL | 12 u | XAD2-10G/60 |
| 20000 mg | 60 mL | 12 u | XAD2-20G/60 |



PP straight tube
20 μm PE frits

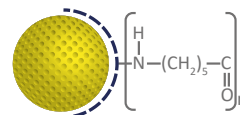


Upti-Clean® Special Series

Polyamide

Amide functionality bonded to a Nylon support. Polyamide columns are typically used for aromatic and natural compound extraction such as PAH or flavanoids

| Weight | Vol. | Qty | P6 |
|-----------------------------|-------|-------|----------|
| Standard columns - PE frits | | | |
| 100 mg | 1 mL | 100 u | P6-100/1 |
| 100 mg | 3 mL | 50 u | P6-100/3 |
| 200 mg | 3 mL | 50 u | P6-200/3 |
| 500 mg | 3 mL | 50 u | P6-500/3 |
| 500 mg | 6 mL | 30 u | P6-500/6 |
| 1000 mg | 6 mL | 30 u | P6-1G/6 |
| 2000 mg | 6 mL | 20 u | P6-2G/6 |
| 2000 mg | 15 mL | 20 u | P6-2G/15 |
| 2000 mg | 25 mL | 20 u | P6-2G/25 |



Upti-Clean® P6
100 µm
Selective extraction of flavonoids and other natural products

RELATED PRODUCTS

For annual subscriptions and bulk orders, contact Advion Interchim Scientific teams:
analytical-sciences@advion-interchim.com - Tel +33 470037309
 Online form:
https://www.interchim.com/vials_and_filters_subscription.php



Solid phase extraction - Upti-Clean® Cartridges



Upti-Clean® Cartridges

Upti-Clean® cartridges are easy to use and have been specially developed for the fast and efficient implementation of SPE purifications.

It is not necessary to have a specific SPE device. Luer tip syringes will allow the transfer of the sample to the sorbent.

C18 media ensures the extraction of apolar and polar compounds for most aqueous matrices. Virgin silica allows the extraction of polar compounds in apolar solvents. The polypropylene protective shell is compatible with a large number of solvents.

- Common applications: Pharmaceutical, Toxicology, Clinical monitoring...
- Diverted applications: Storage and transport of samples.



PP cartridge
PE frits 20 µm

| Type | REC18 | Qty | Type | RESI | Qty |
|-------------------|---------------|------|--------|--------------|------|
| Recovery™ sorbent | | | | | |
| 300 mg | REC18-390/SC | 50 u | 300 mg | RESI-300/SC | 50 u |
| 600 mg | REC18-910/SC | 50 u | 600 mg | RESI-700/SC | 50 u |
| 900 mg | REC18-1690/SC | 50 u | 900 mg | RESI-1300/SC | 50 u |

| Type | C18-S | Qty | Type | SI-S | Qty | Type | Sodium sulfate | Qty |
|---------------------|-------------|------|--------|------------|------|--------|----------------|------|
| Upti-Clean® sorbent | | | | | | | | |
| 300 mg | C18-390/SC | 50 u | 300 mg | SI-300/SC | 50 u | | | |
| 600 mg | C18-910/SC | 50 u | 600 mg | SI-700/SC | 50 u | | | |
| 900 mg | C18-1690/SC | 50 u | 900 mg | SI-1300/SC | 50 u | 900 mg | SS-1320/SC | 50 u |

Solid phase extraction - Specific kit for PAH's extraction



Extraction of PAHs from water or soil

Developed for the extraction of polycyclic aromatic hydrocarbons (PAHs) in water or soil matrices, Advion Interchim Scientific SPE application kits allow adsorption of polar impurities and trapping of water traces contained in the matrix.

The compounds of interest have no interaction with the sorbents and are generally analyzed by gas chromatography.

Containers can be polypropylene or glass with polyethylene or PTFE frits. A glass container with PTFE frits guarantees the solvent fractions without extractables.

A first processing step is necessary: PAHs are extracted by Liq./Liq. or Solid/Liq. extraction (PSE, Soxhlet ...)

| Description | P/N | Qty |
|--|---------|------|
| SPE kit for the extraction of PAHs from water or soil 4g/6mL - PP columns - PE frits | SPE-SA2 | 30 u |
| SPE kit for the extraction of PAHs from water or soil 4g/6mL - Glass columns - PTFE frits | SPE-SA3 | 30 u |

Extraction of PAHs from water containing humic acids

Developed for the extraction of polycyclic aromatic hydrocarbons (PAHs) from waters containing humic acids, Advion Interchim Scientific SPE application kits allow the pre-concentration of PAHs, while strongly retaining humic acids.

The available container is polypropylene with polyethylene sintering.

| Description | P/N | Qty |
|--|---------|------|
| SPE Kit for the extraction of PAHs from water containing humic acids - 1.5g/6mL - PP columns - PE frits | SPE-SA4 | 30 u |

Indicative protocol:

- Column conditioning: 5 mL MeOH then 7 mL DI H₂O/EtOH (9/1 v/v)
- Matrix preparation: 500 mL (sample) + 20-30 mL EtOH
- Column washing 1: 2 mL MeOH/H₂O with 100 mM acetic acid (5/95 v/v)
- Column washing 2: 1-3 mL DI H₂O/EtOH (9/1 v/v)
- Drying: 15 min
- Elution: 5 mL Dichloromethane

Extraction of PAHs from soils & oils

Developed for the extraction of PAHs from soils and oils, Advion Interchim Scientific SPE application kits allow the adsorption of polar impurities as well as the selective adsorption of PAHs.

Containers can be polypropylene or glass with polyethylene or PTFE frits. A glass container with PTFE frits guarantees solvent fractions without extractables.

Indicative protocol available on request

| Description | P/N | Qty |
|---|---------|------|
| SPE Kit for the extraction of PAHs from soils & oils 1.5g/6mL - PP columns - PE frits | SPE-SA5 | 30 u |
| SPE Kit for the extraction of PAHs from soils & oils 1.5g/6mL - Glass columns - PTFE frits | SPE-SA6 | 30 u |

PUBLICATIONS

PAH & Aliphatic hydrocarbons (C12 up to C41) from petroleum residues
 Publication Name : Roberto Alzaga and all,
 Environmental Chemistry Department, IIQABCSIC,
 Jordi Girona 18-26, E-08034 Barcelona,
 Spain ; Journal of Chromatography A, 1025
 (2004) 133-138 ; Fast solid-phase extraction - gas
 chromatography - mass spectrometry procedure for
 oil fingerprinting Application to the Prestige oil spill.

Solid phase extraction - Specific kit for PCBs extraction



Extraction of PCBs from oils

Advion Interchim Scientific SPE application kits are used for organic sample treatment and allow the removal of impurities which may interfere with PCBs during the gas chromatography analysis.

| Description | P/N | Qty |
|--|----------|------|
| SPE Kit for the extraction of PCBs from oils 1g/3mL - PP columns - PE frits | SPE-SA12 | 50 u |
| SPE Kit for the extraction of PCBs from oils 1g/6mL -PP columns - PE frits | SPE-SA13 | 30 u |

Applications: EN61619 Norm

The Upti-Clean® CT20 columns are used for the treatment of organic samples and allow the removal of impurities which could interfere with PCBs during gas chromatography analysis.

These columns have undergone an acidic treatment that makes sample cleaning more efficient in particular by oxidation of some impurities.

Applications: EN61619 Norm

| Description | P/N | Qty |
|---------------------------------|--------|------|
| Custom SPE columns CT-20 - 3 mL | CT-20F | 50 u |
| Custom SPE columns CT-20 - 6 mL | CT-20G | 30 u |

Extraction of PAHs and PCBs from sludge

Upti-Clean® CT-33 columns are used for the treatment of organic samples. They allow the removal of sulfur compounds. Polar impurities are also retained on the sorbent. Sodium sulfate is a drying agent to trap water traces. PAHs and PCBs can be analyzed by liquid or gas chromatography.

Applications: XP X33-012 Norm

| Description | P/N | Qty |
|---------------------------------|--------|------|
| SPE Custom columns CT-33 - 6 mL | CT-33A | 30 u |
| SPE Custom columns CT-33 - 3 mL | CT-33B | 50 u |



PBDEs extraction from sediments and sewage sludge

Upti-Clean CT-35 columns are used for the treatment of organic samples and allow the removal of impurities which could interfere with polybrominated diphenyl ethers (PBDE) during gas chromatography analysis.

Applications: NF EN ISO 22032

| Description | P/N | Qty |
|---------------------------------|--------|------|
| SPE Custom columns CT-35 - 6 mL | CT-35A | 50 u |

Extraction and Purification of dioxin-like PCDD / PCDF & PCBs

The extraction and purification products necessary for the implementation of NF EN 1948 are available on request (used in the analysis process of dioxin-like Polychlorodibenzo-p-dioxin (PCDD), polychlorodibenzo-furan (PCDF) and polychlorinated biphenyls (PCBs).

To do this, simply send your request to:

analytical-sciences@advion-interchim.com

Extraction of basic drugs from biological fluids*

| Description | P/N | Qty |
|--|---------|------|
| Extraction of basic drugs from biological fluids | SPE-SA1 | 50 u |

Extraction of Oil & Grease from aqueous matrices* (EPA Method 1664)

| Description | P/N | Qty |
|---|---------|------|
| Extraction of Oil & Grease from aqueous matrices (EPA Method 1664) - 1 g/6 mL | SPE-SA7 | 30 u |
| Extraction of Oil & Grease from aqueous matrices (EPA Method 1664) - 500 mg/3 mL | SPE-SA8 | 50 u |

Extraction of Pesticides and Herbicides from aqueous matrices*

| Description | P/N | Qty |
|---|----------|------|
| Extraction of Pesticides and Herbicides from aqueous matrices | SPE-SA10 | 50 u |

Extraction of Steroids from biological fluids*

| Description | P/N | Qty |
|---|----------|------|
| Extraction of Steroids from biological fluids | SPE-SA11 | 50 u |

Extraction of SVOCs from water (EPA 525)*

| Description | P/N | Qty |
|--|----------|------|
| Extraction of SVOCs from water (EPA 525) | SPE-SA14 | 30 u |

*Protocol available on request

Multilayer columns and bulk sorbents available on request.





Introduction

Advion Interchim Scientific offers a complete range of Polymers of various chemical natures, with specific intrinsic characteristics allowing the purification and/or pre-concentration of molecules and macromolecules from all types of matrices.

- PolyClean™, range of mixed polymers (hydrophilic / hydrophobic) made of ultrapure spherical particles, modified or unmodified by ion exchange groups, for extraction and pre-concentration of acidic, basic and neutral compounds.
- Atoll™, range of PSDVB hydrophobic polymers, with different loading capacities for non-polar to moderately polar compounds.

The complete PolyClean™ and Atoll™ ranges provide specific selectivities adapted to all types of matrices and families of compounds.

Advion Interchim Scientific expertise and know-how in terms of filling quality guarantee perfect repeatability and reproducibility of extraction rates.

Each products are delivered in a packaging specially designed for long term storage, protected from air and light, accompanied by an individual certificate mentioning the manufacturing number and the batch number of the sorbent used.

The PolyClean™ and Atoll™ columns can be used with all automated SPE workstations.

| Name | Code | Type | Particule size | Surface area | Modification | IE capacity |
|-------------------------|--------------|---|----------------|------------------------|------------------------|-------------|
| PolyClean 2H | 302H 2H | Mixed Polymer (hydrophilic /hydrophobic) | 30 µm 60 µm | 850 m ² /g | non | n.a |
| PolyClean HCX | 30HCX HCX | Mixed Polymer (hydrophilic /hydrophobic) | 30 µm 60 µm | 850 m ² /g | Strong Cation Exch. | 1 meq/g |
| PolyClean HAX | 30HAX HAX | Mixed Polymer (hydrophilic /hydrophobic) | 30 µm 60 µm | 850 m ² /g | Strong Anion Exch. | 0,3 meq/g |
| Atoll Xtrem | X | PSDVB | 40 µm | 800 m ² /g | no | n.a |
| Atoll Xtrem Capacity | XC | PSDVB | 70 µm | 1500 m ² /g | no | n.a |

Please refer to our sorbent selection guide in the beginning of this chapter for more information.



PolyClean™ 2H & 302H, Hydrophilic/Hydrophobic interactions

From the latest Advion Interchim Scientific R & D developments, the PolyClean™ 2H polymer has a proprietary structure made of chemical groups providing mixed mode Hydrophilic / Hydrophobic interactions.

The PolyClean™ 2H optimizes the methods developed on sorbents conventionally used in reverse phase (bonded silicas or polymers) which do not have the required selectivity and loading capacity.

Available in 30 & 60 µm, ultrapure spherical polymer particles allow the extraction of acidic, basic and neutral compounds in all matrices.

Use 60 µm particle size for viscous samples.

The 30 µm version provides a higher pre-concentration factor (using the same sorbent weight) compared to the 60 µm.

Applications :

- Pharmaceutical compounds and their metabolites in biological fluids and tissues.
- Traces of organic pollutants in environmental matrices.
- Endocrine disruptors.

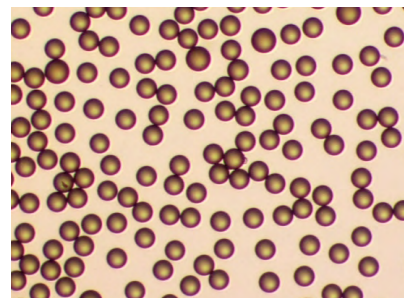
| Weight | Vol. | Qty | PolyClean™ 2H 60 µm | PolyClean™ 302H 30 µm |
|-----------------------------|-------|------|---------------------|-----------------------|
| Standard columns - PE frits | | | | |
| 30 mg | 1 mL | 50 u | 2H-30/1 | 302H-30/1 |
| 100 mg | 1 mL | 50 u | 2H-100/1 | 302H-100/1 |
| 30 mg | 3 mL | 50 u | 2H-30/3 | 302H-30/3 |
| 60 mg | 3 mL | 50 u | 2H-60/3 | 302H-60/3 |
| 100 mg | 3 mL | 50 u | 2H-100/3 | 302H-100/3 |
| 200 mg | 3 mL | 50 u | 2H-200/3 | 302H-200/3 |
| 150 mg | 6 mL | 30 u | 2H-150/6 | 302H-150/6 |
| 200 mg | 6 mL | 30 u | 2H-200/6 | 302H-200/6 |
| 500 mg | 6 mL | 30 u | 2H-500/6 | 302H-500/6 |
| 500 mg | 15 mL | 20 u | 2H-500/15 | 302H-500/15 |
| 1000 mg | 15 mL | 20 u | 2H-1G/15 | 302H-1G/15 |
| 1000 mg | 25 mL | 20 u | 2H-1G/25 | 302H-1G/25 |

| LRC columns - PE frits | | | | |
|------------------------|-----|------|----------|------------|
| 30 mg | LRC | 50 u | 2H-30LRC | 302H-30LRC |
| 60 mg | LRC | 50 u | 2H-60LRC | 302H-60LRC |

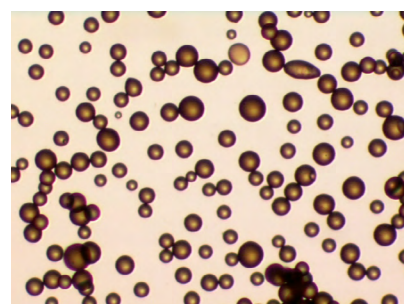
| Glass columns - PTFE frits | | | | |
|----------------------------|------|------|-----------|-------------|
| 200 mg | 6 mL | 30 u | 2H-200/6G | 302H-200/6G |

PolyClean

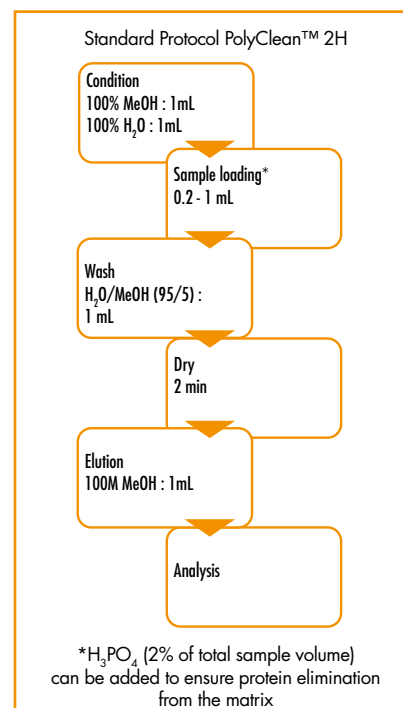
Accurate Bed Technology™ vs Competitors



PolyClean™ 2H 60 µm



Competitor W 60 µm

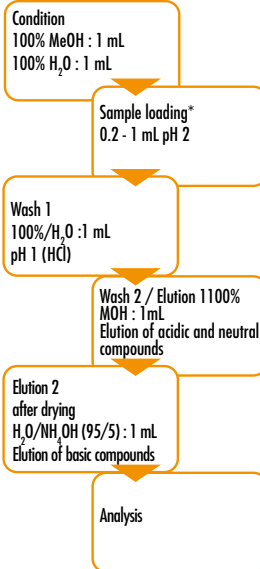


Solid phase extraction - PolyClean™ Columns



PolyClean™

Standard Protocol PolyClean™ HCX



PolyClean™ HCX, Mixed Mode / SCX for the extraction of Basic compounds

The PolyClean™ HCX is a mixed polymer Hydrophilic / Hydrophobic modified with an SCX (Strong Cation Exchange) group. It induces a high selectivity for weak bases in purification and preconcentration.

- SCX interaction (IE capacity of 1 meq / g).
- Mixed Hydrophilic / Hydrophobic interaction.

Applications :

- Pharmaceutical compounds and their metabolites from biological matrices (Blood, urine, plasma, tissues ...)
- Environmental analysis: Pesticides, Herbicides.

| Weight | Vol. | Qty | PolyClean™ HCX 60 µm | PolyClean™ HCX 30 µm |
|-----------------------------|-------|------|----------------------|----------------------|
| Standard columns - PE frits | | | | |
| 30 mg | 1 mL | 50 u | HCX-30/1 | 30HCX-30/1 |
| 100 mg | 1 mL | 50 u | HCX-100/1 | 30HCX-100/1 |
| 30 mg | 3 mL | 50 u | HCX-30/3 | 30HCX-30/3 |
| 60 mg | 3 mL | 50 u | HCX-60/3 | 30HCX-60/3 |
| 100 mg | 3 mL | 50 u | HCX-100/3 | 30HCX-100/3 |
| 200 mg | 3 mL | 50 u | HCX-200/3 | 30HCX-200/3 |
| 150 mg | 6 mL | 30 u | HCX-150/6 | 30HCX-150/6 |
| 200 mg | 6 mL | 30 u | HCX-200/6 | 30HCX-200/6 |
| 500 mg | 6 mL | 30 u | HCX-500/6 | 30HCX-500/6 |
| 500 mg | 15 mL | 20 u | HCX-500/15 | 30HCX-500/15 |
| 1000 mg | 15 mL | 20 u | HCX-1G/15 | 30HCX-1G/15 |
| 1000 mg | 25 mL | 20 u | HCX-1G/25 | 30HCX-1G/25 |

LRC columns - PE frits

| | | | | |
|-------|-----|------|-----------|-------------|
| 30 mg | LRC | 50 u | HCX-30LRC | 30HCX-30LRC |
| 60 mg | LRC | 50 u | HCX-60LRC | 30HCX-60LRC |

Glass columns - PTFE frits

| | | | | |
|--------|------|------|------------|--------------|
| 200 mg | 6 mL | 30 u | HCX-200/6G | 30HCX-200/6G |
|--------|------|------|------------|--------------|

RELATED PRODUCTS

UptiVial Advion Interchim Scientific GC / LC certified vials kit.
Vials and caps are tested and delivered with a certificate.
See chapter : Vials & Caps





PolyClean™ HAX, mixed mode/ SAX for the separation of acidic compounds
 PolyClean™ HAX polymer, modified by a SAX (Strong Anion Exchange) type exchanger, is dedicated to the purification and preconcentration of weak acids.

Different retention mechanisms are used:
 Strong SAX type interaction (ionic exchange capacity of 0.3meq/g).
 Mixed Hydrophilic/Hydrophobic interaction.

Applications :

- Metabolites, acidic compounds from biological fluids and tissues.
- Food hygiene: preservatives, contaminants.

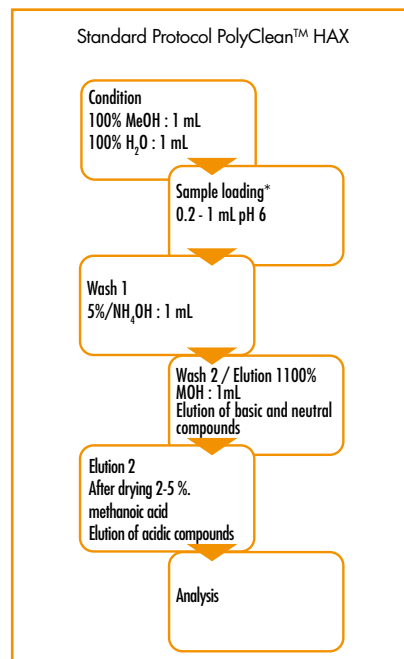
| Weight | Vol. | Qty | PolyClean™ HAX 60 µm | PolyClean™ HAX 30 µm |
|-----------------------------|-------|------|----------------------|----------------------|
| Standard columns - PE frits | | | | |
| 30 mg | 1 mL | 50 u | HAX-30/1 | 30HAX-30/1 |
| 100 mg | 1 mL | 50 u | HAX-100/1 | 30HAX-100/1 |
| 30 mg | 3 mL | 50 u | HAX-30/3 | 30HAX-30/3 |
| 60 mg | 3 mL | 50 u | HAX-60/3 | 30HAX-60/3 |
| 100 mg | 3 mL | 50 u | HAX-100/3 | 30HAX-100/3 |
| 200 mg | 3 mL | 50 u | HAX-200/3 | 30HAX-200/3 |
| 150 mg | 6 mL | 30 u | HAX-150/6 | 30HAX-150/6 |
| 200 mg | 6 mL | 30 u | HAX-200/6 | 30HAX-200/6 |
| 500 mg | 6 mL | 30 u | HAX-500/6 | 30HAX-500/6 |
| 500 mg | 15 mL | 20 u | HAX-500/15 | 30HAX-500/15 |
| 1000 mg | 15 mL | 20 u | HAX-1G/15 | 30HAX-1G/15 |
| 1000 mg | 25 mL | 20 u | HAX-1G/25 | 30HAX-1G/25 |

LRC columns - PE frits

| | | | | |
|-------|-----|------|-----------|-------------|
| 30 mg | LRC | 50 u | HAX-30LRC | 30HAX-30LRC |
| 60 mg | LRC | 50 u | HAX-60LRC | 30HAX-60LRC |

Glass columns - PTFE frits

| | | | | |
|--------|------|------|------------|--------------|
| 200 mg | 6 mL | 30 u | HAX-200/6G | 30HAX-200/6G |
|--------|------|------|------------|--------------|



RELATED PRODUCTS

For annual subscriptions and bulk orders, contact Advion Interchim Scientific teams:
 analytical-sciences@advion-interchim.com - Tel +33 470037309
 Online form:
https://www.interchim.com/vials_and_filters_subscription.php

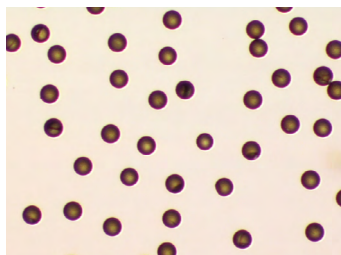


SAMPLE PREPARATION

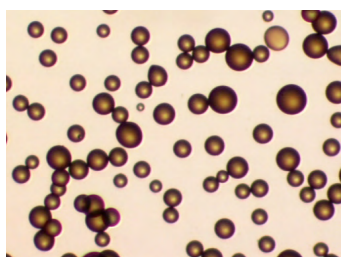
Solid phase extraction - Atoll™ Columns



Accurate Bed Technology™ vs Competitors



Atoll™ XC



Competitor

Atoll™ Xtrem

The Atoll™ Xtrem polymer of the Polystyrene-divinyl benzene (PSDVB) type is presented as a hydrophobic support dedicated to the extraction and pre-concentration of apolar to moderately polar compounds thanks to a larger specific surface area than traditional silicas.

Atoll™ Xtrem is a first alternative choice to the media classically used in reverse phase (C18, C8 grafted silicas, ...).

Unlike silicas, the polymer has the advantage of being stable at all pH and compatible with all common solvents.

Resistant to aggressive solvents, glass columns with PTFE sintered guarantee purifications without any extractables.

Applications :

- Apolar and moderately polar compounds in aqueous or organic samples.

| Weight | Vol. | Qty | Atoll™ X |
|-----------------------------|-------|------|----------|
| Standard columns - PE frits | | | |
| 30 mg | 1 mL | 50 u | X-30/1 |
| 100 mg | 1 mL | 50 u | X-100/1 |
| 30 mg | 3 mL | 50 u | X-30/3 |
| 60 mg | 3 mL | 50 u | X-60/3 |
| 100 mg | 3 mL | 50 u | X-100/3 |
| 200 mg | 3 mL | 50 u | X-200/3 |
| 150 mg | 6 mL | 30 u | X-150/6 |
| 200 mg | 6 mL | 30 u | X-200/6 |
| 500 mg | 6 mL | 30 u | X-500/6 |
| 500 mg | 15 mL | 20 u | X-500/15 |
| 1000 mg | 15 mL | 20 u | X-1G/15 |
| 1000 mg | 25 mL | 20 u | X-1G/25 |
| LRC columns - PE frits | | | |
| 30 mg | LRC | 50 u | X-30LRC |
| 60 mg | LRC | 50 u | X-60LRC |
| Glass columns - PTFE frits | | | |
| 200 mg | 6 mL | 30 u | X-200/6G |



Atoll™ Xtrem Capacity

With the highest specific surface area on the market (1,500 m²/g), the polymer Atoll™ Xtrem Capacity is a universal sorbent for the purification and pre-concentration of polar and apolar compounds.

The loading capacity is 2 to 3 times higher than conventional silicas.

The nature of the interactions allows the adsorption of acid, basic and neutral molecules.

Its highly cross-linked structure is stable at a pH between 0 and 14.

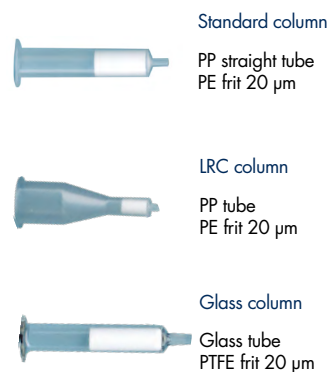
The pure spherical particles, available in 70 µm, allow a perfect reproducibility of purifications regardless of the matrices and solvents used.

Resistant to aggressive solvents, the glass columns with PTFE sintered guarantee purifications without any extractables.

- Pharmaceutical applications: drugs and their metabolites in biological fluids (whole blood, plasma, urine, ...)
- Environmental applications: apolar or polar compounds in water or other matrix (PAHs, PCBs, carbamates, phenyl-ureas, acrylamide, glyphosate, etc.)



| Weight | Vol. | Qty | Atoll™ XC |
|-----------------------------|-------|------|-----------|
| Standard columns - PE frits | | | |
| 30 mg | 1 mL | 50 u | XC-30/1 |
| 100 mg | 1 mL | 50 u | XC-100/1 |
| 30 mg | 3 mL | 50 u | XC-30/3 |
| 60 mg | 3 mL | 50 u | XC-60/3 |
| 100 mg | 3 mL | 50 u | XC-100/3 |
| 200 mg | 3 mL | 50 u | XC-200/3 |
| 150 mg | 6 mL | 30 u | XC-150/6 |
| 200 mg | 6 mL | 30 u | XC-200/6 |
| 500 mg | 6 mL | 30 u | XC-500/6 |
| 500 mg | 15 mL | 20 u | XC-500/15 |
| 1000 mg | 15 mL | 20 u | XC-1G/15 |
| 1000 mg | 25 mL | 20 u | XC-1G/25 |
| LRC columns - PE frits | | | |
| 30 mg | LRC | 50 u | XC-30LRC |
| 60 mg | LRC | 50 u | XC-60LRC |
| Glass columns - PTFE frits | | | |
| 200 mg | 6 mL | 30 u | XC-200/6G |



Solid phase extraction - Kit for method development



Please refer to our sorbent selection guide in the beginning of this chapter for more information.

Extraction and Pre-concentration of Acid, Basic & Neutral compounds

These kits are composed of the following sorbents:

- Polymer Atoll™ XC
- Polymer PolyClean™ 302H
- Polymer PolyClean™ 30HCX
- Polymer PolyClean™ 30HAX

| Description | P/N | Qty |
|-----------------------|----------|----------|
| Kit SPE 30 mg / 1 mL | SPE-D142 | 4 x 10 u |
| Kit SPE 60 mg / 3 mL | SPE-D143 | 4 x 10 u |
| Kit SPE 100 mg / 3 mL | SPE-D144 | 4 x 10 u |

Pre-concentration of hydrophobic analytes in aqueous matrices

These kits are composed of the following sorbents:

- Silica Recovery C18
- Silica Upti-Clean® C18-S
- Polymer Atoll™ XC
- Polymer PolyClean™ 2H
- Polymer Atoll™ X

| Description | P/N | Qty |
|-----------------------|----------|----------|
| Kit SPE 200 mg / 6 mL | SPE-D137 | 5 x 10 u |
| Kit SPE 200 mg / 3 mL | SPE-D138 | 5 x 10 u |

Pre-concentration of hydrophilic analytes

These kits are composed of the following sorbents:

- Virgin silica Upti-Clean®
- Silica Upti-Clean® NH2
- Silica Upti-Clean® CN

| Description | P/N | Qty |
|-----------------------|----------|----------|
| Kit SPE 500 mg / 6 mL | SPE-D128 | 3 x 10 u |
| Kit SPE 500 mg / 3 mL | SPE-D129 | 3 x 10 u |

Any development kit can be made to order.
Please contact us.



Removal of polar impurities from aqueous and organic matrices

These kits are composed of the following sorbents:

- Silica vierge Upti-Clean®
- Silica Upti-Clean® NH2
- Silica Upti-Clean® Florisil

| Description | P/N | Qty |
|-----------------------|----------|----------|
| Kit SPE 500 mg / 6 mL | SPE-D130 | 3 x 10 u |
| Kit SPE 500 mg / 3 mL | SPE-D131 | 3 x 10 u |

Extraction of Acidic, Basic or Neutral compounds from aqueous or organic matrices is written twice

This kit is composed of the following sorbents:

- Polymer Atoll™ XC
- Polymer PolyClean™ 2H 30 µm
- Polymer PolyClean™ 2H 60 µm
- Polymer Atoll™ X

| Description | P/N | Qty |
|-----------------------|----------|----------|
| Kit SPE 100 mg / 3 mL | SPE-D139 | 4 x 10 u |

Extraction of weak bases from aqueous matrices

This kit is composed of the following sorbents:

- Silica Upti-Clean® SCX
- Silica Upti-Clean® MM1

| Description | P/N | Qty |
|-----------------------|----------|----------|
| Kit SPE 500 mg / 6 mL | SPE-D134 | 2 x 10 u |

Generic SPE method available on request.
For more information, please contact our technical department.

RELATED PRODUCTS

For annual subscriptions and bulk orders, contact Advion Interchim Scientific teams:
analytical-sciences@advion-interchim.com - Tel +33 470037309
Online form:
https://www.interchim.com/vials_and_filters_subscription.php



Solid phase extraction - SPE "on-line" Upti-trap™



Upti-trap™

Upti-trap™ allows extraction and/or pre-concentration of samples before HPLC analyses without clogging or damaging the analytical column.

The Upti-Trap™ are available in multiple sizes

- 20 x 4.0 mm
- 10 x 2.0 mm

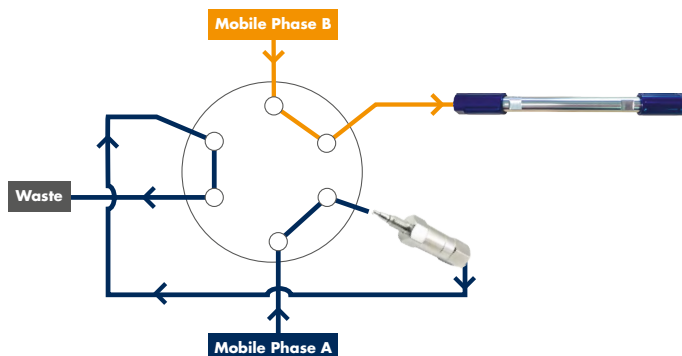
This technique is very applicable to the analysis of biological fluids where the search for drug candidates, drugs and their metabolites must be fast and efficient.

Upti-trap™ is an excellent pre-concentration tool for environmental samples (analysis of polyaromatic hydrocarbons (PAH), polychlorinated biphenyls (PCBs), phenyl-ureas, triazines, carbamates, ...)

On-line extraction represents real time savings compared to an off-line method, while keeping a high sensitivity. This reproducible and repeatable method is easily automated.

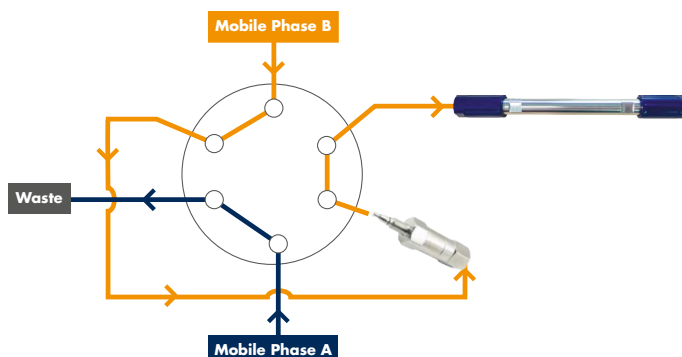
1- Extraction mode

The compound(s) of interest are blocked on the sorbent while the rest is eluted to waste thanks to the washing solvent (mobile phase A). Two HPLC pumps are needed, one for extraction, the other for elution.



2- Elution mode

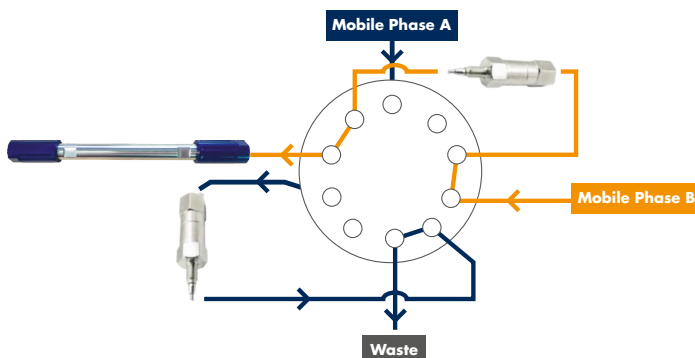
The mobile phase of the second pump (mobile phase B) elutes the compound(s) of interest to the HPLC column.



Solid phase extraction - SPE "on-line" Upti-trap™



The use of a 10-way / 2-position valve increases productivity. One sample is extracted while a second one is being analyzed.



| Sorbent | | Particle size | 10 x 2.0 mm | 20 x 4.0 mm |
|------------------|-------------------------------|---------------|---------------|---------------|
| PolyClean™ 302H | Hydrophilic / Hydrophobic | 30 µm | 302H-010/020 | 302H-020/040 |
| PolyClean™ 30HCX | Hydrophilic / Hydrophobic-SCX | 30 µm | 30HCX-010/020 | 30HCX-020/040 |

| Description | P/N |
|------------------------|-----------|
| Column holder 10x2.0mm | SPEOL-10H |
| Column holder 20x4.0mm | SPEOL-20H |



SPE columns Upti-trap™



SPE columns Upti-trap™





QuEChERS (Quick, Easy, Cheap, Effective, Rugged & Safe)

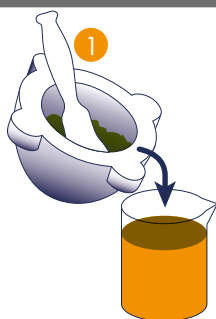
The improvement and optimization of analytical techniques (LC/MS, GC/MS) make it possible to achieve high levels of sensitivity. Meanwhile, the sample preparation step prior analysis becomes increasingly crucial to achieve the desired results, especially for trace analysis and to prolong the life of the analytical instruments.

Research and determination of pesticide residues in food is an important topic for many years. As classical sample preparation methods like liquid/liquid extraction (LLE) are not able to achieve the required levels of sensitivity, a new technique called QuEChERS appeared.

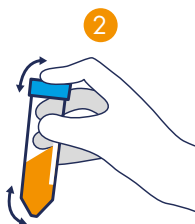
It follows precise methodology, from drastic EN or AOAC norms to detect contaminants. It is a simple, fast and efficient method with only two implementation steps and can determine more than 200 pesticides residues from a variety of matrices (fruits, vegetables, meat, fish...), with high recoveries.

Quick Start Guide

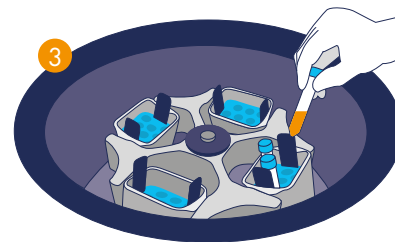
Step 1 - Liq/Liq extraction



1
Grind & homogenize the sample in a crucible.
Add the internal standard within the extraction solvent.

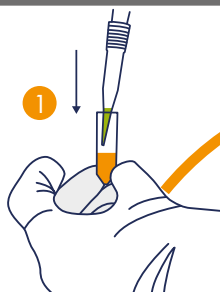


2
Transfer the mixture to a 50mL extraction tube containing QuEChERS salts. Immediately stir vigorously for a min.

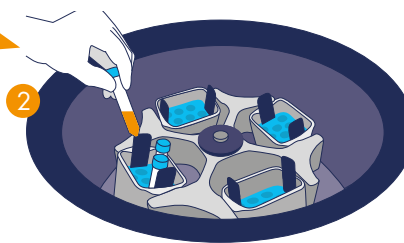


3
Centrifuge the 50mL tube for 1 to 5 min @ high speed.

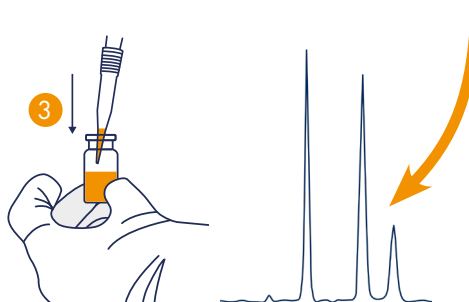
Step 2 - Dispersive SPE process (dSPE)



1
Transfer supernatant to a 2mL or 15mL tube that contains dSPE sorbents, then shake the tube.



2
Centrifuge the tube for 1 to 5 min @ high speed.



3
Transfer supernatant to an auto-sampler vial for further LC or GC analysis.



- Magnesium Sulfate (MgSO₄): eliminates H₂O traces and enhances the homogenisation of the sample for a better treatment of the organic extract.
- Primary Secondary Amine (PSA) bonded silica: eliminates acidic compounds, polar pigments, sugars and fatty acids.
- Octadecyl (C18) bonded silica: eliminates lipids, sterols, ...
- Graphitized Carbon Black (GCB): eliminates carotenoids, pigments such as chlorophyll, planar molecules, ...

Original
QuEChERS Method

AOAC 2007.01
QuEChERS Method

EN 15662
QuEChERS Method

Step 1 - Liq/Liq extraction

Extraction of Pesticide Residues and other compounds such as organic acids

Add 10 mL of Acetonitrile to 10 g of sample in a 50 mL centrifuge tube containing 4 g anhydrous MgSO₄ & 1 g NaCl.
Add Internal Standard
Shake & Centrifuge

Recover 1 mL aliquot of supernatant

Add 15 mL of Acetonitrile/ Acetic Acid 1% to 15 g sample in a 50 mL centrifuge tube containing 6 g anhydrous MgSO₄ & 1.5 g Na Acetate.
Add Internal Standard

Recover 1-8 mL aliquot of supernatant

Add 10 mL Acetonitrile to 10g sample in a 50 mL centrifuge tube containing 4g anhydrous MgSO₄, 1g NaCl, 1g Na3Citrate Dihydrate & 0.5g Na2HCitrate Sesquihydrate.
Add Internal Standard
Shake & Centrifuge

Recover X mL aliquot of supernatant

Step 2 - Dispersive SPE process (dSPE)

Final cleaning step of Pesticides Residues

Transfer the aliquot obtained from step 1 in a micro centrifuge tube containing 150 mg anhydrous MgSO₄ & 50 mg PSA
Shake & Centrifuge

Transfer 0.5 mL of extract for LC or GC analysis

Transfer the aliquot obtained from step 1 in a micro centrifuge tube containing 150 mg anhydrous MgSO₄ and 50 mg PSA per mL of supernatant
Shake & Centrifuge

Transfer extract preserved with 6.7 mM Formic Acid for LC analysis.
Transfer extract preserved with toluene for GC analysis.
Add triphenylphosphate (TPP)

Transfer the aliquot obtained from step 1 in a micro centrifuge tube containing X*150 mg anhydrous MgSO₄ and X*25 mg PSA
Add GCB for samples containing high levels of chlorophyll or carotenoids
Shake & Centrifuge

Transfer Y mL of extract preserved with Y*10 µL Acetonitrile/Formic Acid 5 % (10 µL/mL extract) for LC or GC analysis

*Pigments contained in plants are frequently a problem for the analysis.
To reduce interferences, the weight ratio of GCB may be modified.*





The tube kits (*) are delivered with the sorbents in the tubes

Extraction Kits - Step 1

| Composition | Application | Method |
|---|-------------|--------------|
| 4 g MgSO ₄ + 1 g NaCl + 1 g NaCit _r + 0.5 g NaCit _r , Sesquihydrate | General | EN 15662 |
| 6 g MgSO ₄ + 1.5 g Na Acetate | General | AOAC 2007.01 |
| 4 g MgSO ₄ + 1 g NaCl | General | Original |
| 6 g MgSO ₄ + 1.5 g NaCl | General | - |
| 8 g MgSO ₄ + 3.5 g NaCl | General | - |
| 6 g MgSO ₄ + 1.5 g NaCl + 1.5g NaCit _r + 0.75g NaCit _r , Sesquihydrate | General | - |
| 4 g MgSO ₄ + 1.75 g NaCl | General | - |
| 4 g MgSO ₄ + 0.5 g NaCl | Acrylamides | - |

Purification Kits - Step 2

| Composition | Application | Method |
|--|--|--------------|
| 900 mg MgSO ₄ + 300 mg C18 + 150 mg PSA | General | - |
| 150 mg MgSO ₄ + 50 mg PSA + 50 mg C18 + 7,5 mg GCB | High lipid content | AOAC 2007.01 |
| 900 mg MgSO ₄ + 300 mg PSA + 150 mg GCB | Wine & berries | - |
| 150 mg MgSO ₄ + 25 mg PSA | Fruits & vegetables | EN 15662 |
| 900 mg MgSO ₄ + 150 mg PSA | Fruits & vegetables | EN 15662 |
| 150 mg MgSO ₄ + 50 mg PSA | Fruits & vegetables | AOAC 2007.01 |
| 1200 mg MgSO ₄ + 400 mg PSA | Fruits & vegetables | AOAC 2007.01 |
| 150 mg MgSO ₄ + 50 mg C18 | Lightly pigmented fruits & vegetables | - |
| 150 mg MgSO ₄ + 25 mg PSA + 2,5 mg GCB | Pigmented fruits & vegetables | EN 15662 |
| 900 mg MgSO ₄ + 150 mg PSA + 15 mg GCB | Pigmented fruits & vegetables | EN 15662 |
| 885 mg MgSO ₄ + 150 mg PSA + 15 mg GCB | Pigmented fruits & vegetables | EN 15662 |
| 150 mg MgSO ₄ + 50 mg PSA + 50 mg C18 + 50 mg GCB | Pigmented fruits & vegetables | AOAC 2007.01 |
| 1200 mg MgSO ₄ + 400 mg PSA + 400 mg GCB | Pigmented fruits & vegetables | AOAC 2007.01 |
| 150 mg MgSO ₄ + 25 mg PSA + 7,5 mg GCB | Highly pigmented fruits & vegetables | EN 15662 |
| 900 mg MgSO ₄ + 150 mg PSA + 45 mg GCB | Highly pigmented fruits & vegetables | EN 15662 |
| 855 mg MgSO ₄ + 150 mg PSA + 45 mg GCB | Highly pigmented fruits & vegetables | EN 15662 |
| 1200 mg MgSO ₄ + 400 mg C18 + 400 mg PSA + 400 mg GCB | Fruits & vegetables with pigments & fats | AOAC 2007.01 |
| 150 mg MgSO ₄ + 25 mg PSA + 25 mg C18 | Fruits & vegetables with fats & waxes | EN 15662 |
| 900 mg MgSO ₄ + 150 mg C18 + 150 mg PSA | Fruits & vegetables with fats & waxes | EN 15662 |
| 150 mg MgSO ₄ + 50 mg PSA + 50 mg C18 | Fruits & vegetables with fats & waxes | AOAC 2007.01 |
| 1200 mg MgSO ₄ + 400 mg C18 + 400 mg PSA | Fruits & vegetables with fats & waxes | AOAC 2007.01 |

*Bulk purification tubes kits are designed with 15ml or 2ml tubes depending on the composition of the sorbents mix.

Empty centrifuge tubes

| Description | Qty | P/N |
|---|-------|--------|
| Empty centrifuge tubes 50 mL, blue caps | 500 u | 1A0142 |
| Empty centrifuge tubes 15 mL, blue caps | 500 u | 1A0132 |
| Empty centrifuge tubes 2 mL, white caps | 500 u | 1A1600 |
| Empty centrifuge tubes 2 mL, blue caps | 500 u | 118930 |



| P/N Kits tubes* 50 mL (50 u) | P/N - Reloaded pouches (50 u) | P/N Kits tubes* 50 mL Bulk (500 u) | P/N - Reloaded pouches Bulk (500 u) |
|------------------------------|-------------------------------|------------------------------------|-------------------------------------|
| JO3910 | SST600 | SST590 | 1L9810 |
| JO3900 | SST660 | SST650 | 1L9800 |
| JO3920 | SST640 | SST630 | 1L9820 |
| 1A3420 | SST700 | SST690 | 1L9750 |
| 1A1440 | SST720 | SST710 | 1L9760 |
| 1D2630 | SST680 | SST670 | 1L9770 |
| 1E9820 | SST620 | SST610 | 1L9780 |
| 1F4740 | SST570 | SST560 | 1L9790 |

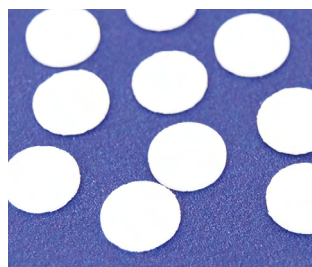
| P/N Kits tubes* 15 mL (50 u) | P/N Kits tubes* 2 mL (100 u) | P/N - Reloaded pouches (50 u) | P/N - Reloaded pouches (100 u) | P/N Kits tubes* Bulk (500 u) |
|------------------------------|------------------------------|-------------------------------|--------------------------------|------------------------------|
| 1A1360 | --- | SST140 | --- | SST130 |
| --- | SST100 | --- | SST120 | SST110 |
| JO4090 | --- | SST550 | --- | SST540 |
| --- | JO3950 | --- | SST320 | SST300 |
| JO3960 | --- | SST310 | --- | SST290 |
| --- | JO3930 | --- | SST280 | SST260 |
| JO3970 | --- | SST270 | --- | SST250 |
| --- | SST330 | --- | SST350 | SST340 |
| --- | JO4050 | --- | SST510 | SST490 |
| JO4040 | --- | SST500 | --- | SST480 |
| 1F9240 | --- | SST530 | --- | SST520 |
| --- | JO4070 | --- | SST450 | SST440 |
| JO4060 | --- | SST470 | --- | SST460 |
| --- | JO3990 | --- | SST410 | SST390 |
| JO3980 | --- | SST400 | --- | SST370 |
| 1F9260 | --- | SST430 | --- | SST420 |
| JO4080 | --- | SST240 | --- | SST230 |
| --- | JO4000 | --- | SST220 | SST200 |
| JO4030 | --- | SST210 | --- | SST190 |
| --- | JO4010 | --- | SST180 | SST160 |
| JO4020 | --- | SST170 | --- | SST150 |



Solid phase extraction - Empty SPE tubes



Empty column

Column + one polyethylene 20 μ m frit

Polyethylene frit

Cap
F97350Cap
F97510

920941

Polypropylene tubes

| Volume | P/N | Qty |
|---|--------|-------|
| Empty columns | | |
| 1 mL | 541410 | 100 u |
| 3 mL | 541420 | 100 u |
| 6 mL | 541430 | 100 u |
| 12 mL | 541440 | 100 u |
| 25 mL | 541450 | 100 u |
| 75 mL | 823370 | 50 u |
| 150 mL | S28581 | 25 u |
| Column + one polyethylene 20 μ m frit | | |
| 1 mL | F97660 | 100 u |
| 3 mL | F97710 | 100 u |
| 6 mL | F97730 | 100 u |
| 12 mL | F97750 | 100 u |
| 25 mL | F97760 | 100 u |
| 75 mL | HQ3270 | 50 u |

Polyethylene frits

| Volume column | P/N | Qty |
|--|--------|-------|
| 1/16" frits - 20 μ m | | |
| 1 mL | 779530 | 100 u |
| 3 mL | 841880 | 100 u |
| 6 mL | 858750 | 100 u |
| 12 mL | 823280 | 100 u |
| 25 mL | 885460 | 100 u |
| 75 mL | 823380 | 50 u |
| 1/8" frits - 20 μ m | | |
| 15 mL | S08600 | 100 u |
| 25 mL | S08610 | 100 u |
| 75 mL | S08620 | 50 u |
| 150 mL | S28600 | 50 u |
| Caps | | |
| 1 mL | F97350 | 100 u |
| 3 mL | F97360 | 100 u |
| 6 mL | F97370 | 100 u |
| 12 mL | F97440 | 100 u |
| 25 mL | F97470 | 100 u |
| 75 mL | F97490 | 50 u |
| Male luer plug for bottom of SPE column 1 at 150 mL | F97510 | 100 u |

Adapters for SPE columns

Attached to the top of the 1, 3 and 6 mL SPE columns, these female luer tip compatible adapters have several functions:

- Increase the overall available volume of the columns by adding a larger capacity reservoir (15, 25 or 75 mL) to the adapter.
- Allow multiple selectivities by stacking columns filled with different sorbents one on top of the other.

| Description | P/N | Qty |
|------------------------------|--------|------|
| Universal adapter 1, 3, 6 mL | 920941 | 15 u |



Advion Interchim Scientific SPE LV6

Compact solid phase extraction system

Make your analytical process more reliable and secure

The SPE LV6 is a fully automated positive pressure workstation for sample preparation by SPE solid phase extraction. Specially developed for all analytical chemists looking for performance and alternatives to manual use, the SPE LV6 ensures method development and routine applications are executed with ease. Equipped with an innovative and robust technology, the SPE LV6 saves time and increases productivity thanks to the full automated process. The SPE LV6 uses calibrated tubings to grant high reproducibility and efficiency.

Applications: environmental analysis of contaminants in water, toxicology, biopharma, agri-food...

Specifications

- Positive pressure, guarantees optimal reproducibility & precision
- Compatible SPE Polypropylene column sizes: 1.3 & 6 mL
- Software integrated in a 9" touch screen (2 GB memory) + offline version
Method creation & loading in a few minutes
End of method report for easy sample traceability
- Sample
Up to 6 samples in series
Automated sample injection (RSD = 0.15 %)
Sample loading via the syringe pump (volume between 10 mL and 5 L)
or by the autosampler in a calibrated loop (volume between 100 µL and 25 mL)
(Advion Interchim Scientific zero cross contamination technology)
Sample volume: 100 µL to 5 liters
- 10 solvent channels + 3 waste collection channels at the outlet of the column
(organic, aqueous, chlorinated)
- Gas supply (nitrogen or compressed air): 1-2 bar
(very low consumption: 0.12 L/min)
- Integrated retention tank
Automatic calculation of collection capacities according to the method programmed
- Robustness & quality of integrated technologies
10 mL syringe pump and 20 position valve
Wide range of plunger sizes for SPE columns 1,3 & 6 mL
Inert materials to avoid contaminations
Reduced costs & maintenance downtimes
- Accuracy & Reproducibility
Flow rate range: from 50 µl to 15 L/min
Calibrated fluidic paths for accurate dead volume control
- Reduced column drying time (up to 30 seconds for up to 99% drying efficiency)
Up to 5 collection tubes per column (for easy fraction control during method development)
Fully automated system for total autonomy (up to 95% time savings)
- Accessories
Sample rack: 13 x 100 mm (closed vials can be used) & 18 x 150 mm
Collection rack: 12 x 32, 12 x 75, 13 x 100, 16 x 100, 18 x 150 mm
Ability to collect directly in a 2 mL, 4 mL or 2 mL eppendorf vial
- CE & UL certified



Solid phase extraction - Automate SPE LV6



Plunger technology for 6mL columns

| Description | P/N | Qty |
|---|--------|-----|
| Instrument | | |
| Advion Interchim Scientific SPE workstation LV6 | SPE000 | 1 |
| Sample rack (for autosampler) | | |
| Advion Interchim Scientific SPE workstation LV6 Sample Rack 13X100MM | SPE010 | 1 |
| Advion Interchim Scientific SPE workstation LV6 Sample Rack 18X150MM | SPE020 | 1 |
| Collection rack | | |
| Advion Interchim Scientific SPE workstation LV6 collection rack 12X32MM | SPE030 | 1 |
| Advion Interchim Scientific SPE workstation LV6 collection rack 12X75MM | SPE040 | 1 |
| Advion Interchim Scientific SPE workstation LV6 collection rack 13X100MM | SPE050 | 1 |
| Advion Interchim Scientific SPE workstation LV6 collection rack 16X100MM | SPE060 | 1 |
| Advion Interchim Scientific SPE workstation LV6 collection rack 18X150MM | SPE070 | 1 |
| Advion Interchim Scientific SPE workstation LV6 collection rack 28X140MM | SPE300 | 1 |
| Plungers for SPE columns 1- 3 and 6 mL | | |
| Advion Interchim Scientific SPE workstation LV6 plunger 1 mL cartridges | SPE080 | 1 |
| Advion Interchim Scientific SPE workstation LV6 plunger 3 mL cartridges | SPE090 | 1 |
| Advion Interchim Scientific SPE workstation LV6 plunger 6 mL cartridges | SPE100 | 1 |
| Adapters for SPE columns 1 and 6 mL | | |
| Advion Interchim Scientific SPE workstation LV6 insert 1mL cartridges | SPE110 | 1 |
| Advion Interchim Scientific SPE workstation LV6 insert 3mL cartridges | SPE120 | 1 |
| Consumables - seals for plungers | | |
| Advion Interchim Scientific SPE workstation LV6 seal for plunger 1 mL cartridges | SPE130 | 10 |
| Advion Interchim Scientific SPE workstation LV6 seal for plunger 3 mL cartridges | SPE140 | 10 |
| Advion Interchim Scientific SPE workstation LV6 seal for plunger 6 mL cartridges | SPE150 | 10 |
| Advion Interchim Scientific SPE workstation LV6 seal Kalrez for plunger 1 mL cartridges | SPE160 | 10 |
| Advion Interchim Scientific SPE workstation LV6 seal Kalrez for plunger 3 mL cartridges | SPE170 | 10 |
| Advion Interchim Scientific SPE workstation LV6 seal Kalrez for plunger 6 mL cartridges | SPE160 | 10 |



Concentrate your elution fractions with the
puriVap-6™ evaporation system



Vacuum manifold SPE columns

Compatible with all existing SPE columns with "luer" tip on the market, the vacuum manifold saves sample preparation time and contributes to reproducibility.

This type of instrument provides the simultaneous filtration or purification of 12 to 24 samples. A shut-off valve is installed on each channel.

Easy to use, it requires a simple laboratory water tube to make the vacuum. To avoid flow problems due to a loaded sample or an insufficient vacuum, it is preferable to use a vacuum pump, which will bring a better reproducibility and repeatability of the extractions.

The flow rate of the fluids depends on the size of the columns used.

RELATED PRODUCTS

Find our SPE ranges :
UptiClean®, PolyClean™ & Atoll™

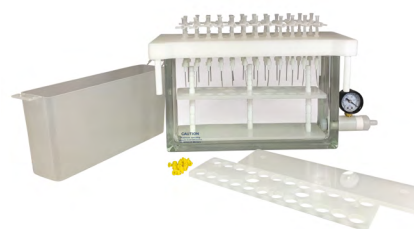


Vacuum manifold protocol P/N 518101

1. Screw the black lid of the upper part of the manifold.
2. Introduce the plastic waste in the Glass basin.
3. Insert collection needles on male Luer outlets under the lid.
4. Set taps on the lids female Luer inlets.
5. Place lid cover on the glass basin.
6. Install SPE columns on closed taps.
7. Close unused lids on female Luer inlets.
8. Open vacuum on the Glass basin outlet valve.
9. Establish SPE steps at constant flow and depression (the vacuum may be monitored with the Glass basin valve).
10. Remove waste after the rinsing step & insert collection rack with glass tubes.
11. Replace lid cover, add vacuum to Glass chamber, elute to collect sample.
12. Insert dry cover instead of the lid. re-apply vacuum.
13. Attach dry cover (with heated nitrogen outlet) for evaporation and sample concentration.

24 positions vacuum manifold

| Description | P/N | Qty |
|--|--------|------|
| Vacuum manifold Set-Complete* | Q72031 | 1 u |
| Include the following part numbers: Q72231, Q72241, Q72251, Q57831, Q72291, Q72301, Q72331, B0D910 | | |
| Additional options not included: Q72341, Q72271 | | |
| Spare parts & Accessories | | |
| Glass chamber | Q72231 | 1 u |
| Cover, gasket, & 24 valves | Q72241 | 1 u |
| Gasket | Q72251 | 2 u |
| Polypropylene SPE needles | Q57831 | 24 u |
| Stainless steel SPE needles | Q72271 | 24 u |
| Complete collection rack | Q72281 | 1 u |
| Tray / tubes 13 mm | Q72291 | 1 u |
| Tray / tubes 16 mm | Q72301 | 1 u |
| Valves | Q72331 | 24 u |
| Drying cover | Q72341 | 1 u |
| Polypropylene waste container | B0D910 | 2 u |



24 positions vacuum manifold
Q72031



Q72241



Solid phase extraction - Vacuum manifold SPE columns

RELATED PRODUCTS

Vacuum flow: 18L/min
 Maximum vacuum pressure: 20mbar
 Vacuum control: yes - manual vacuum regulator
 Vacuum manometer: yes
 P/N : VPAA10 (220-240V)
 P/N : VPAA11 (110-120V)



GLASS TEST TUBE BOROSILICATE

Type 1 neutral glass, resistant to thermal shock
 Pharmaceutical grade

| Volume | Dim. | P/N | Qty |
|--------|-------------|--------|--------|
| 4 mL | 10 x 75 mm | AXETM5 | 1000 u |
| 6 mL | 12 x 75 mm | AXETN5 | 1000 u |
| 10 mL | 13 x 100 mm | AXETO5 | 1000 u |
| 15 mL | 16 x 100 mm | AXETP5 | 1000 u |
| 20 mL | 16 x 125 mm | AXETR5 | 1000 u |
| 22 mL | 16 x 150 mm | AXETS5 | 1000 u |
| 30 mL | 18 x 150 mm | ACETT5 | 500 u |

12 positions vacuum manifold

| Description | P/N | Qty |
|--|--------|------|
| Vacuum manifold Set-Complete | 518101 | 1 u |
| Include the following part numbers: Q71531, Q71541, Q71551, Q71561, Q57821, Q71591, Q71601, Q71611, Q71641, Q71661, Q71671, Q71681, Q71701 | | |
| Additional options not included: Q71571, Q71691 | | |
| Spare parts & Accessories | | |
| Glass chamber | Q71531 | 1 u |
| Cover, gasket, & 12 valves | Q71541 | 1 u |
| Gasket | Q71552 | 2 u |
| Glass chamber + vacuum valve | Q71561 | 1 u |
| Polypropylene SPE needles | Q57821 | 12 u |
| Stainless steel SPE needles | Q71571 | 12 u |
| Complete collection rack | Q71581 | 1 u |
| Tray / tubes 13 mm | Q71591 | 1 u |
| Tray / volumetric tube | Q71601 | 1 u |
| Tray / tubes 16 mm | Q71611 | 1 u |
| Tray / autosampler vials | Q71641 | 1 u |
| Tray / tube holder | Q71661 | 1 u |
| Tray / base | Q71671 | 1 u |
| Valves | Q71681 | 12 u |
| Drying cover | Q71691 | 1 u |
| Polypropylene waste container | Q71701 | 2 u |

Accessories

| Description | P/N | Qty |
|-------------------------------|--------|------|
| Female Luer Fittings | Q72361 | 2 u |
| Male Luer Fittings | Q72371 | 2 u |
| Support posts for rack | Q72381 | 3 u |
| Legs for cover - black | Q72391 | 4 u |
| Vacuum gauge & valve assembly | Q72401 | 1 u |
| Valve assembly only | Q72421 | 1 u |
| Vacuum gauge | Q72441 | 1 u |
| Retaining clips | Q72451 | 12 u |
| Retaining clips | Q72452 | 24 u |
| Vacuum manifold plugs | Q72462 | 50 u |

Needles and control valves

| Description | P/N | Qty |
|---------------------------------|--------|-------|
| Control Valve / PTFE SPE needle | Q72470 | 25 u |
| Control Valve / PTFE SPE needle | Q72471 | 50 u |
| PTFE SPE needles | Q72500 | 100 u |
| PTFE SPE needles | Q72501 | 500 u |



Concentrate your elution fractions with the puriVap-6™ or puriFlash® XS-Vap evaporation systems



Vacuum manifold for well plates

An essential tool for the use of multi-well plates, the vacuum extraction device provides simple, fast and effective implementation of sample preparation techniques.

- Filtration
- Filtration of precipitated proteins
- Liq/Liq Extraction
- Solid Phase Extraction



CV6200



113050

| Description | P/N | Qty |
|--|--------|------|
| Acrylic vacuum manifold with control valve | CV6200 | 1 u |
| Universal vacuum Manifold with valve and gauge | 113050 | 1 u |
| Adaptor for medium skirt / drip plates (for use with 113050) | 113100 | 1 u |
| Adaptor for short skirt / long drip plates (for use with 113050) | 113110 | 1 u |
| Spacer Insert to allow use of round well Polypropylene microplates (compatible with CV6200 and 113050) | 113380 | 1 u |
| Spacer Insert to allow use of 350µl Microplates (compatible with CV6200 and 113050) | 113410 | 1 u |
| Replacement gasket, profile (to fit between top plate and vacuum chamber), for CV6200 and 113050. | 113420 | 1 u |
| Replacement gasket, flat (to fit under the filtration plate), for CV6200 and 113050. | 113450 | 1 u |
| Disposable Reservoir Tray | BB2150 | 25 u |

RELATED PRODUCTS

Vacuum flow: 18L/min
 Maximum vacuum pressure: 20mbar
 Vacuum control: yes - manual vacuum regulator
 Vacuum manometer: yes
 P/N : VPAA10 (220-240V)
 P/N : VPAA11 (110-120V)



Evaporation - Evaporator puriFlash® XS-Vap



Next-generation multifunction evaporator designed for sample concentration

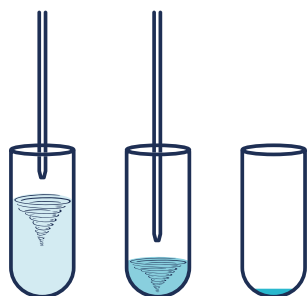
With the puriFlash® XS-Vap, the concentration of your samples will no longer be a constraint! Integrating innovative technologies, both evaporation time and gas consumption are reduced. Our evaporator is controlled by software to guarantee you working comfort and daily time savings.

Its operation is so simple: place your sample tubes to be concentrated in the device. Start the evaporation process and rely on our nozzle height adjustment technology. In a few minutes, your solvent is evaporated and your compounds are ready for analysis

The puriFlash® XS-Vap evaporator is at your side, from A to Z, during your concentration/evaporation

Whatever your field of activity (Research, Development, Quality Control, Process), the puriFlash® XS-Vap will become an essential instrument in your laboratory.

The puriFlash® XS-Vap has been designed to be much more than a simple solvent evaporator! Thanks to the height adjustment of the nozzles, the gas consumption is drastically reduced and the evaporation speed is increased without losing your molecules.



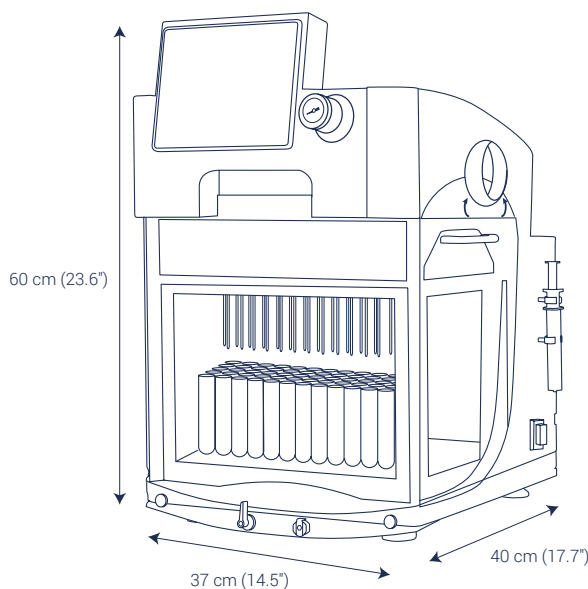
PLUG & PLAY: Plug in, use

Take advantage of the many features of your evaporator.

The puriFlash® XS-Vap can be up and running in a matter of moments to make your work easier and save you time every day.

How to check the evaporation process?

The transparent design provides visibility to control the samples during the evaporation and to adjust the position of the nozzle according to the solvent level in the tube.



Certified to standards CE & UL

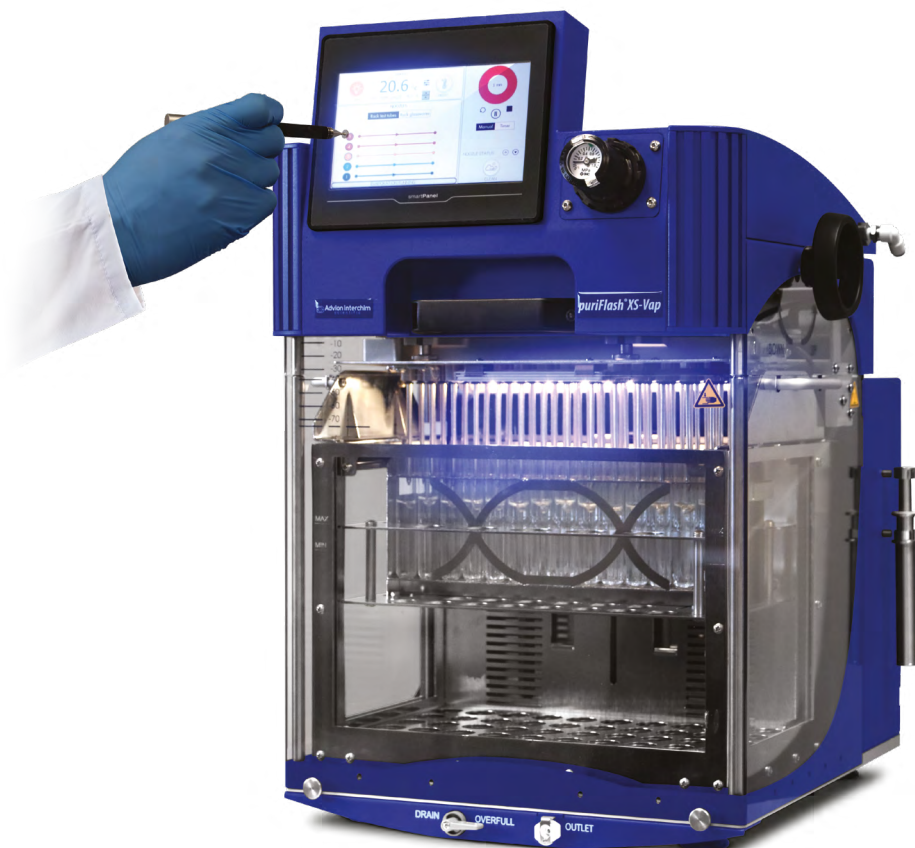
Specifications

- Evaporation capacity: up to 90 samples in parallel
- Sample volume: from a few milliliters to 250 mL per position
- Gas consumption: use of nitrogen or compressed air to supply the device at a pressure of 1-3 bar. The consumption is less than 1L/min per position
- Heating temperature: ambient to 90°C
- Adjustment of the nozzles: the level of the nozzles is adjustable depending on the volume and the evaporation rate of the solvent.
- Lights: different lights visually indicate the stage of operation
- Control software: intuitive control software integrated in a touch screen
- Compatibility: puriFlash® XS-Vap is compatible with all types of solvents. Compatible with the racks of our puriFlash®
- Tube sizes: 13 x 100 mm, 16 x 100 mm, 16 x 150 mm, 18 x 150 mm & flacons 250 mL, vials 2 mL, 4 mL, 7 mL
- Footprint & weight: width 37 cm x Depth 40 cm x Height 60 cm. Weight: 35 kg



Integrated software

- Control of the heating temperature
- Two modes: Manual and Timer (programming of an evaporation time)
- Working status by colored light in the device
- Messages indicate the steps status
- Select the nozzle rows and rack dimensions



Evaporation rate table

| Solvent | Boiling point | Gas consumption per position | Heating temperature | | | | |
|----------------------|---------------|------------------------------|---------------------|------|------|------|------|
| | | | 30°C | 35°C | 40°C | 50°C | 60°C |
| Evaporation time | | | | | | | |
| Acetonitrile | 82°C | < 1L/min | --- | 40 | 30 | 24 | 15 |
| Cyclohexane | 80.75°C | < 1L/min | --- | --- | 14 | 11 | 9 |
| Chloroform | 61.2°C | < 1L/min | --- | --- | 12 | 10 | --- |
| Dichloromethane | 39.6°C | < 1L/min | 12 | --- | --- | --- | --- |
| Ethyle acetate | 77.1°C | < 1L/min | --- | 19 | 17 | 11 | 9 |
| Diethylether | 34.6°C | < 1L/min | 6 | --- | --- | --- | --- |
| Ethanol | 78°C | < 1L/min | --- | --- | 40 | 33 | 23 |
| Isopropyl alcohol | 82.5°C | < 1L/min | --- | --- | 40 | 32 | --- |
| Hexane | 69°C | < 1L/min | --- | 12 | 9 | 6 | 4 |
| Methanol | 64.7°C | < 1L/min | --- | 29 | 28 | 19 | --- |
| Methylterbutyl ether | 55.2°C | < 1L/min | --- | --- | 8 | --- | --- |
| THF | 66°C | < 1L/min | --- | --- | 13 | 11 | --- |
| Toluene | 110.6°C | < 1L/min | --- | --- | 38 | 29 | --- |
| Water | 100°C | < 1L/min | --- | --- | --- | 110 | 104 |

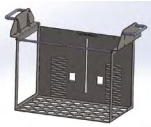
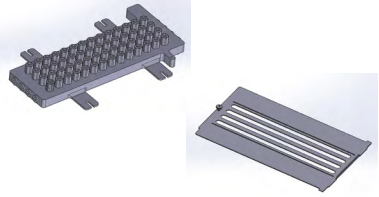


- Sample volume: 10 mL
- Test tube sizes: 16 x 100mm
- Gas: 1 bar - Nitrogen

| Solvent | Boiling point | Gas consumption per position | Heating temperature | |
|-------------------|---------------|------------------------------|---------------------|------|
| | | | 40°C | 50°C |
| Evaporation time | | | | |
| Ethyle acetate | 77.1°C | 1.2L/min | --- | 17 |
| Ethanol | 78°C | 1.2L/min | --- | 36 |
| Isopropyl alcohol | 82.5°C | 1.2L/min | --- | 32 |
| Hexane | 69°C | 1.2L/min | 11 | 8 |
| Methanol | 64.7°C | 1.2L/min | --- | 23 |
| Toluene | 110.6°C | 1.2L/min | --- | 36 |

- Sample volume: 50 mL
- Test tube sizes: 250 mL
- Gas: 1 bar - Air compressed

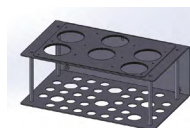


Evaporation - Evaporator puriFlash® XS-Vap

| P/N | Description | Additional description | Qty |
|--|---|--|--|
| Evaporator puriFlash XS-Vap | | | |
| EVAA00 | puriFlash® XS-Vap Evaporator 220-240V | Delivered without accessories (adapter; manifold, nozzles, rack) Tension : 220-240 VAC included : - drain tube (2 meters) - gas tube 1/4" (3 meters) - basket delivered without accessories & power cord Certified CE & UL Warranty 1 year | 1 u  |
| Adapter for rack test tubes | | | |
| EVAA10 | Adapter for puriFlash® rack XS-G4-G5 for puriFlash® XS-Vap | Adapter for 12,13,16 & 18 mm test tube racks (external diameter) the adapter is placed in the basket delivered with the puriFlash® XS-Vap | 1 u  |
| Manifold 6, 56 & 90 positions | | | |
| EVAA20 | Manifold 56 positions for test tubes 13, 16, 18 mm OD with grid for puriFlash® XS-Vap | Delivered without nozzles Delivered with the grid Number of lines: 4 Number of positions per line: 14 P/N nozzles: EVAA50 Manifold compatible with the following racks: EVAB30, EVAB40, 1R8610, PF4391, AYHE50, PF4381, AYHE40 Not compatible with the rack puriFlash® XS - rack 16 x 100 & 16 x 150 mm test tubes Compatible with the following racks of flash chromatography system: - PF-XS520, PF-XS535 (tubes 18 mm OD) - Gen 4 : PF215, PF430, PF450, PF4125, PF4250 (tubes 16 mm & 18 mm OD) - Gen 5 : PF5020, PF5050, PF5125, PF5250, PF5250P (tubes 16mm & 18mm OD) - EVAB30 (16mm OD), EVAB40 (13mm OD) | 1 u  |
| EVAA30 | Manifold 90 positions for test tubes 13 mm OD with grid for puriFlash® XS-Vap | Delivered without nozzles Delivered with the grid Number of lines: 5 Number of positions per line: 14 P/N nozzles: EVAA50 Manifold compatible with the following racks: 1R8580, 1R8590 Compatible with the following racks of flash chromatography system: - PF-XS520, PF-XS535 (tube 13 x 100 mm) | 1 u |
| EVAA40 | Manifold 6 positions for 250 mL glasswares for puriFlash® XS-Vap | Delivered with 6 nozzles (P/N: 390191) Delivered with the grid Rack suitable with this manifold: EVAB90 P/N glassware 250 mL - dry end point: B684D0 P/N glassware 250 mL - 1 mL end point: BVLGH0 | 1 u |
| Nozzles for manifold | | | |
| EVAA50 | Nozzle for manifold 56 & 90 positions for puriFlash® XS-Vap | For manifold EVAA30 & EVAA20 | 1 x 14 u |
| Tool to remove the nozzles from the manifold (optional) | | | |
| EVAA60 | Tool to connect & disconnect nozzles from manifold for puriFlash® XS-Vap | Allows to disconnect/disconnect the nozzles Nozzles can be disconnected manually | 1 u  |
| Exhaust tube | | | |
| EVAA70 | Fume enclosure with venting hose 4 meters for puriFlash® XS-Vap | Allow to work outside of a fume hood | 1 u  |
| Plate for use with 150 mm high tubes and heating temperature above 60°C | | | |
| EVAA80 | Plate for water bath vapor for puriFlash® XS-Vap | Suitable for the following racks: 1R8580, 1R8590, 1R8610, PF4391, AYHE50, PF4381, AYHE40, AYHE30 Use only for tubes with a height of 150 mm and a heating temperature above 60°C | 1 u |
| Test tubes and glasswares 250 mL | | | |
| BVLGH0 | 250 mL glasswares with 1 mL end point for puriFlash® XS-Vap 250 mL glasswares dry end point | Glassware for rack EVAB90 | 1 u |
| B684D0 | 250 mL glasswares dry end point | Glassware for rack EVAB90 | 1 x 10 u |
| 1A0132 | Empty centrifuge tubes 15 mL conical graduated with blue caps non sterile | PP centrifuge tube for rack 1R8610 | 1 x 1 000 u |



| P/N | Description | Additional description | Qty |
|-----------------------------------|--|---|-----|
| Rack for test tubes* | | | |
| EVAB30 | Rack 56 positions 15 mL 16 x 100 mm test tubes puriFlash® XS-Vap | Not compatible with our Flash chromatography systems Advion Interchim Scientific Compatible with the following accessories: - adapter (P/N : EVAA10) - 56 positions manifold (P/N: EVAA20) | 1 u |
| EVAB40 | Rack 56 positions 10 mL 13 x 100 mm test tubes puriFlash® XS-Vap | Not compatible with our Advion Interchim Scientific Flash chromatography systems compatible with the following accessories: - adapter (P/N : EVAA10) - 56 positions manifold (P/N: EVAA20) | 1 u |
| EVAB50 | Rack 56 positions 2 mL 12 x 32 mm vials for puriFlash® XS-Vap | Not compatible with our Flash chromatography systems Advion Interchim Scientific Compatible with the following accessories: - adapter (P/N : EVAA10) - 56 positions manifold (P/N: EVAA20) | 1 u |
| EVAB60 | Rack 56 positions 2 mL centrifuge tubes for puriFlash® XS-Vap | Not compatible with our Flash chromatography systems Advion Interchim Scientific Compatible with the following accessories: - adapter (P/N : EVAA10) - 56 positions manifold (P/N: EVAA20) | 1 u |
| EVAB70 | Rack 56 positions 4 mL 15 x 45 mm vials for puriFlash® XS-Vap | Not compatible with our Flash chromatography systems Advion Interchim Scientific Compatible with the following accessories: - adapter (P/N : EVAA10) - 56 positions manifold (P/N: EVAA20) | 1 u |
| EVAB80 | Rack 56 positions 8 mL 17 x 60 mm vials for puriFlash® XS-Vap | Not compatible with our Flash chromatography systems Advion Interchim Scientific Compatible with the following accessories: - adapter (P/N : EVAA10) - 56 positions manifold (P/N: EVAA20) | 1 u |
| 1R8580 | 13 x 73 mm rack (for PF-XS520PLUS) | puriFlash® XS rack - 90 positions puriFlash® model: PF-XS520, PF-XS535 compatible with the following accessories: - adapter P/N: EVAA10) - manifold 56 positions (P/N: EVAA30) | 1 u |
| 1R8590 | 13 x 100 mm rack | puriFlash® XS rack - 90 positions puriFlash® model : PF-XS520, PF-XS535 compatible with the following accessories: - adapter (P/N : EVAA10) - manifold 56 positions (P/N: EVAA30) | 1 u |
| 1R8610 | 18 x 150 mm rack | puriFlash® XS rack - 56 positions puriFlash® model: PF-XS520, PF-XS535 compatible with the following accessories: - adapter (P/N: EVAA10) - manifold 56 positions (P/N: EVAA20) | 1 u |
| PF4391 | 18 x 150 mm rack | puriFlash® Gen4 rack - 44 positions puriFlash® model : PF215 , PF430, PF450 , PF4125, PF4250 compatible with the following accessories: - adapter (P/N: EVAA10) - manifold 56 positions (P/N: EVAA20) | 1 u |
| AYHE50 | 18 x 150 mm rack (for PF GEN5) | puriFlash® Gen5 rack - 44 positions puriFlash® model : PF5020, PF5050, PF5125, PF5250, PF5250P compatible with the following accessories: - adapter (P/N: EVAA10) - manifold 56 positions (P/N: EVAA20) | 1 u |
| PF4381 | 16 x 150 mm rack | puriFlash® Gen4 rack - 44 positions puriFlash® model: PF215 , PF430, PF450 , PF4125, PF425 compatible with the following accessories: - adapter (P/N: EVAA10) - manifold 56 positions (P/N: EVAA20) | 1 u |
| Rack for glasswares 250 mL | | | |
| EVAB90 | Rack 6 positions for 250 mL glasswares for puriFlash® XS-Vap | Compatible glassware P/N glassware 250 mL - dry end point: B684D0 P/N glassware 250 mL - 1 mL end-point: BVLGH0 Manifold compatible : - manifold 6 positions (P/N: EVAA40) | 1 u |



*Rack for test tubes: non exhaustive list



Evaporation - Evaporator puriVap-6™



Advion Interchim Scientific puriVap-6™

Simple & Smart - 6 position Evaporator

- 6 channels to run up to 6 samples (independent or simultaneous)
- Sample volumes from 2mL up to 60mL
- PID temperature control with digital display up to 100°C
- Temperature increases quickly in the first minutes (up to 4°C/min)
- Dedicated nitrogen flow regulator control for each sample
- Nitrogen blow in combination of heating concentration mode
- Possibility to choose the best position of nitrogen needle to ensure the most efficient evaporation
- Anti-corrosive material (PTFE)
- "Open view" to control sample volume level during the evaporation process
- Dry aluminium block heating mode to avoid potential water vapor interference
- Small temperature difference between channels (RSD: 0;11%)
- Low gas consumption (nitrogen gas supply: 1-2 bar max | flow rate: 7-8L/min)

Compatible vial sizes

| Vial size | Volume |
|------------------------|--------|
| 28 x 140 mm | 60 mL |
| 28 x 95 mm | 40 mL |
| 40 mL - 1 mL tail tube | 40 mL |
| 18 x 150 mm | 25 mL |
| 16 x 150 mm | 22 mL |
| 16 x 100 mm | 12 mL |
| 13 x 100 mm | 10 mL |
| 12 x 32 mm | 2 mL |

Solvent evaporation time

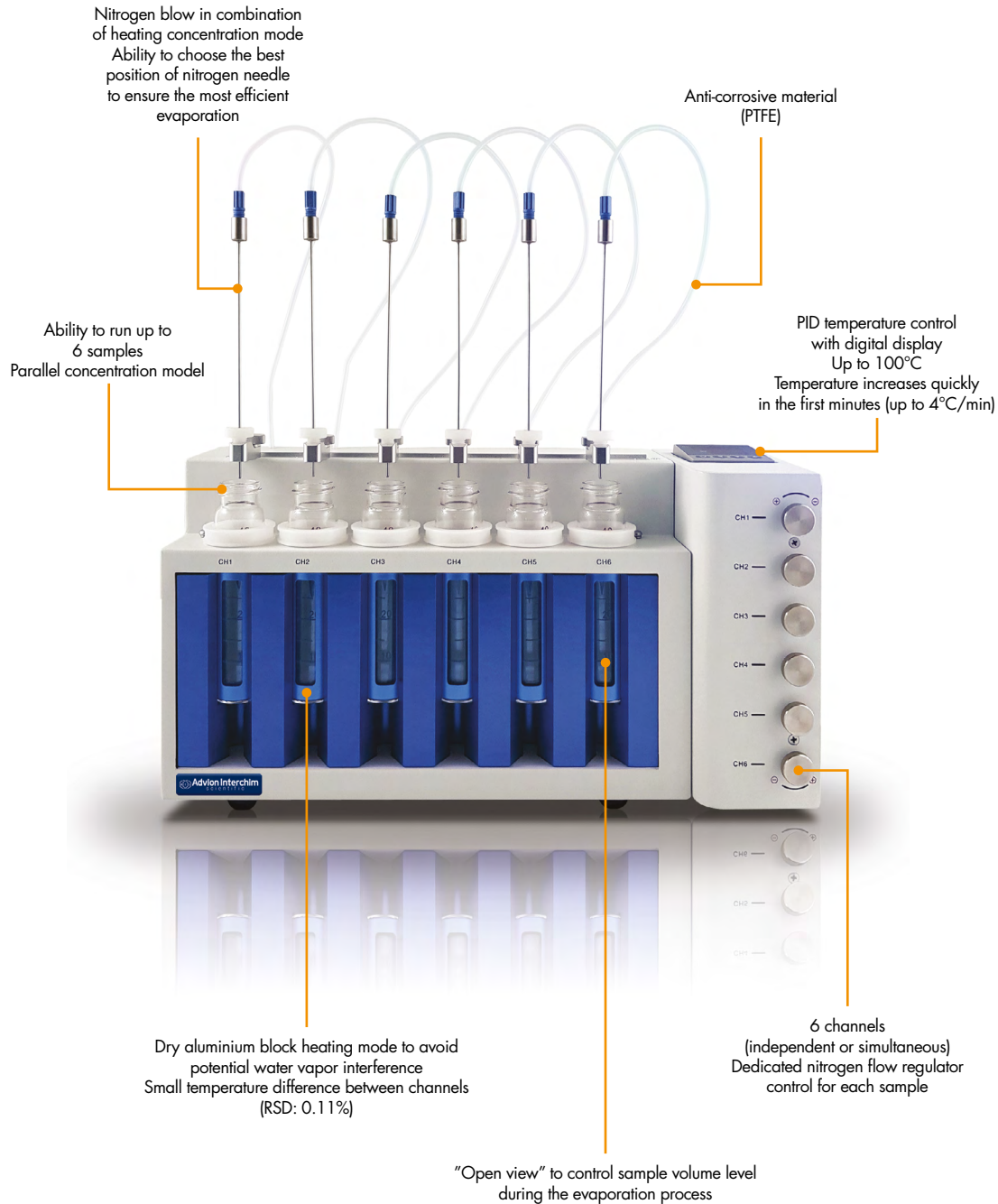
Sample volume: 5 mL - N₂ : 1 bar

| Solvent | Boiling point (°C) | Setting temp. (°C) | Evaporation time (min) |
|--------------------|--------------------|--------------------|------------------------|
| Methanol | 64.7 | 40 | 21 |
| Acetonitrile | 82 | 50 | 19 |
| Ethyl acetate | 77.1 | 50 | 14 |
| Hexane | 68 | 55 | 8 |
| Methylene chloride | 39.6 | 40 | 7 |
| Water | 100 | 90 | 50 |

| P/N | Description | Qty |
|----------------------|---|---------|
| puriVap-6™ AWZ5R0 | puriVap6™ Including: 1x gas tubing 6 x 40 mL vials 6 x nozzles (AWZ7K0) | 1 x 1 u |
| Accessoires | | |
| AWZ7K0 | Nozzles | 1 x 1 u |
| AWZ7L0 | Spacer M/F M4 L40 | 1 x 1 u |
| AWZ7M0 | Aluminium block OD 18 mm | 1 x 1 u |
| AWZ7P0 | Aluminium block 16 mm - Vials 2 mL | 1 x 1 u |
| AWZ7Q0 | Aluminium block 13 mm - Vials 2 mL | 1 x 1 u |



puriVap-6™



Others - Sampling bags

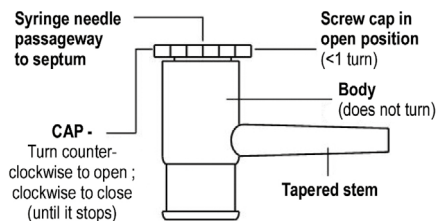


Sampling bags

Our reliable and economical sampling bags are available in 4 different materials: Tedlar, ALTEF, Aluminum, FEP for optimal compatibility with your samples. We offer different types of valves or systems to trap the gas to meet your sampling needs.

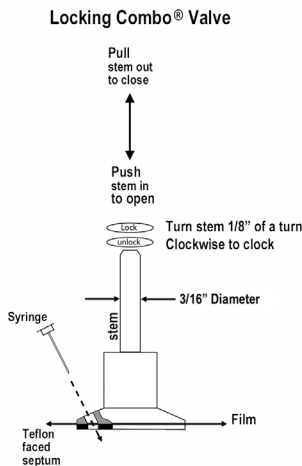
- Tedlar®: Tedlar® film allows a very low gas permeability. Range of use: -72°C up to 107°C.
- ALTEF: Fluoropolymer film specifically developed for gas sampling application. This is the first choice for Tedlar® alternative.
- Multi-Layer with Aluminum: 4 layers: Nylon / Aluminum / Polyethylene / Aluminum. Ideal for collecting low molecular weight compounds such as hydrogen. Opacity protects samples from UV light.
- FEP: One of the most chemically inert materials available for making gas sampling bags. High stability from -240°C up to 204°C.

| Valve type | Volume | Size | MULTILAYER BAG | FEP BAG | ALTEF BAG | TEDLAR BAG |
|---|----------|----------|----------------|---------|-----------|------------|
| Gas sampling bags with screw cap combo valve + septum | 0.6 L | 6 x 6" | B30BE2 | BUC812 | BUE312 | B30XG2 |
| | 1.0 L | 7 x 7" | FR5532 | BUC872 | BUE332 | B30XH2 |
| | 1.2 L | 6 x 10" | B30BF2 | BUC832 | B308R2 | KYR992 |
| | 2.0 L | 9 x 9" | FR5542 | BUC892 | BUE352 | B30XI2 |
| | 3.0 L | 10 x 10" | FR5552 | BUC912 | BUE392 | B30XJ2 |
| | 5.0 L | 12 x 12" | FR5562 | BUC932 | BUE412 | B30XK2 |
| | 7.0 L | 12 x 15" | B30BG2 | B30G72 | B308S2 | B304V2 |
| | 8.0 L | 12 x 17" | B30BH2 | B30G82 | BUE432 | B30XM2 |
| | 9.5 L | 12 x 18" | B4Z6A0 | BUC952 | BUE452 | KYS032 |
| | 10.0 L | 12 x 19" | FR5572 | BUC972 | BUE472 | CD0882 |
| | 12.0 L | 12 x 21" | B302T2 | B30G92 | B300F2 | B303B2 |
| | 16.0 L | 18 x 18" | B30BJ2 | B302M2 | B300G2 | B30XN2 |
| | 25.0 L | 18 x 24" | BUC762 | B302N2 | BUE532 | B30XO2 |
| | 40.0 L | 24 x 24" | BUC782 | B302P2 | BUE552 | B4Z6B0 |
| | 56.0 L | 24 x 30" | B30BK2 | B302Q2 | B300H2 | B4Z6C0 |
| | 73.0 L | 24 x 36" | B30BL2 | B302R2 | B300I2 | B303D2 |
| 80.0 L | 30 x 30" | B30BM2 | B302S2 | BUE612 | B30XQ2 | |
| 100.0 L | 30 x 36" | B30BN2 | B30GA2 | B300J2 | B303E2 | |

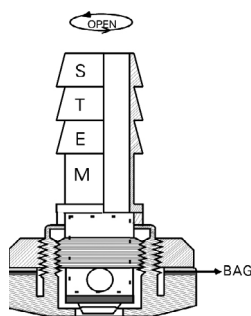




| Valve type | Volume | Size | MULTILAYER BAG | FEP BAG | ALTEF BAG | TEDLAR BAG |
|---|----------|----------|----------------|---------|-----------|------------|
| Gas sampling bags with locking combo valve + septum | 0.6 L | 6 x 6" | B30BO0 | BG9422 | BUE300 | B30XR0 |
| | 1.0 L | 7 x 7" | FR5590 | BUC860 | BUE320 | B30XS0 |
| | 1.2 L | 6 x 10" | B30BP0 | BUC820 | B30BT0 | B304W0 |
| | 2.0 L | 9 x 9" | FR5600 | BUC880 | BUE340 | B30XU0 |
| | 3.0 L | 10 x 10" | FR5610 | BUC900 | BUE380 | B30XV0 |
| | 5.0 L | 12 x 12" | FR5620 | BUC920 | BUE400 | B30XW0 |
| | 7.0 L | 12 x 15" | B30BQ0 | B30GB0 | B30BU0 | B304X0 |
| | 8.0 L | 12 x 17" | B30BR0 | B30GC0 | BUE420 | B30XY0 |
| | 9.5 L | 12 x 18" | B30BS0 | BUC940 | BUE440 | KYS020 |
| | 10.0 L | 12 x 19" | FR5630 | BUC960 | BUE460 | - |
| | 12.0 L | 12 x 21" | B302U0 | B30GD0 | B2ZZL0 | B30XZ0 |
| | 16.0 L | 18 x 18" | B30BT0 | B302A0 | BUE501 | B303FO |
| | 25.0 L | 18 x 24" | B302V0 | B302B0 | BUE521 | B30Y00 |
| | 40.0 L | 24 x 24" | B302W0 | B302C0 | BUE541 | B30Y10 |
| | 56.0 L | 24 x 30" | B30BU0 | B302D0 | B2ZZM0 | B30Y20 |
| | 73.0 L | 24 x 36" | B30BV0 | B302E0 | B2ZZN0 | B30Y30 |
| | 80.0 L | 30 x 30" | B30BW0 | B302F0 | BUE601 | B303G0 |
| 100.0 L | 30 x 36" | B30BX0 | B30GE0 | B2ZZO0 | B30Y40 | |



Sampling bags with ON/OFF valve + 1/4" barbed



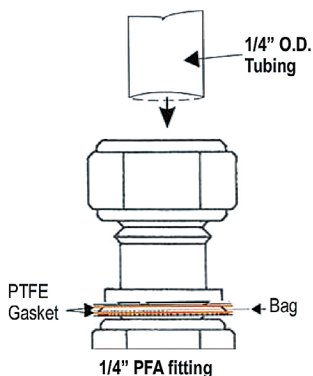
| | | | | | |
|---------|----------|--------|--------|--------|--------|
| 0.6 L | 6 x 6" | B30BY0 | BUD230 | BUE130 | B303H0 |
| 1.0 L | 7 x 7" | FR5710 | BUD250 | BUE140 | KYR730 |
| 1.2 L | 6 x 10" | B30BZ0 | BQ8880 | B30BV0 | B303I0 |
| 2.0 L | 9 x 9" | FR5720 | BUD260 | BUE150 | 54846D |
| 3.0 L | 10 x 10" | FR5730 | BUD270 | BUE170 | KYR750 |
| 5.0 L | 12 x 12" | FR5750 | BUD280 | BUE180 | B303J0 |
| 7.0 L | 12 x 15" | B30C00 | B30GF0 | B308W0 | B304Y0 |
| 8.0 L | 12 x 17" | B30C10 | B30GG0 | BUE190 | B303K0 |
| 9.5 L | 12 x 18" | B30C20 | BUD290 | BUE200 | B303L0 |
| 10.0 L | 12x19" | FR5760 | BUD300 | BUE210 | B303M0 |
| 12.0 L | 12 x 21" | B302X0 | B30GH0 | B2ZZP0 | KYR760 |
| 16.0 L | 18 x 18" | B30C30 | B302G0 | B2ZZQ0 | B303N0 |
| 25.0 L | 18 x 24" | B302Y0 | B302H0 | B2ZZR0 | B303P0 |
| 40.0 L | 24 x 24" | B302Z0 | B302I0 | B2ZZS0 | B303Q0 |
| 56.0 L | 24 x 30" | B30C40 | B302J0 | B2ZZT0 | B30Y60 |
| 73.0 L | 24 x 36" | B30C50 | B302K0 | B2ZZU0 | B303R0 |
| 80.0 L | 30 x 30" | B30C60 | B302L0 | B2ZZV0 | B303S0 |
| 100.0 L | 30 x 36" | B30C70 | B30GI0 | B2ZZW0 | B303T0 |



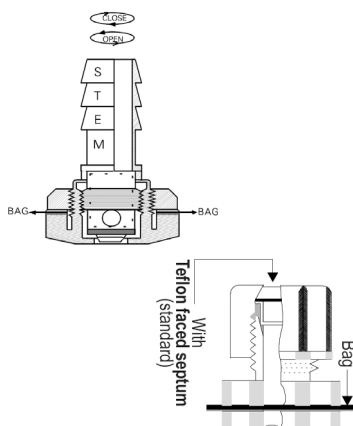
Others - Sampling bags



| Valve type | Volume | Size | MULTI-LAYER BAG | FEP BAG | ALTEF BAG | TEDLAR BAG |
|--|----------|----------|-----------------|---------|-----------|------------|
| Sampling bags with plastic jaco fitting + septum | 0.6 L | 6 x 6" | B30C80 | BUD080 | BUD960 | B30Y70 |
| | 1.0 L | 7 x 7" | B30C90 | BUD110 | BUD970 | KYR680 |
| | 1.2 L | 6 x 10" | B30CA0 | BUD090 | B308X0 | B30Y80 |
| | 2.0 L | 9 x 9" | B30CB0 | BUD120 | BUD980 | B303U0 |
| | 3.0 L | 10 x 10" | B30CC0 | BUD130 | BUE000 | KYR700 |
| | 5.0 L | 12 x 12" | B30CD0 | BUD140 | BUE010 | 54845E |
| | 7.0 L | 12 x 15" | B30CE0 | B30GJ0 | B308Y0 | B304Z0 |
| | 8.0 L | 12 x 17" | B30CF0 | B30GK0 | BUE020 | B303V0 |
| | 9.5 L | 12 x 18" | B30CG0 | BUD150 | BUE030 | B303W0 |
| | 10.0 L | 12 x 19" | B30CH0 | BUD160 | BUE040 | B303X0 |
| | 12.0 L | 12 x 21" | B30CI0 | B30GL0 | B2ZZD0 | KYR710 |
| | 16.0 L | 18 x 18" | B30CJ0 | B301U0 | B2ZZE0 | B303Y0 |
| | 25.0 L | 18 x 24" | B30CK0 | B301V0 | B2ZZF0 | B303Z0 |
| | 40.0 L | 24 x 24" | B30CL0 | B301W0 | B2ZZG0 | B304A0 |
| | 56.0 L | 24 x 30" | B30CM0 | B301X0 | B2ZZH0 | B304B0 |
| | 73.0 L | 24 x 36" | B30CN0 | B301Y0 | B2ZZI0 | B304C0 |
| | 80.0 L | 30 x 30" | B30CO0 | B301Z0 | B2ZZJ0 | B30YA0 |
| 100.0 L | 30 x 36" | B30CP0 | B30GM0 | B2ZZK0 | KYR720 | |



Sampling bags with ON/OFF valve & jaco



| | | | | | |
|---------|----------|--------|--------|--------|--------|
| 0.6 L | 6 x 6" | B30CQ0 | BUD370 | GV1810 | B304D0 |
| 1.0 L | 7 x 7" | B30CR0 | BUD400 | GV1820 | B304E0 |
| 1.2 L | 6 x 10" | B30CS0 | BUD380 | B308Z0 | B30YB0 |
| 2.0 L | 9 x 9" | B30CT0 | BUD410 | GV1830 | B304F0 |
| 3.0 L | 10 x 10" | B30CU0 | BUD420 | GV1840 | KYR780 |
| 5.0 L | 12 x 12" | B30CV0 | BUD430 | GV1860 | B304G0 |
| 7.0 L | 12 x 15" | B30CW0 | B30GN0 | B309A0 | B305A0 |
| 8.0 L | 12 x 17" | B30CX0 | B30GO0 | GV1870 | B30YD0 |
| 9.5 L | 12 x 18" | B30CY0 | BUD440 | GV1880 | B304H0 |
| 10.0 L | 12 x 19" | B30CZ0 | BUD450 | GV1890 | B304I0 |
| 12.0 L | 12 x 21" | B30D00 | B30GP0 | B2ZZX0 | KYR790 |
| 16.0 L | 18 x 18" | B30D10 | B300T0 | B2ZZY0 | B304J0 |
| 25.0 L | 18 x 24" | B30D20 | B300U0 | B2ZZZ0 | B30YE0 |
| 40.0 L | 24 x 24" | B30D30 | B300V0 | B300A0 | B30YF0 |
| 56.0 L | 24 x 30" | B30D40 | B300W0 | B300B0 | B304K0 |
| 73.0 L | 24 x 36" | B30D50 | B300X0 | B300C0 | B304L0 |
| 80.0 L | 30 x 30" | B30D60 | B300Y0 | B300D0 | B304M0 |
| 100.0 L | 30 x 36" | B30D70 | B30GQ0 | B300E0 | B304N0 |

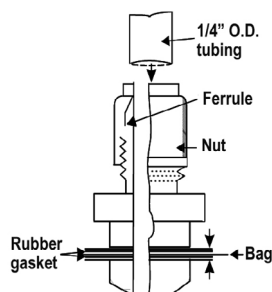




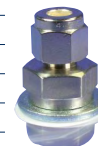
| Valve type | Volume | Size | MULTILAYER BAG | FEP BAG | ALTEF BAG | TEDLAR BAG |
|---|---------|----------|----------------|---------|-----------|------------|
| Sampling bag with HR connection and Jacon with septum | 0.6 L | 6 x 6" | B30CQ0 | BUD370 | GV1810 | B304D0 |
| | 1.0 L | 7 x 7" | B30CR0 | BUD400 | GV1820 | B304E0 |
| | 1.2 L | 6 x 10" | B30CS0 | BUD380 | B308Z0 | B30YB0 |
| | 2.0 L | 9 x 9" | B30CT0 | BUD410 | GV1830 | B304F0 |
| | 3.0 L | 10 x 10" | B30CU0 | BUD420 | GV1840 | KYR780 |
| | 5.0 L | 12 x 12" | B30CV0 | BUD430 | GV1860 | B304G0 |
| | 7.0 L | 12 x 15" | B30CW0 | B30GNO | B309A0 | B305A0 |
| | 8.0 L | 12 x 17" | B30CX0 | B30GO0 | GV1870 | B30YD0 |
| | 9.5 L | 12 x 18" | B30CY0 | BUD440 | GV1880 | B304H0 |
| | 10.0 L | 12 x 19" | B30CZ0 | BUD450 | GV1890 | B304I0 |
| | 12.0 L | 12 x 21" | B30D00 | B30GP0 | B2ZZX0 | KYR790 |
| | 16.0 L | 18 x 18" | B30D10 | B300T0 | B2ZZY0 | B304J0 |
| | 25.0 L | 18 x 24" | B30D20 | B300U0 | B2ZZZ0 | B30YE0 |
| | 40.0 L | 24 x 24" | B30D30 | B300V0 | B300A0 | B30YF0 |
| | 56.0 L | 24 x 30" | B30D40 | B300W0 | B300B0 | B304K0 |
| | 73.0 L | 24 x 36" | B30D50 | B300X0 | B300C0 | B304L0 |
| | 80.0 L | 30 x 30" | B30D60 | B300Y0 | B300D0 | B304M0 |
| | 100.0 L | 30 x 36" | B30D70 | B30GQ0 | B300E0 | B304N0 |



Sampling bag with connection type swagelok 1/4" type



| | | | | | |
|---------|----------|--------|--------|--------|--------|
| 0.6 L | 6 x 6" | B30D80 | B301F0 | B2ZZ20 | B304P0 |
| 1.0 L | 7 x 7" | AXGZJ0 | B301G0 | B2ZZ30 | B30YG0 |
| 1.2 L | 6 x 10" | B30D90 | B301H0 | B309B0 | B30YH0 |
| 2.0 L | 9 x 9" | B30DA0 | B301I0 | B2ZZ40 | B30YI0 |
| 3.0 L | 10 x 10" | B30DB0 | B301J0 | B2ZZ50 | KYS050 |
| 5.0 L | 12 x 12" | B30DC0 | B301K0 | B2ZZ60 | B304Q0 |
| 7.0 L | 12 x 15" | B30DD0 | B30GR0 | B309C0 | B305B0 |
| 8.0 L | 12 x 17" | B30DE0 | B30GS0 | B2ZZ70 | KYS060 |
| 9.5 L | 12 x 18" | B30DF0 | B301L0 | KYR580 | KYS070 |
| 10.0 L | 12 x 19" | B30DG0 | B301M0 | KYR590 | B30YK0 |
| 12.0 L | 12 x 21" | B30DH0 | B30GT0 | KYR600 | KYS080 |
| 16.0 L | 18 x 18" | B30DI0 | B301N0 | KYR610 | KYS090 |
| 25.0 L | 18 x 24" | B30DJ0 | B301P0 | KYR621 | KYS100 |
| 40.0 L | 24 x 24" | B30DK0 | B301Q0 | B2ZZ80 | B30YL0 |
| 56.0 L | 24 x 30" | B30DL0 | B301R0 | B2ZZ90 | B304R0 |
| 73.0 L | 24 x 36" | B30DM0 | B301S0 | B2ZZA0 | B304S0 |
| 80.0 L | 30 x 30" | B30DN0 | B301T0 | B2ZZB0 | B304T0 |
| 100.0 L | 30 x 36" | B30DO0 | B30GU0 | B2ZZC0 | B304U0 |



Others - Sampling bags



| Valve type | Volume | Size | MULTILAYER BAG | FEP BAG | ALTEF BAG | TEDLAR BAG |
|--|---------|----------|----------------|---------|-----------|------------|
| Sampling bag with stainless steel fitting TCLP with replaceable septum | 0.6 L | 6 x 6" | B30DP0 | B30GV0 | BUE810 | B305C0 |
| | 1.0 L | 7 x 7" | B30DQ0 | B30GW0 | BUE820 | B305D0 |
| | 1.2 L | 6 x 10" | B30DR0 | B30GX0 | B309D0 | B305E0 |
| | 2.0 L | 9 x 9" | B30DS0 | B30GY0 | BUE830 | B305F0 |
| | 3.0 L | 10 x 10" | B30DT0 | B30GZ0 | BUE850 | B305G0 |
| | 5.0 L | 12 x 12" | B30DU0 | B30H00 | BUE860 | B305H0 |
| | 7.0 L | 12 x 15" | B30DV0 | B30H10 | B309E0 | B305I0 |
| | 8.0 L | 12 x 17" | B30DW0 | B30H20 | BUE870 | B305J0 |
| | 9.5 L | 12 x 18" | B30DX0 | B30H30 | BUE880 | B305K0 |
| | 10.0 L | 12 x 19" | B30DY0 | B30H40 | BUE890 | B305L0 |
| | 12.0 L | 12 x 21" | B30DZ0 | B30H50 | B300L0 | B305M0 |
| | 16.0 L | 18 x 18" | B30E00 | B30H60 | B300M0 | B305N0 |
| | 25.0 L | 18 x 24" | B30E10 | B30H70 | B300N0 | B305P0 |
| | 40.0 L | 24 x 24" | B30E20 | B30H80 | B300P0 | B305Q0 |
| | 56.0 L | 24 x 30" | B30E30 | B30H90 | B300Q0 | B305R0 |
| | 73.0 L | 24 x 36" | B30E40 | B30HA0 | B300R0 | B305S0 |
| | 80.0 L | 30 x 30" | B30E50 | B30HB0 | B300S0 | B305T0 |
| | 100.0 L | 30 x 36" | B30E60 | B30HC0 | B300K0 | B305U0 |



Sampling bag with PFA connection for 1/4 tube or septum

| | | | | | |
|---------|----------|--------|--------|--------|--------|
| 0.6 L | 6 x 6" | B30E70 | BUD810 | B309F0 | B305V0 |
| 1.0 L | 7 x 7" | B30E80 | BUD840 | B309G0 | B305W0 |
| 1.2 L | 6 x 10" | B30E90 | BUD820 | B309H0 | B305X0 |
| 2.0 L | 9 x 9" | B30EA0 | BUD850 | B309I0 | B305Y0 |
| 3.0 L | 10 x 10" | B30EB0 | BUD860 | B309J0 | B305Z0 |
| 5.0 L | 12 x 12" | B30EC0 | BUD870 | B309K0 | B306A0 |
| 7.0 L | 12 x 15" | B30ED0 | B30HD0 | B309L0 | B306B0 |
| 8.0 L | 12 x 17" | B30EE0 | B30HE0 | B309M0 | B306C0 |
| 9.5 L | 12 x 18" | B30EF0 | BUD880 | B309N0 | B306D0 |
| 10.0 L | 12 x 19" | B30EG0 | BUD890 | B309P0 | B306E0 |
| 12.0 L | 12 x 21" | B30EH0 | B30HF0 | B309Q0 | B306F0 |
| 16.0 L | 18 x 18" | B30EI0 | B30OZ0 | B309R0 | B306G0 |
| 25.0 L | 18 x 24" | B30EJ0 | B301A0 | B309S0 | B306H0 |
| 40.0 L | 24 x 24" | B30EK0 | B301B0 | B309T0 | B306I0 |
| 56.0 L | 24 x 30" | B30EL0 | B301C0 | B309U0 | B306J0 |
| 73.0 L | 24 x 36" | B30EM0 | B301D0 | B309V0 | B306K0 |
| 80.0 L | 30 x 30" | B30EN0 | B301E0 | B309W0 | B306L0 |
| 100.0 L | 30 x 36" | B30EO0 | B30HG0 | B309X0 | B306M0 |





| Valve type | Volume | Size | MULTILAYER BAG | FEP BAG | ALTEF BAG | TEDLAR BAG |
|--|---------|----------|----------------|---------|-----------|------------|
| Sampling bag with PTFE valve + stopcap | 0.6 L | 6 x 6" | B30EP0 | B30HH0 | B309Y0 | B306N0 |
| | 1.0 L | 7 x 7" | B30EQ0 | B30HI0 | B309Z0 | B306P0 |
| | 1.2 L | 6 x 10" | B30ER0 | B30HJ0 | B30A00 | B306Q0 |
| | 2.0 L | 9 x 9" | B30ES0 | B30HK0 | B30A10 | B306R0 |
| | 3.0 L | 10 x 10" | B30ET0 | B30HL0 | B30A20 | B306S0 |
| | 5.0 L | 12 x 12" | B30EU0 | B30HM0 | B30A30 | B306T0 |
| | 7.0 L | 12 x 15" | B30EV0 | B30HN0 | B30A40 | B306U0 |
| | 8.0 L | 12 x 17" | B30EW0 | B30HO0 | B30A50 | B306V0 |
| | 9.5 L | 12 x 18" | B30EX0 | B30HP0 | B30A60 | B306W0 |
| | 10.0 L | 12 x 19" | B30EY0 | B30HQ0 | B30A70 | B306X0 |
| | 12.0 L | 12 x 21" | B30EZ0 | B30HR0 | B30A80 | B306Y0 |
| | 16.0 L | 18 x 18" | B30F00 | B30HS0 | B30A90 | B306Z0 |
| | 25.0 L | 18 x 24" | B30F10 | B30HT0 | B30AA0 | B307A0 |
| | 40.0 L | 24 x 24" | B30F20 | B30HU0 | B30AB0 | B307B0 |
| | 56.0 L | 24 x 30" | B30F30 | B30HV0 | B30AC0 | B307C0 |
| | 73.0 L | 24 x 36" | B30F40 | B30HW0 | B30AD0 | B307D0 |
| | 80.0 L | 30 x 30" | B30F50 | B30HX0 | B30AE0 | B307E0 |
| | 100.0 L | 30 x 36" | B30F60 | B30HY0 | B30AF0 | B307F0 |



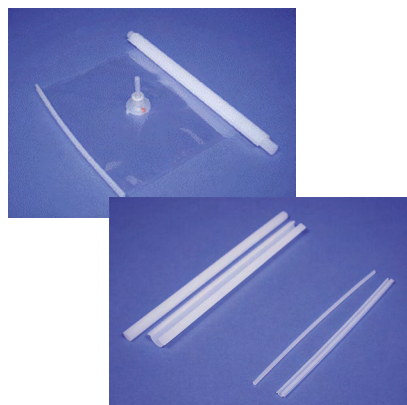
| | | | | | | |
|---|---------|----------|--------|--------|--------|-----|
| Sampling bag with push valve stainless steel + septum | 0.6 L | 6 x 6" | B30F70 | B30HZ0 | B30AG0 | --- |
| | 1.0 L | 7 x 7" | B30F80 | B30I00 | B2ZIG0 | --- |
| | 1.2 L | 6 x 10" | B30F90 | B30I10 | B30AI0 | --- |
| | 2.0 L | 9 x 9" | B30FA0 | B30I20 | B30AJ0 | --- |
| | 3.0 L | 10 x 10" | B30FB0 | B30I30 | B2ZIH0 | --- |
| | 5.0 L | 12 x 12" | B30FC0 | B30I40 | B2ZII0 | --- |
| | 7.0 L | 12 x 15" | B30FD0 | B30I50 | B30AM0 | --- |
| | 8.0 L | 12 x 17" | B30FE0 | B30I60 | B30AN0 | --- |
| | 9.5 L | 12 x 18" | B30FF0 | B30I70 | B30AO0 | --- |
| | 10.0 L | 12 x 19" | B30FG0 | B30I80 | B2ZIJ0 | --- |
| | 12.0 L | 12 x 21" | B30FH0 | B30I90 | B30AQ0 | --- |
| | 16.0 L | 18 x 18" | B30FI0 | B30IA0 | B30AR0 | --- |
| | 25.0 L | 18 x 24" | B30FJ0 | B30IB0 | OB7600 | --- |
| | 40.0 L | 24 x 24" | B30FK0 | B30IC0 | B30AS0 | --- |
| | 56.0 L | 24 x 30" | B30FL0 | B30ID0 | B30AT0 | --- |
| | 73.0 L | 24 x 36" | B30FM0 | B30IE0 | B30AU0 | --- |
| | 80.0 L | 30 x 30" | B30FN0 | B30IF0 | B30AV0 | --- |
| | 100.0 L | 30 x 36" | B30FO0 | B30IG0 | B30AW0 | --- |



Others - Sampling bags



| Valve type | Volume | Size | MULTILAYER BAG | FEP BAG | ALTEF BAG | TEDLAR BAG |
|---|---------|----------|----------------|---------|-----------|------------|
| Sampling bag with push valve stainless steel without septum | 0.6 L | 6 x 6" | B30FP0 | B30IH0 | B30AX0 | B307G0 |
| | 1.0 L | 7 x 7" | B30FQ0 | B30II0 | B30AY0 | B2ZH0 |
| | 1.2 L | 6 x 10" | B30FR0 | B30IJ0 | B30AZ0 | B307I0 |
| | 2.0 L | 9 x 9" | B30FS0 | B30IK0 | B30B00 | B307J0 |
| | 3.0 L | 10 x 10" | B30FT0 | B30IL0 | B30B10 | B2ZH0 |
| | 5.0 L | 12 x 12" | B30FU0 | B30IM0 | B30B20 | B2ZI10 |
| | 7.0 L | 12 x 15" | B30FV0 | B30IN0 | B30B30 | B307M0 |
| | 8.0 L | 12 x 17" | B30FW0 | B30IO0 | B30B40 | B307N0 |
| | 9.5 L | 12 x 18" | B30FX0 | B30IP0 | B30B50 | B307P0 |
| | 10.0 L | 12 x 19" | B30FY0 | B30IQ0 | B30B60 | B2ZI20 |
| | 12.0 L | 12 x 21" | B30FZ0 | B30IR0 | B30B70 | B307R0 |
| | 16.0 L | 18 x 18" | B30G00 | B30IS0 | B30B80 | B307S0 |
| | 25.0 L | 18 x 24" | B30G10 | B30IT0 | OB7610 | OB8520 |
| | 40.0 L | 24 x 24" | B30G20 | B30IU0 | B30B90 | B307T0 |
| | 56.0 L | 24 x 30" | B30G30 | B30IV0 | B30BA0 | B307U0 |
| | 73.0 L | 24 x 36" | B30G40 | B30IW0 | B30BB0 | B307V0 |
| | 80.0 L | 30 x 30" | B30G50 | B30IX0 | B30BC0 | B307W0 |
| | 100.0 L | 30 x 36" | B30G60 | B30IY0 | B30BD0 | B307X0 |



Clamp System

These bars can be cut to any desired length.

| Ø | Length | P/N |
|------|--------------|--------|
| 3/8" | 40" - 1,02 m | FR6160 |
| 1/8" | 48" - 1,22 m | FR6170 |



Scan the QRcode to access the demonstration video made by our product expert and discover all the benefits of our instruments!



puriFlash® R-Vap

Your laboratory rotary evaporator.
Super intuitive.
Ultra-efficient.
Simply indispensable.



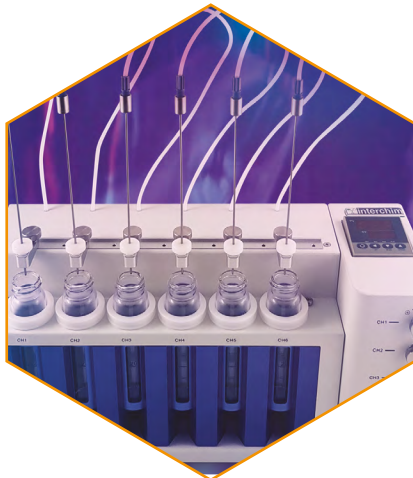
SCAN ME

puriFlash® XS-Vap

Your multi-function laboratory evaporator.
X-tra compact.
X-tra intuitive.
X-tra efficient.



SCAN ME



puriVap™

Simple & Smart.
6 positions Evaporator.



SCAN ME



Summary

| | | | |
|--|--------------------|--|--------------------|
| Magic Box | D.2 | GC accessories | D.41 - D.51 |
| Tubings | D.3 - D.23 | Gas filter | D.41 - D.45 |
| Low pressure | D.3 - D.6 | Purigaz (base plate and filters) | D.41 - D.42 |
| PTFE (PolyTetraFluoroEthylene) | D.3 | Purigaz(High Flow base plate and filters) & accessories | D.43 |
| ETFE (EthylTriFluoroEthylene), | | Click-On | D.44 |
| FEP (Fluorinated Ethylene Propylene) | D.4 | Click-On Big trap | D.45 |
| FEP (Fluorinated Ethylene Propylene), | | Leak detectors | D.46 |
| PFA (PerFluoro Alkoxyalkane) | D.5 | GC Ferrules | D.47 - D.48 |
| Nylon | D.6 | Injection Septa | D.49 - D.50 |
| Metal tubes | D.7 - D.8 | GC tools and Glass wool | D.51 |
| Stainless steel | D.7 | | |
| Pre-cut stainless steel, flexible | D.8 | | |
| PEEK tubes | D.9 - D.11 | Accessories & tools | D.52 - D.55 |
| Striped color coded PEEK tubing | D.9 | Hexagonal and Torx wrenches, flat wrenches | D.52 |
| Solid color coded PEEK tubing | D.10 | Wrenches, pliers, tweezers | D.53 |
| Thermo formed PEEK tubing | D.11 | Screwdrivers, Cutters, Magnets, Drills | D.54 |
| Tubing cutter | D.12-13 | Set of 120 pieces | D.55 |
| Stainless steel | D.12 | | |
| PEEK | D.13 | | |
| Low pressure fittings | D.14 - D.16 | | |
| Flanging-Tool, flanged fittings | D.14 | | |
| Flangeless fittings | D.15 | | |
| PEEK & Barbed adapters | D.16 | | |
| Fittings and valves | D.17 - 19 | | |
| Swagelok Valves | D.17 | | |
| Swagelok Fittings | D.18 - D.19 | | |
| PEEK Fittings | D.20 - D.21 | | |
| Uptisür, PEEK simple, No-Twist | D.20 | | |
| Hexagonal head, identification ring | D.21 | | |
| PEEK 2 pieces, unions | D.22 | | |
| PEEK tees, crosses, mixers, couplers | D.23 | | |
| Safety Caps | D.24 - D.31 | | |
| Safety Caps GL45 | D.24 | | |
| Werner, Air valves, Accessories | D.25 | | |
| Safety Waste Caps | D.26 - D.27 | | |
| Exhaust filters | D.28 | | |
| Arnold Funnels | D.29 - D.30 | | |
| Marco Funnels | D.31 | | |
| HPLC accessories | D.32 - D.40 | | |
| Mobile phase filters | D.32 | | |
| Last drop | D.32 | | |
| Mobile phase filters | D.33 | | |
| Last drop, biocompatible | D.33 | | |
| Mobile phase filters | D.34 | | |
| In line Filters | D.35 | | |
| In line Filters | D.36 | | |
| Very high pressure, preparative | D.36 | | |
| Liquid flowmeter | D.37 | | |
| Empty HPLC columns | D.38 | | |
| HPH, preparative | D.38 | | |
| Stainless steel frits and Sainless frits with PEEK ring | D.39 | | |
| Biocompatible empty HPLC columns | D.40 | | |





BZ3050



BZ3300



BZ3310



BZ1580



BZ1870

These cases bring together a set of necessary and innovative products for your specific uses.

The cases and drawers are labeled with all product part numbers and designations.

Magic Box HPLC "Stop dead volume"

We have selected all items to help you to reduce the dead volumes of your HPLC and all the tools to make your daily tasks easier.

BZ3050 kit includes:

- A MarvelX capillary for a high security connection between the injector and the column inlet with very low dead volume
- High quality PEEK tubing in a coil to optimize capillary length (0.17 and 0.25 mm)
- A polymeric tubing cutter for perfect and safe cutting
- Uptisür fittings
- Slotted wrench and Allen wrench set
- PEEK union
- In-line filter with 2 µm frit to protect the columns from any pollution

| Description | P/N |
|------------------------------------|--------|
| Magic Box HPLC "Stop dead volume". | BZ3050 |

Magic Box "Stainless steel capillaries"

Large series of 1/16" stainless steel capillaries perfectly cut and "clean." 5, 10, 20 cm in 0.13 mm and 0.25 mm (10 capillaries each).

| Description | P/N |
|---|--------|
| Magic Box "Stainless steel capillaries" | BZ3300 |

Magic Box "PEEK capillaries"

Set of 1/16" PEEK capillaries of 5, 10, 20 cm with internal diameter of 0.25 mm; 0.17 mm; 0.13 mm (5 capillaries each).

| Description | P/N |
|------------------------------|--------|
| Magic Box "PEEK capillaries" | BZ3310 |

Magic Box GC "Gas lines"

A storage box and accessories to make or maintain your gas lines 1/8" brass : 1/8" brass tube, tube cutter, 1/8" tee, 1/8" front and back brass fittings & ferrules, flat wrenches and adjustable wrench.

| Description | P/N |
|--------------------------|--------|
| Magic Box GC "Gas lines" | BZ1580 |

Magic Box "1/8" and 1/4" Fittings & unions"

Assortment of fittings, ferrules, unions, tees, caps, plugs in brass or stainless steel.

| Description | P/N |
|--|--------|
| Magic Box "Stainless steel fittings and unions in 1/8" & 1/4" or 68 pieces | BZ1870 |
| Magic Box "Stainless steel fittings and unions in 1/8" & 1/4" or 68 pieces | FV2630 |



PTFE Tubing

(PolyTetraFluoroEthylene)

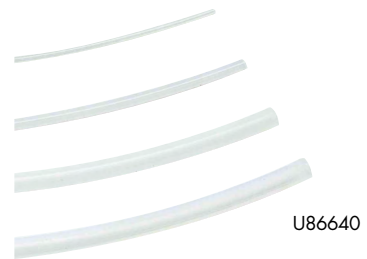
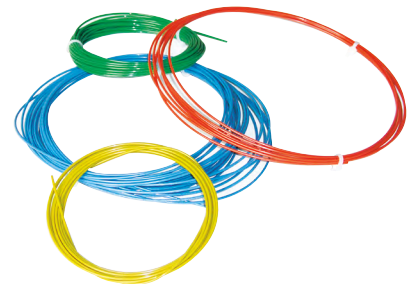
PTFE (polytetrafluoroethylene) tubing is chemically inert and suitable for low pressure applications. The maximum operating temperature is 100°C.

- Chemically inert, biocompatible
- Ideal for all low and medium pressure applications
- Low permeability
- Flexible, allows flanged collars
- Easy to clean
- Colored version for internal diameter identification

Natural or colored PTFE tubing

| OD | ID | P max. (psi) | P max. (bar) | Color | 1.5 m | 3 m | 10 m | 15 m | 25 m |
|--------------------|---------|-----------------|-----------------|---------|--------|---------|--------|--------|--------|
| 1/16" (1.6 mm) | 0.18 mm | 900 | 62 | Natural | U89506 | U89500 | U89502 | U89507 | U89503 |
| | 0.25 mm | 800 | 55 | Natural | 182499 | 182490 | 182492 | 18249A | 182493 |
| | 0.25 mm | 800 | 55 | Blue | | U88510 | U88511 | | U88512 |
| | 0.25 mm | 800 | 55 | Black | | U89520 | U89521 | | U89522 |
| | 0.50 mm | 700 | 50 | Natural | 18248A | 182484 | 182485 | 18248B | 182488 |
| | 0.50 mm | 700 | 50 | Orange | | U88610 | U88611 | | U88612 |
| | 0.50 mm | 700 | 50 | Black | | U89540 | U89541 | | U89542 |
| | 0.75 mm | 550 | 37 | Natural | 18678C | 186780 | 186788 | 18678L | 186789 |
| | 0.75 mm | 550 | 37 | Green | | U88520 | U88521 | | U88522 |
| | 1.00 mm | 350 | 25 | Natural | 178005 | 178000 | 178003 | 178009 | 178001 |
| 1/8" (3.2 mm) | 1.59 mm | 500 | 35 | Natural | 18950D | 189500 | 189504 | 18950F | 189502 |
| | 2.40 mm | 250 | 18 | Natural | 177994 | 177990 | 177991 | 177997 | 177992 |
| 2 mm | 1.70 mm | 150 | 10 | Natural | 847154 | 847150 | 847152 | 847155 | 847153 |
| 2.3 mm | 1.70 mm | 150 | 10 | Natural | | HP6020 | --- | | --- |
| 4 mm | 3.00 mm | 250 | 17 | Natural | U88534 | U88531 | U88533 | | --- |
| 3/16" (4.76 mm) | 3.76 mm | 200 | 14 | Natural | | 898480* | --- | | --- |
| 1/4" (6.35 mm) | 4.75 mm | 250 | 17 | Natural | | 732260* | --- | | --- |
| 1/2" | 9.53 mm | 200 | 14 | Natural | | AXFGB0* | --- | | --- |

Other lengths available on request.
*Delivered by meter.



Polymer compatibility
see "Technical Support" chapter.

RELATED PRODUCTS

SafetyCap:
The mobile phase bottle is hermetically sealed:
no harmful vapors in the lab
and no change in the proportions of the mobile phase.
Consumables - Protective caps - SCAT



TECHNICAL TIP

| Tolerances | OD mm | ID mm |
|------------|--------|--------|
| 1/16" | ± 0.05 | ± 0.05 |
| 1/8" | ± 0.10 | ± 0.10 |
| 3/16" | ± 0.10 | ± 0.10 |
| 1/4" | ± 0.10 | ± 0.10 |
| 1/2" | ± 0.20 | ± 0.20 |



Tubing - Low pressure



ETFE Tubing (EthylTriFluoroEthylene)

ETFE (ethyltrifluoroethylene) tubings are particularly suitable for HPLC as they have a higher burst pressure than PTFE.

The 1/16" OD x 0.25 mm ID tubing withstands a pressure of 186 bar (2700 psi) with water as mobile phase.

However, it is important to note that when used with organic solvents, the ETFE tubing can swell, reducing the maximum pressure to 70 bar (1000 psi).

It is the ideal polymer for applications with chloride salts which typically corrode stainless steel.

- Designed for high pressure, very good mechanical strength
- High resistance to most solvents

| OD | ID (mm) | Color | P max. (bar) | 1 m | 1.5 m | 3 m | 10 m | 15 m | 25 m |
|----------------|---------|---------|--------------|--------|--------|--------|--------|--------|--------|
| 1/32" (0.8 mm) | 0.25 | Natural | 152 | --- | U86644 | U86640 | U86641 | U86645 | U86642 |
| | 0.20 | Natural | 200 | --- | AXFG60 | AXFG64 | AXFG63 | AXFG61 | AXFG62 |
| | 0.25 | Natural | 186 | --- | 168955 | 168950 | 168951 | 168956 | 168953 |
| 1/16" (1.6 mm) | 0.50 | Natural | 152 | --- | 168964 | 168960 | 168961 | 168965 | 168962 |
| | 0.75 | Natural | 117 | --- | 168978 | 168970 | 168974 | 168979 | 168975 |
| | 1.00 | Natural | 83 | --- | 958046 | 958040 | 958041 | 958047 | 958042 |
| 3 mm | 1.00 | Natural | 138 | YE3690 | --- | YE3691 | --- | --- | --- |
| 1/8" (3.2 mm) | 1.59 | Natural | 110 | --- | U86654 | U86650 | U86651 | U86655 | U86652 |
| | 2.40 | Natural | 34 | --- | AXFG70 | AXFG74 | AXFG71 | AXFG72 | AXFG73 |
| 6 mm | 4.00 | Natural | 69 | YE4310 | --- | YE4311 | --- | --- | --- |
| 1/4" (6.35 mm) | 4.80 | Natural | 17 | --- | --- | AXFG82 | --- | --- | --- |

Other lengths available on request.

FEP Tubing (Fluorinated Ethylene Propylene)

FEP (Fluorinated Ethylene Propylene) tubing is chemically inert to most HPLC solvents and is recommended for low pressure applications.

- More transparent and less permeable than PTFE
- Chemically resistant to most HPLC solvents
- Recommended for ion chromatography applications

| OD | ID (mm) | Color | P max. (bar) | 1 m | 3 m | 10 m | 25 m |
|----------------|---------|---------|--------------|--------|--------|--------|------|
| 1/32" (0.8 mm) | 0.13 | Natural | 78 | YE3330 | YE3331 | YE3332 | --- |
| | 0.15 | Natural | 78 | YE3400 | YE3401 | YE3402 | --- |
| | 0.18 | Natural | 72 | YE3460 | YE3461 | YE3462 | --- |
| | 0.25 | Natural | 68 | YE3560 | YE3561 | YE3562 | --- |
| | 0.38 | Natural | 51 | YE3600 | YE3601 | YE3602 | --- |
| | 0.50 | Natural | 35 | YE3630 | YE3631 | YE3632 | --- |

Other lengths available on request.



TECHNICAL TIP

| Tolerances | OD mm | ID mm |
|------------|---------|---------|
| 360 µm | ± 0.025 | ± 0.013 |
| 1/32" | ± 0.025 | ± 0.025 |
| 1/16" | ± 0.05 | ± 0.05 |
| 1/8" | ± 0.10 | ± 0.10 |
| 3/16" | ± 0.10 | ± 0.10 |
| 1/4" | ± 0.10 | ± 0.10 |



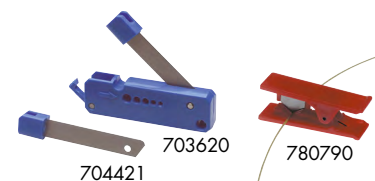
Polymer compatibility
see "Technical Support" chapter.

| OD | ID (mm) | Color | P max. (bar) | 1 m | 1.5 m | 3 m | 10 m | 15 m | 25 m |
|-----------------|---------|---------|--------------|--------|--------|--------|--------|--------|--------|
| 1/16" (1.6 mm) | 0.25 | Natural | 117 | --- | U89554 | U89550 | U89551 | U89555 | U89552 |
| | 0.50 | Natural | 96 | --- | U89474 | U89470 | U89471 | U89475 | U89472 |
| | 0.75 | Natural | 76 | --- | U89486 | U89480 | U89481 | U89487 | U89482 |
| 1/8" (3.2 mm) | 1.00 | Natural | 52 | --- | U89514 | U89510 | U89511 | U89515 | U89512 |
| | 1.59 | --- | 69 | --- | U89496 | U89490 | U89491 | U89497 | U89492 |
| 3/16" (4.76 mm) | 2.10 | --- | 41 | --- | YE4015 | YE4010 | YE4011 | YE4014 | YE4012 |
| | 3.18 | --- | 41 | --- | YE4214 | YE4210 | YE4211 | YE4215 | YE4212 |
| 1/4" (6.35 mm) | 4.35 | --- | 45 | U89530 | --- | --- | --- | --- | --- |
| 1 mm | 0.50 | --- | 62 | --- | YE3674 | YE3670 | YE3671 | YE3675 | YE3672 |
| 2 mm | 1.00 | --- | 62 | --- | YE3704 | YE3700 | YE3701 | YE3705 | YE3702 |
| 3 mm | 1.00 | --- | 82 | --- | YE3934 | YE3930 | YE3931 | YE3935 | YE3932 |
| | 2.00 | --- | 41 | --- | YE4135 | YE4131 | YE4132 | YE4136 | YE4133 |
| 4 mm | 3.00 | --- | --- | AXFGLO | --- | --- | --- | --- | --- |
| | 3.96 | --- | --- | AXFGJO | --- | --- | --- | --- | --- |
| 1/4" | 3/16" | --- | --- | AXFGKO | --- | --- | --- | --- | --- |
| | 1m | 5/16" | --- | 1/4" | AXFGGO | --- | --- | --- | --- |

Other lengths available on request.

RELATED PRODUCTS

See tubing cutters.



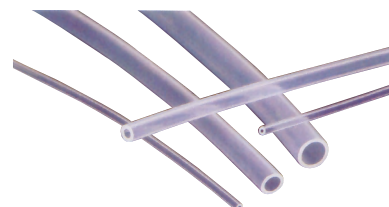
PFA Tubing (PerFluoro Alkoxyalkane)

PFA (perfluoroalkoxy) tubing has excellent chemical stability and high mechanical resistance.

Always use PFA instead of PTFE if gas permeability is an issue.

| OD | ID (mm) | Color | P max. (bar) | 1 m | 1.5 m | 3 m | 10 m | 15 m | 25 m |
|-----------------|---------|---------|--------------|--------|--------|--------|--------|--------|--------|
| 1/16" (1.6 mm) | 0.50 | Natural | 100 | --- | 984548 | 984540 | 984544 | 984549 | 984545 |
| | 0.75 | Natural | 76 | --- | U88505 | U88500 | U88501 | U88506 | U88502 |
| | 1.00 | Natural | 55 | --- | BG2944 | BG2940 | BG2941 | BG2945 | BG2942 |
| 1/8" (3.2 mm) | 1.59 | Natural | 72 | --- | 984976 | 984970 | 984971 | 984977 | 984972 |
| | 1.70 | Natural | 65 | YE3710 | --- | --- | --- | --- | --- |
| 3/16" (4.76 mm) | 3.20 | Natural | 41 | YE4220 | --- | --- | --- | --- | --- |
| 1/4" (6.35 mm) | 4.35 | Natural | 45 | YE4320 | --- | --- | --- | --- | --- |
| 1/4" | 3.97 | Natural | 45 | 1M7680 | --- | --- | --- | --- | --- |
| | 4.80 | Natural | 45 | AXFG90 | --- | --- | --- | --- | --- |

Other lengths available on request.



TECHNICAL TIP

| Tolerances | OD mm | ID mm |
|------------|---------|---------|
| 360 µm | ± 0.025 | ± 0.013 |
| 1/32" | ± 0.025 | ± 0.025 |
| 1/16" | ± 0.05 | ± 0.05 |
| 1/8" | ± 0.10 | ± 0.10 |
| 3/16" | ± 0.10 | ± 0.10 |
| 1/4" | ± 0.10 | ± 0.10 |



Tubing - Low pressure



TECHNICAL TIP

Color code for gases:

- : Flammable: Hydrogen
- : Oxidizer
- : Nitrogen
- : Oxygen, Air

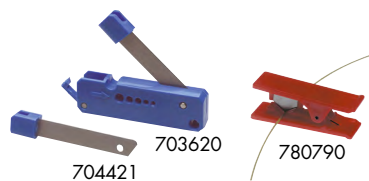
Polyamide tubing (Nylon)

- High pressure resistance

| OD | ID (mm) | Color | P max. (bar) | 1 m |
|----------------|---------|---------|--------------|--------|
| 1/8" (3.2 mm) | 1.60 | Natural | 69 | 875571 |
| | | Yellow | 69 | 922721 |
| | | Blue | 69 | 887371 |
| | | Green | 69 | 922701 |
| | | Black | 69 | 965811 |
| | | White | 69 | 841351 |
| 1/4" (6.35 mm) | 4.30 | Natural | 69 | 327712 |
| | | Yellow | 69 | AA0290 |
| | | Blue | 69 | AA0270 |
| | | Green | 69 | S30490 |
| | | Black | 69 | 859500 |
| | | White | 69 | 279550 |

RELATED PRODUCTS

See tubing cutters.





Stainless steel tubing HPLC - UHPLC

- Wide range of stainless steel tubings (in coils or pre-cut) for in liquid, gas and other chromatography applications
- Stainless steel type 316, smooth surface, high quality, pre-cleaned
- Pre-cut tubes: perfect cutting to avoid dead volumes



Stainless steel tube in coil

| OD | ID (mm) | Premium | |
|--------|---------|---------------------|---------------------|
| | | +/- 0.010 mm 1 m | +/- 0.025 mm 1 m |
| 360 µm | 0.075 | AXFGD0 | --- |
| | 0.150 | --- | AXFGEO |

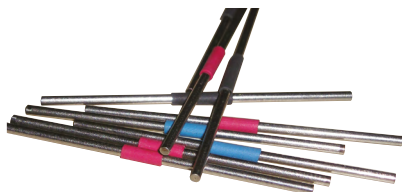
| OD | ID (mm) | Standard +/- 0.05 mm | | Premium +/- 0.025 mm | |
|----------------|---------|----------------------|--------|----------------------|--------|
| | | 3 m | 10 m | 3 m | 10 m |
| 1/32" (0.8 mm) | 0.13 | --- | --- | AA2591 | AA2592 |
| | 0.18 | --- | --- | GE0421 | GE0422 |
| | 0.25 | --- | --- | FI4501 | FI4502 |
| | 0.50 | --- | --- | U54971 | U54972 |
| 1/16" (1.6 mm) | 0.10 | AXFGF3 | AXFGF2 | --- | --- |
| | 0.13 | 383952 | 383954 | 383956 | 383957 |
| | 0.18 | 383943 | 383944 | --- | --- |
| | 0.25 | 177873 | 177874 | 17787A | 17787B |
| | 0.38 | --- | --- | AJ8471 | AJ8472 |
| | 0.50 | 186243 | 186249 | 186247 | 186248 |
| | 0.75 | 177893 | 177899 | 177896 | 177897 |
| | 1.00 | 217433 | 217434 | 21743A | 21743B |
| 1/8" (3.2 mm) | 0.75 | --- | --- | 170142 | 170143 |
| | 1.00 | --- | --- | AA2631 | AA2632 |
| | 1.52 | --- | --- | I52511 | I52512 |
| | 1.78 | --- | --- | U05702 | U05703 |
| | 2.10 | 177923 | 177926 | --- | --- |
| | 2.16 | --- | --- | 17792C | 17792D |
| 1/4" (6.35 mm) | 4.65 | --- | --- | 177973* | --- |



* Delivered per meter.

All our tubes can be delivered in coils of several tens of meters.





RELATED PRODUCTS

Magic Box "Stainless steel capillaries"
BZ3300 (see page D.4) Pre-cut stainless steel tubes



Pre-cut stainless steel tubing

Pre-cut tubings are steam cleaned and offer burr-free ends, ready to be used for HPLC applications.

| OD | ID (mm) | Color | 5 cm | 10 cm | 13 cm | 18 cm | 20 cm | 30 cm |
|-------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1/32" (0.8 mm) | 0.050 | Blue | AXFGS0 | AXFGT0 | AXFGW0 | AXFGX0 | AXFGU0 | AXFGV0 |
| | 0.075 | Black | AXFGY0 | AXFGZ0 | AXFH20 | AXFH30 | AXFH00 | AXFH10 |
| | 0.10 | Red | GM7170 | GM7171 | GM7171 | GM7171 | GM7172 | GM7173 |
| | 0.15 | Yellow | GM7120 | GM7121 | GM7121 | GM7121 | GM7122 | GM7123 |
| | 0.20 | Natural | GM7250 | GM7251 | GM7251 | GM7251 | GM7252 | GM7253 |
| | 0.25 | Blue | GM7280 | GM7650 | GM7650 | GM7650 | GM7900 | GM7950 |
| | 0.38 | Green | GM7410 | GM7670 | GM7670 | GM7670 | GM7920 | GM7980 |
| | 0.46 | Black | GM7290 | GM7660 | GM7660 | GM7660 | GM7870 | GM7990 |
| | 0.50 | Blue | AXFGS0 | AXFGT0 | AXFGU0 | AXFGV0 | AXFGW0 | AXFGX0 |
| | 0.75 | Black | AXFGY0 | AXFGZ0 | AXFH00 | AXFH10 | AXFH20 | AXFH30 |
| 1/16" (1.6 mm) | 0.13 | Red | U90150 | U90160 | AXFGH40 | AXFGH50 | 547964 | U90170 |
| | 0.18 | Yellow | U90180 | 559811 | AXFGH60 | AXFGH70 | 559821 | U90190 |
| | 0.25 | Blue | 292071 | 292081 | AXFGH80 | AXFGH90 | 560761 | U90200 |
| | 0.50 | Orange | U90210 | 390191 | AXFGHA0 | AXFGHB0 | U90220 | U90230 |
| | 0.75 | Green | U90240 | U90250 | AXFGHC0 | AXFGHD0 | U90260 | U90270 |
| | 1.00 | --- | 518770* | GD7790* | --- | --- | 520290* | 853680* |
| | 1.17 | --- | AD9920 | AE5990 | --- | --- | AC9350 | AC9070 |

Other lengths available on request.

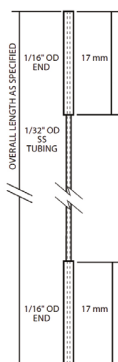
| OD | ID (mm) | 15 cm | 25 cm | 1 m | 3 m |
|------|---------|--------|--------|--------|--------|
| 1/8" | 2.00 | AB7200 | AD8970 | AD9110 | AD9230 |

*Sold by 2 units.

TECHNICAL TIP

What tubing diameter should be used depending on the flow rate and the internal diameter of the column?

| ID column mm | Flow rate mL/min | ID tubing mm |
|--------------|------------------|--------------|
| 1 to 2.1 | 0.05 to 0.2 | <0.13 |
| 2.1 to 3 | 0.2 to 0.5 | 0.13 to 0.17 |
| 3 to 4.6 | 0.5 to 1 | 0.17 to 0.25 |
| 4.6 to 10 | 1 to 10 | 0.25 |
| 10 to 21.2 | 10 to 25 | 0.25 to 0.50 |
| 50 | 50 to 100 | 0.50 to 1.00 |



Flexible stainless steel tube

- High quality 1/32" stainless steel capillary with 1/16" ends
- Delivered without fittings, easy to use
- Compatible with standard stainless steel and PEEK fittings
- No dead volume connection

| OD | ID (mm) | Color | 105 mm | 130 mm | 150 mm | 180 mm | 200 mm | 280 mm | 400 mm | 600 mm | 700 mm | 800 mm | 900 mm |
|-------------------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1/32" (0.8 mm) | 0.13 | Red | DZ9690 | B8DDP0 | DZ9700 | B8DDQ0 | DZ9710 | DZ9720 | DZ9730 | --- | DZ9750 | DZ9760 | --- |
| | 0.18 | Yellow | DZ9770 | B8DDS0 | DZ9780 | BVGCF0 | DZ9790 | DZ9800 | DZ9810 | DZ9820 | DZ9830 | DZ9840 | LV0180 |
| | 0.25 | Blue | DZ9850 | B8DDT0 | DZ9870 | B8DDU0 | DZ9890 | DZ9900 | DZ9910 | DZ9920 | DZ9930 | DZ9940 | --- |
| | 0.50 | Orange | DZ9950 | B8DDW0 | --- | B8DDX0 | DZ9980 | DZ9990 | EJ8050 | EK2440 | EL6310 | EO0000 | --- |



PEEK Tubings (PolyEtherEtherKetone)

We recommend striped PEEK tubing for easy identification by color-coding the tube ID, with identification, with maximum chemical resistance and biocompatibility.

The stripe is added to the outside. The dye never comes in contact with the fluid stream.

- Inert and biocompatible polymer
- Can be used up to 100°C
- Good pressure resistance (variable depending on internal and external tube diameters)
- Color-coded according to internal diameters
- Available in long coils

Incompatibility: some solvents such as dichloromethane, DMSO, THF or concentrated acid solutions...

Please refer to the compatibility table in the "Technical Support" section.

TECHNICAL TIP

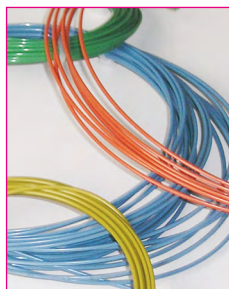
Relationship between the internal diameter of the tube and the volume/cm.

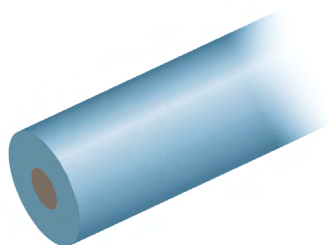
| ID mm | µL/cm |
|-------|-------|
| 0.05 | 0.02 |
| 0.064 | 0.03 |
| 0.075 | 0.04 |
| 0.1 | 0.08 |
| 0.13 | 0.13 |
| 0.15 | 0.18 |
| 0.17 | 0.23 |
| 0.2 | 0.32 |
| 0.25 | 0.49 |
| 0.5 | 1.96 |
| 0.75 | 4.42 |
| 1 | 7.85 |
| 1.59 | 19.86 |

| Tolerances | OD mm | ID mm |
|-----------------------|---------|---------|
| 1/32" | ± 0.025 | ± 0.013 |
| 1/16" ID < 0.25 mm | ± 0.025 | ± 0.013 |
| 1/16" ID > 0.25 mm | ± 0.025 | ± 0.025 |
| 1/8" | ± 0.050 | ± 0.050 |

Striped color-coded PEEK tubing

| OD | ID (mm) | Color | P max. (bar) | 1 m | 1.5 m | 3 m | | |
|-------------------|---------|---------|--------------|--------|--------|--------|---------|--------|
| 1/32" (0.8 mm) | 0.050 | Orange | 455 | YE4350 | YE4353 | YE4351 | | |
| | 0.064 | Pink | 455 | YE4430 | YE4433 | YE4431 | | |
| | 0.075 | Green | 455 | YE4470 | YE4474 | YE4471 | | |
| | 0.100 | Black | 455 | YE3770 | YE3773 | YE3771 | | |
| | 0.13 | Red | 414 | YE3390 | YE3393 | YE3391 | | |
| | 0.15 | Natural | 400 | YE3450 | ... | YE3451 | | |
| | 0.18 | Yellow | 386 | YE3520 | YE3523 | YE3521 | | |
| | 0.20 | Orange | 369 | PIY220 | PIY223 | PIY221 | | |
| | 0.25 | Blue | 338 | YE3590 | YE3594 | YE3591 | | |
| | 0.50 | Orange | 269 | YE3650 | YE3653 | YE3651 | | |
| OD | ID (mm) | Color | P max. (bar) | 1.5 m | 3 m | 10 m | 15 m | 25 m |
| 1/16" (1.6 mm) | 0.050 | Orange | 480 | EO3426 | EO3420 | EO3422 | EO34227 | EO3423 |
| | 0.064 | Pink | 480 | BG2965 | BG2960 | BG2961 | BG2966 | BG2963 |
| | 0.075 | Green | 470 | EO3405 | EO3400 | EO3402 | EO3406 | EO3403 |
| | 0.100 | Black | 460 | EO3387 | EO3380 | EO3382 | EO3388 | EO3383 |
| | 0.13 | Red | 460 | 56644E | 566440 | 566441 | 56644F | 566443 |
| | 0.18 | Yellow | 440 | 76711C | 767110 | 767111 | 76711D | 767115 |
| | 0.25 | Blue | 420 | 76712K | 767120 | 767121 | 76712M | 767123 |
| | 0.50 | Orange | 345 | AXFGC1 | 767130 | 767131 | 76713C | 767138 |
| | 0.75 | Green | 262 | 76714J | 767140 | 767143 | 76714K | 767147 |
| | 1.00 | Gray | 179 | 67681D | 676810 | 676811 | 67681H | 676814 |
| 1.40 | Black | 55 | 382695 | 382690 | 382691 | 382696 | 382691 | |





Solid color-coded PEEK tubing

| OD | ID (mm) | Color | P max. (bar) | 1 m | 3 m | 10 m | | |
|-------------------|---------|---------|--------------|--------|--------|--------|--|--|
| 1/32" (0.8 mm) | 0.050 | Orange | 455 | YE4340 | YE4341 | --- | | |
| | 0.064 | Pink | 455 | YE4420 | YE4421 | --- | | |
| | 0.075 | Green | 455 | YE4460 | YE4461 | --- | | |
| | 0.100 | Black | 455 | YE3760 | YE3761 | --- | | |
| | 0.13 | Natural | 414 | --- | T78580 | T78581 | | |
| | 0.13 | Red | 414 | YE3340 | YE3341 | --- | | |
| | 0.15 | Purple | 400 | YE3410 | YE3411 | --- | | |
| | 0.18 | Yellow | 386 | YE3470 | YE3471 | --- | | |
| | 0.20 | Orange | 369 | YE3530 | YE3531 | --- | | |
| | 0.25 | Blue | 338 | YE3580 | YE3581 | --- | | |
| 0.50 | Orange | 269 | YE3620 | YE3621 | --- | | | |

| OD | ID (mm) | Color | P max. (bar) | 1.5 m | 3 m | 10 m | 15 m | 25 m |
|-------------------|---------|---------|--------------|--------|--------|--------|--------|--------|
| 1/16" (1.6 mm) | 0.064 | Natural | 480 | --- | B41E10 | --- | --- | --- |
| | 0.100 | Black | 460 | LV0114 | LV0110 | LV0111 | LV0115 | LV0112 |
| | 0.13 | Red | 460 | 969438 | 969430 | 969435 | 969439 | 969436 |
| | 0.15 | Purple | 460 | LV0124 | LV0120 | LV0121 | LV0125 | LV0122 |
| | 0.18 | Yellow | 440 | 969444 | 969440 | 969442 | 969445 | IO0150 |
| | 0.25 | Blue | 420 | 969457 | 969450 | 969451 | 969458 | 969452 |
| | 0.38 | Gray | 269 | LV0144 | LV0140 | LV0141 | LV0145 | LV0142 |
| | 0.50 | Orange | 269 | 969468 | 969460 | 969463 | 969469 | 969465 |
| | 0.75 | Green | 262 | IV0123 | 969470 | 969471 | 969478 | 969473 |

| OD | ID (mm) | Color | P max. (bar) | 3 m | 10 m | | |
|------------------|---------|---------|--------------|--------|--------|--|--|
| 1/8" (3.2 mm) | 0.75 | Natural | 379 | 676940 | 676941 | | |
| | 1.59 | Natural | 248 | 803770 | 803771 | | |
| | 2.00 | Natural | 179 | 676950 | 676951 | | |

| OD | ID (mm) | Color | P max. (bar) | 3 m | | | |
|------|---------|---------|--------------|---------|--|--|--|
| 1/4" | 3.17 | Natural | 227 | 676960* | | | |

* Delivered per meter.

RELATED PRODUCTS

Magic Box™ PEEK capillaries
BZ3310 Precut PEEK tubes (see page D.4)





Thermo-formed polymeric tubing

This spiral-wound PEEK tubing is ideal for connecting elements of a HPLC chain.

Its great flexibility makes it possible to move the instruments without risk of breaking of the connections.

The assemblies made are always "clean."

Each spiral is finished with a 15 cm long straight part to make the fixing easier. The diameter of the coils is about 13.5 mm.

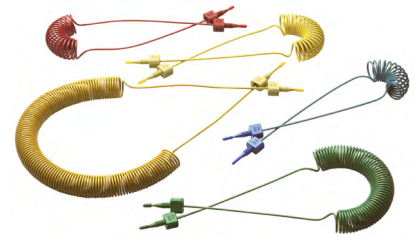
A color code allows an easy identification of the internal diameter.

Two solutions are proposed:

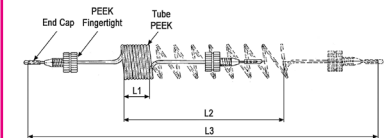
- Mass dyeing before extrusion
- Colored border printed on the external surface of the tube

Note:

Be careful not to unnecessarily increase the dead volume of your installation. These tubes quickly induce a great length and are not necessarily recommended between injection valve and column.



Part numbers & prices on request. Please specify the lengths L1, L2, L3



Support for 1/16" OD PEEK tubes

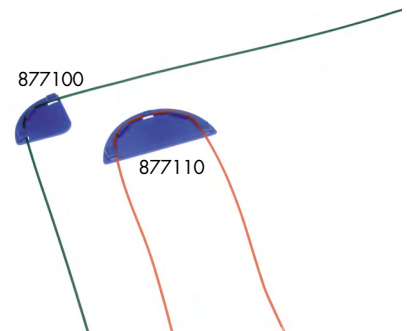
These two supports at 90° and 180° are dimensioned in such a way that they do not affect the characteristics of the tube (chemical resistance and pressure resistance) despite the bending.

| Description | P/N | Qty |
|-----------------|--------|-----|
| Support at 90° | 877101 | 5 u |
| Support at 180° | 877112 | 5 u |

The smart little clip

Can be attached to any wall up to 4 mm thick (e.g. a beaker). Maintains the desired position all 1/16" or 1/8" plastic tubes.

| Description | P/N | Qty |
|------------------------------------|--------|------|
| Clips for tubes 1/16" or 1/8" (OD) | 835910 | 10 u |



Tubing - SS tubing cutters



AK2960

Electric tubing cutter

This electric tubing cutter cuts 1/8" and 1/16" tubings; the finishing tool is used to prepare tubes with a very small internal diameter (up to 0.008").

| Description | P/N | Qty |
|--|--------|-----|
| Electric tubing cutter, 220 volts (supplied with finishing kit for 1/16" pipe) | AK2960 | 1 u |
| Replacement wheels | 100124 | 3 u |
| 1/16" finishing kit | 100116 | 1 u |
| 1/8" finishing kit | 100118 | 1 u |

1/16" OD SS tubing cutter

Very fast and easy to use: no effort to cut.

Almost perfect 90° cut

- No deformation of the internal diameter
- Only a deburring with a file may be necessary in some cases



745830

| Description | P/N | Qty |
|---------------------------|--------|-----|
| 1/16" OD SS tubing cutter | 745830 | 1 u |



1F9130

1/8" & 1/4" OD SS tubing cutter

| Description | P/N |
|--|--------|
| Stainless steel, copper, nickel tubing cutter 1/8" to 1/2" | 1F9130 |

Advion Interchim Scientific tubing cutter

- Ideal for cutting 1/16" to 1/8" tubes
- Allows for perfect cuts
- No finishing required



333930

| Description | P/N | Qté |
|-----------------------------|--------|-----|
| Tubing cutter 1/16" to 1/8" | 333930 | 1 u |
| Replacement wheels | 097746 | 1 u |



Polymeric tubing cutter

Without any doubt the best polymeric pipe cutter. Regardless of the hardness of the tube, a clean cut is obtained without effort. Recommended by our technicians for its great efficiency and robustness.

- High precision cutting pliers
- Large capacity: perfect cut up to 1/2" external diameter
- No cutting effort

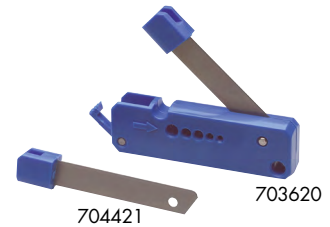
| Description | P/N | Qty |
|-------------------------|--------|-----|
| Polymeric tubing cutter | AXGYM0 | 1 u |



"Clean-Cut" tubing cutter

The "Clean-Cut" tubing cutter ensures a clean, non-crushing cut of all polymeric tubes from 1/16" to 1/8" external diameter (PEEK, PTFE, ETFE, or other plastics).

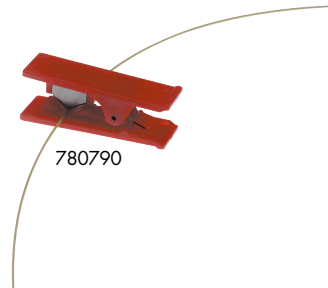
| Description | P/N | Qty |
|--|--------|-----|
| "Clean-Cut" tubing cutter delivered with a spare blade | 703620 | 1 u |
| Spare blade | 704421 | 1 u |



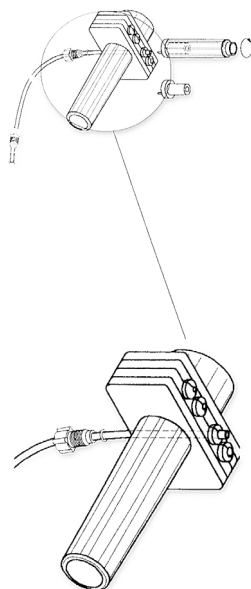
"Guillotine" tubing cutter

This tool is recommended for cutting PTFE, ETFE or soft polymer tubing. For PEEK, or hard material, the "AXGYM0" or "Clean-Cut" is recommended.

| Description | P/N | Qty |
|----------------------------|--------|-----|
| "Guillotine" tubing cutter | 780790 | 1 u |
| Spare blade | 780800 | 1 u |



Fittings - Low pressure fittings



737351



Washer

Flange on the end of PTFE tubing



D04150

215151

Flanging tool

A very practical tool for forming flanged tubes

- Time to form a flanged: 20 seconds!
- Forming at room temperature
- Versatile (1/16" or 1/8" tube forming)
- Very easy to use
- No effort required
- Economical

This tool makes it very easy to quickly and safely make all your connections. It is extremely simple to use. No need for training or extensive trial-and-error: you will succeed on your first try!

There is no need to heat the end of your tube to form it: the "flanging tool" can be used at room temperature. All Nylon®, PTFE, Tefzel® 1/16" or 1/8" tubing, regardless of its internal diameter, can be worked on without any physical effort.

| Description | P/N |
|---|--------|
| Complete Flanging tool | 737350 |
| The 737350 kit includes in addition to the Flanging tool: | |
| Forming tool (stainless steel tip 0.5 mm) for PEEK tube | 741440 |
| Forming tool (plastic tip 0.8 mm) | 264310 |
| Forming tool (titanium tip 0.8 mm) | 974660 |
| Forming tool (plastic tip 1.3 mm) | 264610 |
| Forming tool (titanium tip 1.3 mm) | 779090 |
| "Clean Cut" tubing cutter | 703620 |
| PTFE tubing 1/16" - 0.75 mm (3 m) | 186780 |
| Flanging tool complete with low pressure accessories | 737351 |
| 737351 kit includes the entire kit 737350 plus the following items: | |
| Nuts 1/16" - 1/4"-28 (10 u) | D10010 |
| 1/16" polypropylene gaskets (10 u) | 215401 |
| Nuts 1/8" - 1/4"-28 (10 u) | D13640 |
| Polypropylene Gaskets 1/8" (10 u) | 215151 |
| Identification ring assortment (24 u) | GM8790 |
| PTFE tubing 1/8" - 1/16" (3 m) | 189500 |

Nuts and rings for flanged tubings

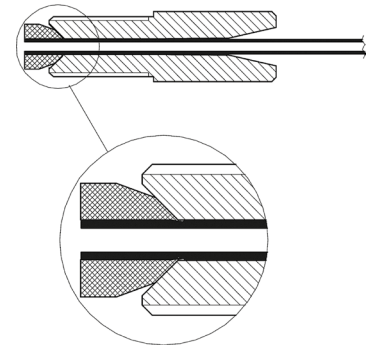
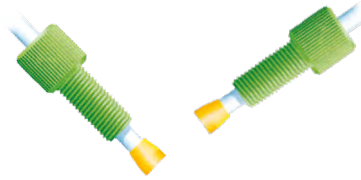
- 1/4"-28 low pressure thread
- Nylon nuts and union

| Description | 1/16" | 1/8" |
|-----------------------|--------|--------|
| Nuts black | 215140 | 215130 |
| Nuts white | 215141 | 215131 |
| Polypropylene Gaskets | 215401 | 215151 |
| Hexagon head nut PPS | D10010 | D13640 |
| Polypropylene Gaskets | 215401 | 215151 |
| 1/4"-28 Nylon Union | --- | 187210 |



Flanged less fittings

The "no flanged" system solves all your low pressure connection problems regardless of the flexible tube used (PTFE or ETFE).



- Manual tightening nuts
- Standard low pressure thread 1/4"-28
- No forming tool is required: no flanged, the ferrule is crimped directly on the tube
- Completely inert system: only the ETFE ferrule (very stable fluorocarbon polymer) is in contact with the mobile phase
- No dead volume
- Very good pressure resistance (70 bar for 1/16" connections and 35 bar for 1/8" connections)
- Fits to all instruments (LDC, LKB, Altex/Beckman, Waters, PerkinElmer, Bio-Rad...)

| Description | 1/16" | 1/8" | Qty |
|--------------------------------|--------|--------|------|
| Polyacetal nut (white) | 177810 | 245490 | 10 u |
| Polyacetal nut (black) | 245480 | 245540 | 10 u |
| Polyacetal nut (blue) | 231532 | 245552 | 10 u |
| Polyacetal nut (green) | 187202 | 245510 | 10 u |
| Polyacetal nut (yellow) | 245472 | 245532 | 10 u |
| Polyacetal nut (red) | 231522 | 245523 | 10 u |
| PEEK nut (natural) | 167150 | 921390 | 10 u |
| PPS nut (black) hexagonal head | D18570 | D30160 | 10 u |
| Tefzel ferrule | 163800 | 163840 | 10 u |

Collapsible ferrule

| | | | |
|--------------------------------|--------|--------|------|
| PPS nut (black) hexagonal head | D12840 | AU0550 | 10 u |
| Collapsible ferrule | U73230 | D26120 | 10 u |

Ferrule + stainless steel ring system - high pressure

| | | | |
|--|--------|--------|------|
| PPS nut | D12840 | --- | 10 u |
| PEEK fittings + 1/32" stainless steel ring | --- | PIY420 | 10 u |
| PEEK fittings + 1/16" stainless steel ring | --- | PIY430 | 10 u |

Accessories

| | | | |
|--|--------|--------|-----|
| PEEK Cross | U89140 | U89150 | 1 u |
| PEEK tee | U89120 | U89130 | 1 u |
| PEEK mixing tee | GC4300 | GC4320 | 1 u |
| Manifold 5 ports | LO1890 | 954030 | 1 u |
| Manifold 9 ports | GC2820 | 954040 | 1 u |
| Straight polyamide union (delivered without fitting) | | 187210 | 5 u |
| Straight polyamide union | 778881 | 779081 | 1 u |
| PEEK plug | | 526730 | 5 u |





Polypropylene barbed adapters

Perfect for connecting flexible tubes



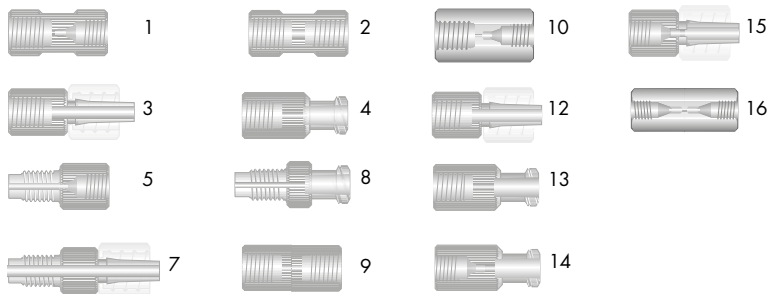
| ID of the flexible tube | 1/16" = 1.6 mm | 1/8" = 3.02 mm |
|-------------------------|----------------|----------------|
| 10-32 Male | AB7390 | U12710 |
| 1/4"-28 male | AA2800 | 738940 |
| Female luer | AE2390 | --- |
| Male Luer | AE4850 | AE6620 |
| Male Luer Lock | AD7710 | AE2430 |

Available in PEEK on request.

PEEK adapters

| Union input | | 1/4"-28 female | M6 female | Luer female | Luer male | 10-32 female |
|-------------|--------|-------------------|--------------|----------------|--------------|-----------------|
| 1/4"-28 | female | 778880 9 | 654811 2 | U86322 4 | U86330 3 | 737660 1 |
| 1/4"-28 | male | --- | --- | 871233 8 | GC4420 7 | U86240 5 |
| M6 | female | --- | --- | D51781 13 | D51771 12 | 654754 10 |
| Luer | female | --- | --- | --- | --- | 962551 14 |
| Luer | male | --- | --- | --- | --- | 239681 15 |
| 10-32 | female | --- | --- | --- | --- | 869290 16 |

Delivered without fitting



Other threads available on request.



2-way "on/off" ball shut-off valve 40 Series

Max pressure: 206 bar or 3 000 psi
Temperature range: 10°C to 65°C
Stainless steel body

40G Series

Max pressure: 206 bar or 3 000 psi
Temperature range: -53°C to 148°C
Stainless steel body

| | Serie 40 - Brass | | | Serie 40 - SS | | |
|----------------------|------------------|--------|----------|---------------|----------|------------|
| | | Right | Angle | | Right | Angle |
| 2-way valve "on/off" | 1/16" | B-41S1 | B-41S1-A | 1/16" | SS-41GS1 | SS-41GS1-A |
| 2-way valve "on/off" | 1/8" | B-41S2 | B-41S2-A | 1/8" | SS-41GS2 | SS-41GS2-A |
| 2-way valve "on/off" | 1/4" | B-42S4 | B-42S4-A | 1/4" | SS-42GS4 | SS-42GS4-A |
| 2-way valve "on/off" | 3/8" | B-43S6 | B-43S6-A | 3/8" | SS-43GS6 | SS-43GS6-A |

3, 5 and 7 way valves available on request.

Metering valves

| Description | Stainless steel straight | Stainless steel angle | Brass straight | Brass angle |
|-------------|--------------------------|-----------------------|----------------|-------------|
| 1/16" | --- | SS-SS1-A | --- | B-SS1-A |
| 1/8" | SS-SS2 | SS-SS2-A | B-SS2 | B-SS2-A |
| 1/4" | SS-SS4 | SS-SS4-A | B-SS4 | B-SS4-A |

These valves cannot be used as shut-off valves.

Online Filters

| Stainless steel | Brass | Inlet | Outlet |
|-----------------|-----------|-------|-----------|
| SS-2F.* | B-2F.* | 1/8" | 1/8" |
| SS-2F-T7.* | B-2F-T7.* | 1/8" | 1/8" tube |
| SS-4F.* | B-4F.* | 1/4" | 1/4" |
| SS-4F-T7.* | B-4F-T7.* | 1/4" | 1/4" tube |

| Replacement filter elements (316 stainless steel) | P/N |
|---|------------|
| For 2F series filters (1/8") | SS-2F-K4.* |
| For 4F series filters (1/4") | SS-4F-K4.* |

*Suffix: 05, 2, 7, 15, 60 or 90 (6 porosities available from 0.5 to 90 µm).

Check valves

- Fluid flow in one direction only
- Possibility to choose the minimum opening pressure:
1/3; 1; 10; 25 psi or 0.02; 0.06; 0.68; 1.7 bar
- Can be used up to 413 bar
- Available in stainless steel and brass

| Description | Stainless steel | Brass |
|----------------------------------|-----------------|-------|
| 1/8" stainless steel check valve | SS-2C@ | B-2C@ |
| 1/4" stainless steel check valve | SS-4C@ | B-4C@ |
| 3/8" stainless steel check valve | SS-6C@ | B-6C@ |

@ = 1/3 or 1 or 10 or 25 (psi).

Ball shut-off valves



Other configurations are possible: such as NPT outlets, or tube outlets in mm... Please contact us.



SS.SS2



SS.2FT7.7



Fine adjustment valve with vernier available on request.



Fittings - Fittings and valves



Nut



Front ferrule



Back ferrule



Unions



Reducing unions



Plugs



Caps

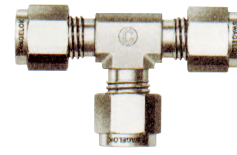
Fittings

| | | Inox | Laiton | PTFE |
|---|------------|------------|-----------|-----------|
| Nut | 1/16" | SS-102-1 | B-102-1 | T-102-1 |
| | 1/8" | SS-202-1 | B-202-1 | T-202-1 |
| | 1/4" | SS-402-1 | B-402-1 | T-402-1 |
| | 3/8" | SS-602-1 | B-602-1 | --- |
| Front ferrule | 1/16" | SS-103-1 | B-103-1 | T-103-1 |
| | 1/8" | SS-203-1 | B-203-1 | T-203-1 |
| | 1/4" | SS-403-1 | B-403-1 | T-403-1 |
| | 3/8" | SS-603-1 | B-603-1 | --- |
| Back ferrule | 1/16" | SS-104-1 | B-104-1 | T-104-1 |
| | 1/8" | SS-204-1 | B-204-1 | T-204-1 |
| | 1/4" | SS-404-1 | B-404-1 | T-404-1 |
| | 3/8" | SS-604-1 | B-604-1 | --- |
| Front and back ferrules kit (10 of each) | 1/16" | SS-100-SET | B-100-SET | T-100-SET |
| | 1/8" | SS-200-SET | B-200-SET | T-200-SET |
| | 1/4" | SS-400-SET | B-400-SET | T-400-SET |
| | 3/8" | SS-600-SET | B-600-SET | T-600-SET |
| Unions | 1/16" | SS-100-6 | B-100-6 | --- |
| | 1/8" | SS-200-6 | B-200-6 | T-200-6 |
| | 1/4" | SS-400-6 | B-400-6 | T-400-6 |
| | 3/8" | SS-600-6 | B-600-6 | --- |
| Reducer unions | 1/8"-1/16" | SS-200-6-1 | B-200-6-1 | T-200-6-1 |
| | 3/16"-1/8" | SS-300-6-2 | B-300-6-2 | T-300-6-2 |
| | 1/4"-1/16" | SS-400-6-1 | B-400-6-1 | T-400-6-1 |
| | 1/4"-1/8" | SS-400-6-2 | B-400-6-2 | T-400-6-2 |
| | 3/8"-1/4" | SS-600-6-4 | B-600-6-4 | T-600-6-4 |
| Plugs | 1/16" | SS-100-C | B-100-C | --- |
| | 1/8" | SS-200-C | B-200-C | --- |
| | 1/4" | SS-400-C | B-400-C | --- |
| | 3/8" | SS-600-C | B-600-C | --- |
| Caps | 1/16" | SS-100-P | B-100-P | --- |
| | 1/8" | SS-200-P | B-200-P | --- |
| | 1/4" | SS-400-P | B-400-P | --- |
| | 3/8" | SS-600-P | B-600-P | --- |



Fittings

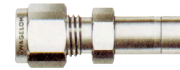
| | | Stainless steel | Brass | PTFE |
|----------------------|-------------------|-----------------|-----------|-----------|
| Tees | 1/16" | SS-100-3 | B-100-3 | T-100-3 |
| | 1/8" | SS-200-3 | B-200-3 | T-200-3 |
| | 1/4" | SS-400-3 | B-400-3 | T-400-3 |
| | 3/8" | SS-600-3 | B-600-3 | --- |
| Cross | 1/8" | SS-200-4 | B-200-4 | --- |
| | 1/4" | SS-400-4 | B-400-4 | --- |
| | 3/8" | SS-600-4 | B-600-4 | --- |
| Reducer | 1/16" x 1/8" tube | SS-100-R-2 | B-100-R-2 | --- |
| | 1/16" x 1/4" tube | SS-100-R-4 | B-100-R-4 | --- |
| | 1/8" x 1/16" tube | SS-200-R-1 | B-200-R-1 | --- |
| | 1/8" x 1/4" tube | SS-200-R-4 | B-200-R-4 | --- |
| | 3/16" x 1/4" tube | SS-300-R-4 | B-300-R-4 | --- |
| | 1/4" x 1/8" tube | SS-400-R-2 | B-400-R-2 | --- |
| | 1/4" x 3/8" tube | SS-400-R-6 | B-400-R-6 | --- |
| | 3/8" x 1/4" tube | SS-600-R-4 | B-600-R-4 | --- |
| Male NPT connector | 1/16" x 1/8" NPT | SS-100-1-2 | B-100-1-2 | T-100-1-2 |
| | 1/8" x 1/8" NPT | SS-200-1-2 | B-200-1-2 | T-200-1-2 |
| | 1/8" x 1/4" NPT | SS-200-1-4 | B-200-1-4 | --- |
| | 1/4" x 1/8" NPT | SS-400-1-2 | B-400-1-2 | --- |
| | 1/4" x 1/4" NPT | SS-400-1-4 | B-400-1-4 | --- |
| Female NPT connector | 1/16" x 1/8" NPT | SS-100-7-2 | B-100-7-2 | --- |
| | 1/8" x 1/8" NPT | SS-200-7-2 | B-200-7-2 | --- |
| | 1/8" x 1/4" NPT | SS-200-7-4 | B-200-7-4 | --- |
| | 1/4" x 1/8" NPT | SS-400-7-2 | B-400-7-2 | --- |
| | 1/4" x 1/4" NPT | SS-400-7-4 | B-400-7-4 | --- |



Tees



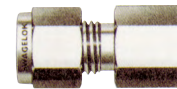
Cross



Reducer



Male NPT connector



Female NPT connector

RELATED PRODUCTS

Magic Box Fittings and unions brass or stainless steel 1/8" & 1/4 BZ1870 or FV2630



Fittings - PEEK fittings



468452

Uptisûr 10-32 connector for 1/16" tube

- Part manufactured by machining
- High resistance to crushing and bursting
- Limits the risk of leakage
- Material: PEEK polymer
- Totally inert and biocompatible
- Use up to 5,000 psi (350 bar)

It will allow you to efficiently connect all 1/16" tubes (10-32). Unlike "molded" fittings, these "machined" connectors offer better mechanical resistance, excellent pressure resistance and a perfect seal, even after several tightens.

| Description | P/N | Qty |
|-------------------------------------|--------|------|
| Uptisûr® connector (PEEK nut 1/16") | 468452 | 10 u |

Standard PEEK connector

- Part manufactured by molding
- Manual tightening
- Use up to 5,000 psi (350 bar)
- Compatible with all 1/16" fittings
- Several colors available



78077G

982890

982860

982870

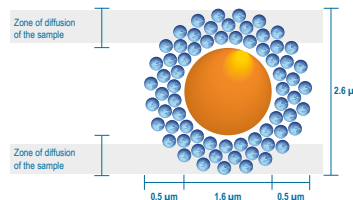
982850

982880

| Description | P/N | Qty |
|----------------------|--------|------|
| Light brown PEEK nut | 78077G | 10 u |
| Black PEEK nut | 982850 | 5 u |
| Red PEEK nut | 982860 | 5 u |
| Yellow PEEK nut | 982870 | 5 u |
| Blue PEEK nut | 982880 | 5 u |
| Green PEEK nut | 982890 | 5 u |

RELATED PRODUCTS

Range of Advion Interchim Scientific (U)HPLC analytical columns Uptisphere® CS Evolution™
Superficially porous & monodisperse silica.
Learn more about these products in the chapter: LC Analysis





PEEK HT hex head connector for UHPLC

- Specific PEEK HT material for higher pressure resistance
- One piece fitting
- Available in 10 - 32 thread for 1/16" tube and 6-40 thread for 1/32"
- Hand or wrench tightening

| Description | OD tube | P max. (bar) | P/N | Qty |
|----------------------|---------|--------------|--------|------|
| PEEK HT Fitting | 1/16" | 700 bar | PIY240 | 10 u |
| PEEK HT Fitting | 1/32" | 625 bar | PIY250 | 10 u |
| Manual clamping tool | 1/16" | | PIZ050 | 1 u |
| Manual clamping tool | 1/32" | | PIZ040 | 1 u |

Single PEEK Hex Head Connector

- One piece 10 - 32 fitting for 1/16" external tube
- < 5,000 psi or 350 bar
- Small footprint (1/4")
- Manual or wrench tightening
- Compatible with all 1/16" fittings

| Description | P/N | Qty |
|-------------------|---------|-----|
| Short (15 mm) | T7857S* | 5 u |
| Long (19.5 mm) | T7857L* | 5 u |
| Manual tightening | T7857F | 5 u |

*Allow the use of an identification ring.

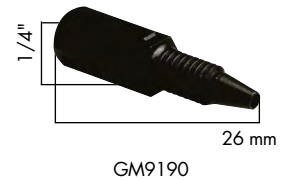
1-piece PPS (Polyphenylene Sulphide) fitting

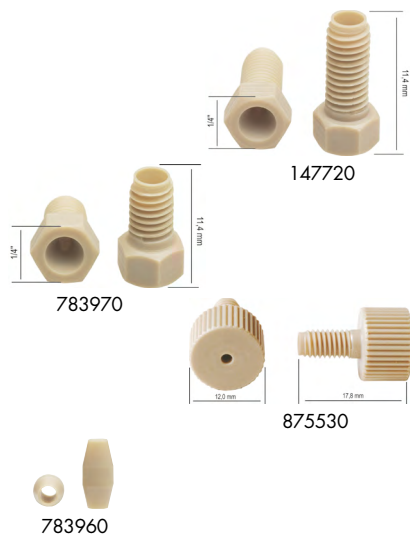
- Economical compared to PEEK
- Excellent chemical resistance
- Small footprint
- Pressure resistance < 350 bar

| Description | P/N | Qty |
|--------------------------|--------|-----|
| Black PPS fittings 10-32 | GM9170 | 5 u |

Identification rings for hexagonal head fittings

| | For PEEK fittings | | For PPS fittings | |
|-----------------------|-------------------|---------|------------------|---------|
| Natural | --- | --- | GM8960 | 5 u |
| White | U89030* | 5 u | GM8720* | 5 u |
| Dark gray | --- | --- | GM8830 | 5 u |
| Black | U89020* | 5 u | GM8840* | 5 u |
| Lavender | --- | --- | GM8930 | 5 u |
| Red | U89040* | 5 u | GM8970* | 5 u |
| Yellow | U89000* | 5 u | GM8950* | 5 u |
| Orange | --- | --- | GM9100 | 5 u |
| Brown | --- | --- | GM8770 | 5 u |
| Green | U89010* | 5 u | GM8940* | 5 u |
| Blue | U88990* | 5 u | GM8800* | 5 u |
| Purple | --- | --- | GM9050 | 5 u |
| Assortment of colors* | U89051 | 6 x 2 u | GM8791 | 6 x 2 u |





2-pieces PEEK connector with double ferrule

- The double ferrule allows a 2-point fixation
- Full biocompatibility
- High pressure resistance 420 bar (6,000 psi)
- Manual or wrench tightening
- Adaptable to all 1/16" fittings
- Ideal for use with PEEK tubing

Maximum operating pressure is 400 - 450 bar (6,000 - 6,500 psi). The double ferrules are made entirely of PEEK. They can be used with all conventional HPLC solvents. PEEK is particularly recommended if the compounds to be analyzed are sensitive to stainless steel.

| Description | P/N | Qty |
|-------------------------|--------|-----|
| Long PEEK nut (15 mm) | 147720 | 5 u |
| Short PEEK nut (7.5 mm) | 783970 | 5 u |
| PEEK manual nut | 875530 | 5 u |
| Double ferrule PEEK | 783960 | 5 u |

2-pieces PEEK connector with single ferrule

- Manual tightening
- Use up to 275 bar (~4,000 psi)
- Reusable nut, interchangeable ferrule
- Compatible with all types of 1/16" female fittings

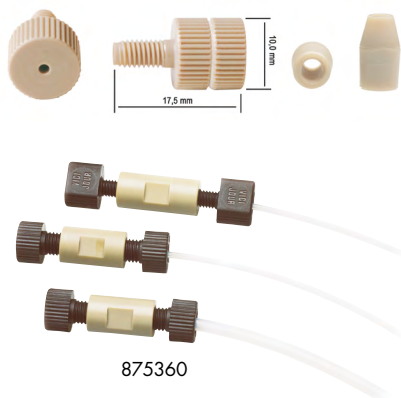
This fitting consists of a PEEK nut and a single PEEK ferrule. The maximum pressure is 275 bar. This system allows the connection with all types of 1/16" female fittings.

| Description | P/N | Qty |
|--|--------|-----|
| Manual nut 1/16" for 2-piece connector | 821461 | 5 u |
| Single ferrule 1/16" for 2-piece connector | 780760 | 5 u |

PEEK Union

- Connection to all types of 1/16" pipes (10-32 thread)
- Low dead volume
- 0.3 mm passage diameter

| Description | P/N | Qty |
|-------------------------|--------|-------|
| Union + 2 PEEK fittings | 875360 | 1 kit |
| Union only | 869290 | 1 u |





HPLC tees and crosses

- 100% PEEK-compatible
- Accept all manual connection systems (thread 10-32)
- Pressure rating: 10,000 psi (690 bar)
- Supplied: with or without fittings
- Flow diameter 0.4 mm

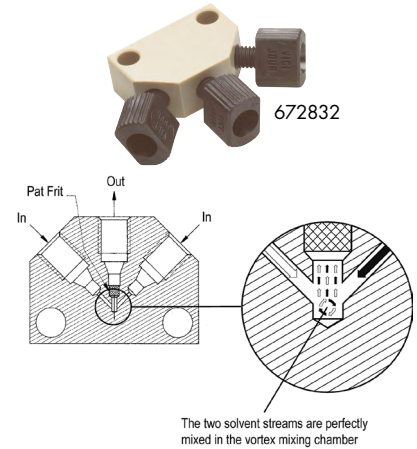
| Description | P/N | Qty |
|--------------------------------------|--------|-----|
| 1/16" PEEK tee only | 921490 | 1 u |
| 1/16" PEEK tee with 1/16" fittings | 921500 | 1 u |
| 1/16" PEEK cross alone | 921520 | 1 u |
| 1/16" PEEK cross with 1/16" fittings | 921540 | 1 u |



Biocompatible mixing tee

- Ideal mixing thanks to the 5 µm PAT frit
- Dead volume (including sinter): 4 µL
- Minimal pressure drop (10 psi at 1 mL/ min)
- Pressure resistance: 7,000 psi
- Comes with 3 PEEK fittings

| Description | P/N | Qty |
|------------------------------|--------|-----|
| Mixing tee + 3 PEEK fittings | 672832 | 1 u |



Column coupler (10-32)

Economical "two piece" coupler

This extremely simple coupler is the most economical way to connect column to pre-column. Consists of two single PEEK connectors and a 1/16" stainless steel tube with a small internal diameter and minimal length.

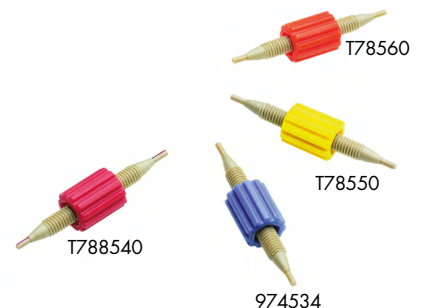
| Description | P/N | Qty |
|--|--------|-----|
| Economical "two-piece" coupler 0.25 mm | 387570 | 1 u |



"UNIVERSAL" one-piece coupler

- Column-column connection, column-pre-column connection, column-injector connection
- Manual tightening
- Pressure resistance: 5,000 psi
- Biocompatible (100% PEEK)
- Low dead volume (Ø int. 0.25 mm)

| Description | P/N | Qty |
|----------------|--------|-----|
| Blue 0.25 mm | 974534 | 1 u |
| Red 0.13 mm | T78540 | 1 u |
| Yellow 0.17 mm | T78550 | 1 u |
| Orange 0.50 mm | T78560 | 1 u |



"Toupie" coupler

| Bore | | Dead volume | P/N |
|---------|-------|-------------|--------|
| 0.50 mm | Kel-F | 6.0 µL | AD8391 |
| 1.50 mm | PEEK | 54 µL | AD7680 |





SafetyCaps: Safe Solvent Supply for any HPLC / UHPLC System

Organic solvents are toxic, flammable and the vapours can escape through the smallest openings.

The S.C.A.T. system guarantees a safe and fixed connection of all hoses and blocks harmful vapours for your safety without compromising the mixing ratio of the mobile phase.

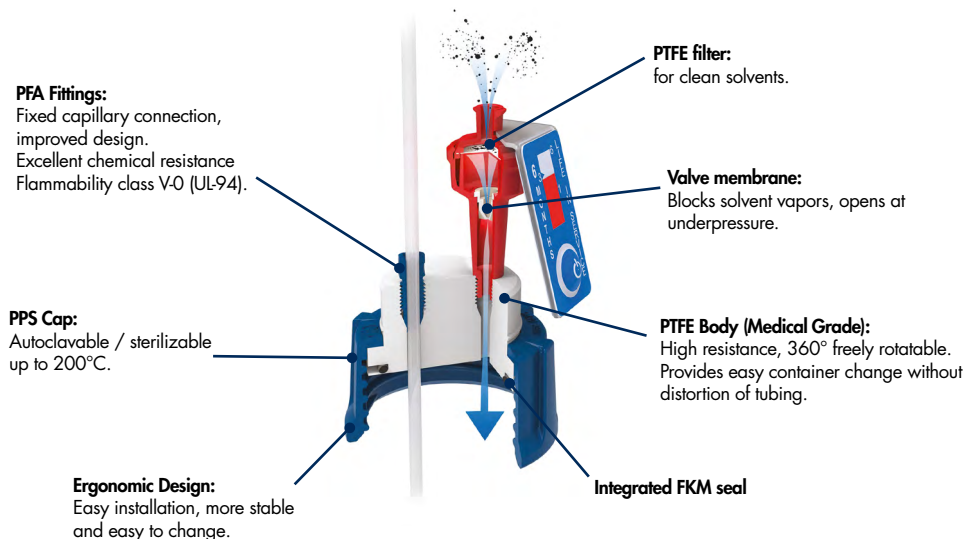
Ventilation valves ensure safe pressure equalization without under- or overpressure in the solvent cylinders.

The V2.0 venting valve is the safest valve on the market due to its design and components. It can be used with a flow rate of up to 400 ml/min.

It is equipped with a PTFE filter so that no particles enter the mobile phase bottle when the valve is opened.

In addition, it is possible to inject a gas or connect a tube to a desiccator using the female luer lock outlet.

The high-performance plastics used offer maximum chemical resistance.



307019



307519



307219



399909

SafetyCap for external diameter tubing $\leq 1/8''$ or 3.2 mm

GL45 SafetyCap

| 1/4" - 28 fittings for ext diam tube 1.6 ; 2.3 ; 3.2 mm | Capillary connections* | | | | |
|--|------------------------|---------------------|----------------------|-------------------|-------------------|
| | 1 SafetyCap I | 2 SafetyCap II | 3 SafetyCap III | 4 SafetyCap IV | 6 SafetyCap VI |
| SafetyCaps with air valve | 307019 | 307909 | 307910 | 307410 | 307520 |
| SafetyCaps with valve and air valve | 307119 | 307919 | 307920 | 307419 | 307519 |
| SafetyCaps with valve and air valve | --- | 307219 (1 valve) | 307319 (2 valves) | --- | --- |
| SafetyCaps - space saving with air valve | 399019 | 399909 | --- | --- | --- |

* = Number of fittings to connect capillaries.

Each cap is supplied with an air valve and 1/4" - 28 fittings for 1.6 mm, 2.3 mm and 3.2 mm external diameter tubing.



Werner: The clean flushing process

Installation of 4 Safety Caps (GL45 or GL28) or less using closed caps.
Easy installation: capillaries are reliably fixed and the wide opening of the bottle GL80 allows easy passage of tubing and solvent strainers or filters.

| Description | 4 sorties GL45 | 4 sorties GL38 |
|------------------------------|----------------|----------------|
| Werner adaptater GL80 | 106660 | 106696 |
| Description | P/N | |
| Bottle 1L GL80 (clear glass) | XF097A | |

Accessories for SafetyCaps

Air valves for SafetyCaps

Due to its design and components, the V2.0 ventilation valve is the safest on the market and can be used with a flow rate of up to 400 ml/min.
It is equipped with a PTFE filter so that no particles enter the mobile phase bottle when the valve is opened.

In addition, it is possible to inject a gas or to connect a tube to a desiccator using the female luer lock outlet.

The valve has a 1/4"-28 thread which fits to the majority of stoppers on the market.

| | 1 unit | 8 units | 10 units | 50 units |
|-----|--------|---------|----------|----------|
| P/N | 317010 | 397008 | 397010 | 397050 |

PFA fittings (Nut and ferrule integrated)

| Ø OD tubing | Thread size | PFA (5 u) | | White PTFE |
|-----------------|-------------|-----------|-------------|---------------|
| 1.6 mm = 1/16" | 1/4" - 28 | 107061 | Green | 107041 (10 u) |
| | | 107048 | Transparent | --- |
| 2.3 mm | 1/4" - 28 | 107059 | Purple | 107042 (10 u) |
| | | 107063 | Blue | 107043 (10 u) |
| 3.2 mm = 1/8" | 1/4" - 28 | 107060 | Black | --- |
| | | 107066 | Transparent | --- |
| 4.76 mm = 3/16" | 5/4" - 24 | --- | --- | 107045 (1 u) |
| 6.35 mm = 1/4" | 1/8"NPT | --- | --- | 107044 (1 u) |

Plugs

| Thread | Replacement | Material | P/N - 10 u | P/N - 5 u | P/N - u |
|-----------|--------------------------------|----------|------------|-----------|---------|
| 1/4" - 28 | Standard fitting | PFA | 160501 | 160502 | --- |
| 5/4" - 24 | Fitting 3/16" = 4.76 mm | PTFE | 160503 | 160515 | --- |
| 1/8" NPT | Fitting 1/4" = 6.35 mm or Leak | PTFE | --- | --- | 160506 |
| GL14 | Exhaust filter | PTFE | --- | --- | 107620 |



106660



317010



107061

107059

107063



107045

107044



160501

160503

160506



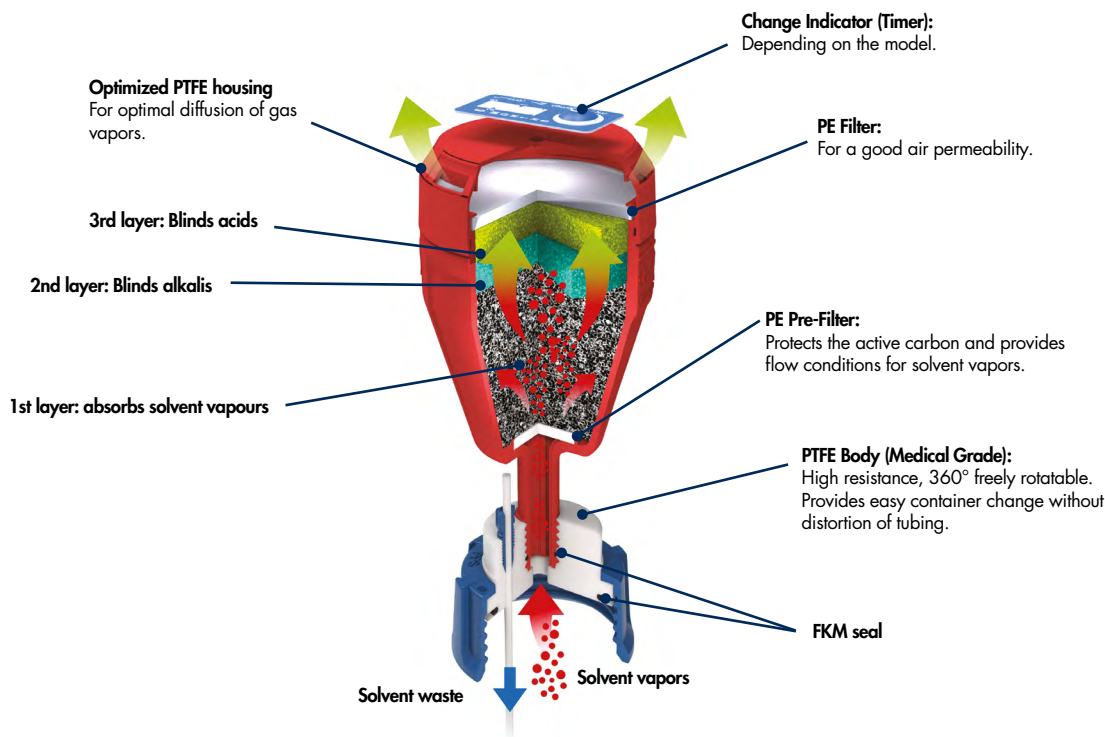
SafetyWaste Caps to collect HPLC, UHPLC waste safely

The canister breathes without releasing harmful solvent vapors thanks to the use of an exhaust air filter.

The exhaust filters contain special particles with a very large specific surface area of 1,500 m²/g in order to absorb a maximum of vapor (99% of volatile substances).

The plugs are supplied without exhaust air filters (see following pages).

- Fire protection according to UL 94 (safety standard for the flammability of plastics)
- Autoclavable and sterilizable up to 200°C
- High-quality, FDA-compliant materials used



307500

| | | 3 capillary connections | 2 capillary connections + 1 leak | 4 capillary connections + 1 leak | 3 capillary connections + 3 leaks |
|--------|--------------------------|-------------------------|----------------------------------|----------------------------------|-----------------------------------|
| GL40 | Standard | 307108 | 307109 | --- | --- |
| GL45 | Standard | 307912 | 307923 | 308921 | --- |
| S60/61 | Standard | 307918 | 307925 | 307931 | 307500 |
| | Electrostatic conductive | 307916 | 307944 | --- | --- |

SafetyWaste Caps are supplied with fittings but without the exhaust filter.

1/4" - 28 fittings for 3.2 mm and 2.3 mm capillaries, leak fitting for 5.0 to 11.5 mm internal diameter.



307912



307923



307944



307931



Safety Waste Caps V2.0 with Level Control (mechanical or electronic)

| | | | 3 capillary connections | 2 capillary connections et 1 leak |
|--------|--------------------------|--------------------------|-------------------------|-----------------------------------|
| S60/61 | Mechanical Level control | Standard | 307961 | 307964 |
| | | Electrostatic conductive | 308961 | 308964 |
| | Mechanical Level control | Standard | 308401 | 308403 |
| | | Electrostatic conductive | 308402 | 308404 |

1/4" - 28 fittings for 3.2 mm and 2.3 mm capillaries, leakage fitting for 5.0 to 11.5 mm flexible tubes internal diameter.



308401

308404

Safety Waste Caps

| | | 3 capillary connections | 2 capillary connections + 1 leak | 4 capillary connections | 4 capillary connections + 1 leak | 5 capillary connections |
|-------|--------------------------|-------------------------|----------------------------------|-------------------------|----------------------------------|-------------------------|
| S55 | Standard | 107917 | 107924 | --- | --- | --- |
| | Electrostatic conductive | 107936 | 107943 | --- | --- | --- |
| S51 | Standard | 107930 | 107922 | --- | --- | --- |
| | Electrostatic conductive | 107935 | 107942 | --- | --- | --- |
| S65 | Standard | --- | --- | --- | 108047 | 108046 |
| | Electrostatic conductive | --- | --- | --- | 108055 | --- |
| S70 | Standard | 107913 | 107926 | --- | --- | --- |
| | Electrostatic conductive | 107915 | 107945 | --- | --- | --- |
| GLS80 | Standard | --- | --- | 107029 | 107033 | --- |
| S90 | Standard | --- | --- | 107927 | 107947 | --- |
| | Electrostatic conductive | --- | --- | 107928 | 107949 | --- |
| S95 | Standard | --- | --- | 107256 | 107257 | --- |
| B53 | Standard | --- | --- | --- | 107037 | --- |
| B63 | Standard | 107051 | 107050 | --- | --- | --- |
| B83 | Standard | --- | --- | 107036 | 107034 | --- |
| | Electrostatic conductive | --- | --- | 107052 | 107053 | --- |

1/4" - 28 fittings for 3.2 mm and 2.3 mm capillaries, leak fitting for 5.0 to 11.5 mm flexible tubes internal diameter.



307964

107917

107924

107928

Safety Waste Caps with level indicator

| | | | 3 capillary connections | 2 capillary connections + 1 leak | 4 capillary connections | 4 capillary connections + 1 leak |
|-----|--------------------------|--------------------------|-------------------------|----------------------------------|-------------------------|----------------------------------|
| S55 | Mechanical Level control | Standard | 107960 | 107963 | --- | --- |
| | | Electrostatic conductive | 108030 | --- | --- | --- |
| | Electronic Level Control | Standard | 108200 | 108201 | --- | --- |
| | | Electrostatic conductive | --- | --- | --- | --- |
| S51 | Mechanical Level control | Standard | --- | 107242 | --- | --- |
| | Electronic Level Control | Standard | --- | 107241 | --- | --- |
| S65 | Mechanical Level control | Standard | --- | --- | --- | 107969 |
| S70 | Mechanical Level control | Standard | 107962 | 107965 | --- | --- |
| | Electronic Level Control | Standard | --- | 108407 | --- | --- |
| S90 | Mechanical Level control | Standard | --- | --- | 107966 | 107967 |
| | Electronic Level Control | Standard | --- | --- | 108031 | --- |
| S95 | Mechanical Level control | Standard | --- | --- | --- | 107258 |
| | Electronic Level Control | Standard | --- | --- | --- | 107259 |
| B63 | Mechanical Level control | Standard | --- | 107247 | --- | --- |
| | Electronic Level Control | Standard | --- | 107248 | --- | --- |
| B83 | Mechanical Level control | Standard | --- | --- | --- | 108156 |
| | Electronic Level Control | Standard | --- | --- | --- | 108205 |

1/4" - 28 fittings for 3.2 mm and 2.3 mm capillaries, leak fitting for 5.0 to 11.5 mm flexible tubes internal diameter.



107960

108030

108201

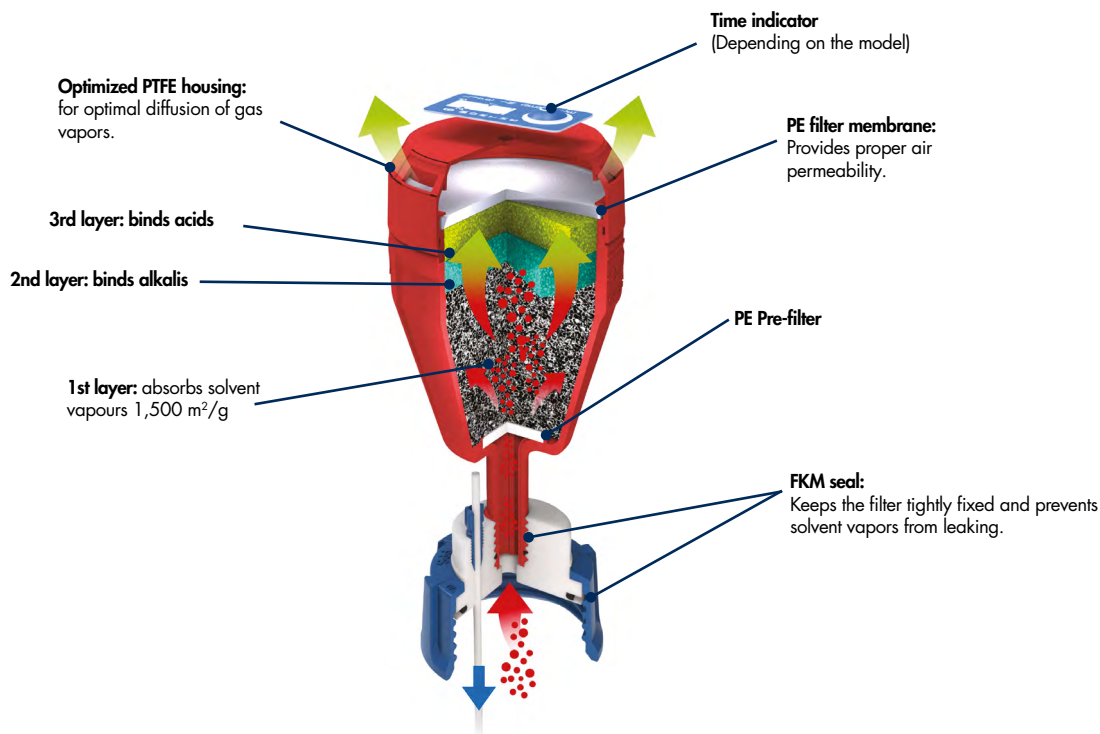




Exhaust filters V3.0

- SCAT exhaust filters block off harmful vapors and ensure for safe pressure equalization in the waste containers of HPLC systems.
- Our core active carbon has been optimized for taking up organic solvent vapors and has been tested by regulatory ASTM/DIN/ISO methods
- Optimization of the plastic housing allows better diffusion of solvent vapors
- 3 types of layers to absorb organic, acid and basic solvent vapors
- Selection of activated carbon with strict physical and chemical properties (hardness, adsorption capacity and particle size control) is more effective (adsorption capacity of 1,500 m²/g)

Exhaust air filters are available with a time indicator or a label to warn the date of replacement



| Filter type | Life time |
|-------------|-----------|
| S | 3 months |
| M | 6 months |
| L | 12 months |

| | V3.0 with time indicator | | V3.0 with label | |
|---|--------------------------|--------------|-----------------|--------------|
| S | 410534 (1 u) | 490335 (4 u) | --- | --- |
| M | 410535 (1 u) | 490336 (2 u) | 407982 (1 u) | 490914 (2 u) |
| L | 407986 (1 u) | 490986 (2 u) | --- | --- |

The exhaust filter has been optimized for the capture of eluent vapors used in HPLC. The lifetime of the filter depends, among other things, on the composition of the waste collected, the temperature and flow rate.

These factors can vary considerably from customer to customer.

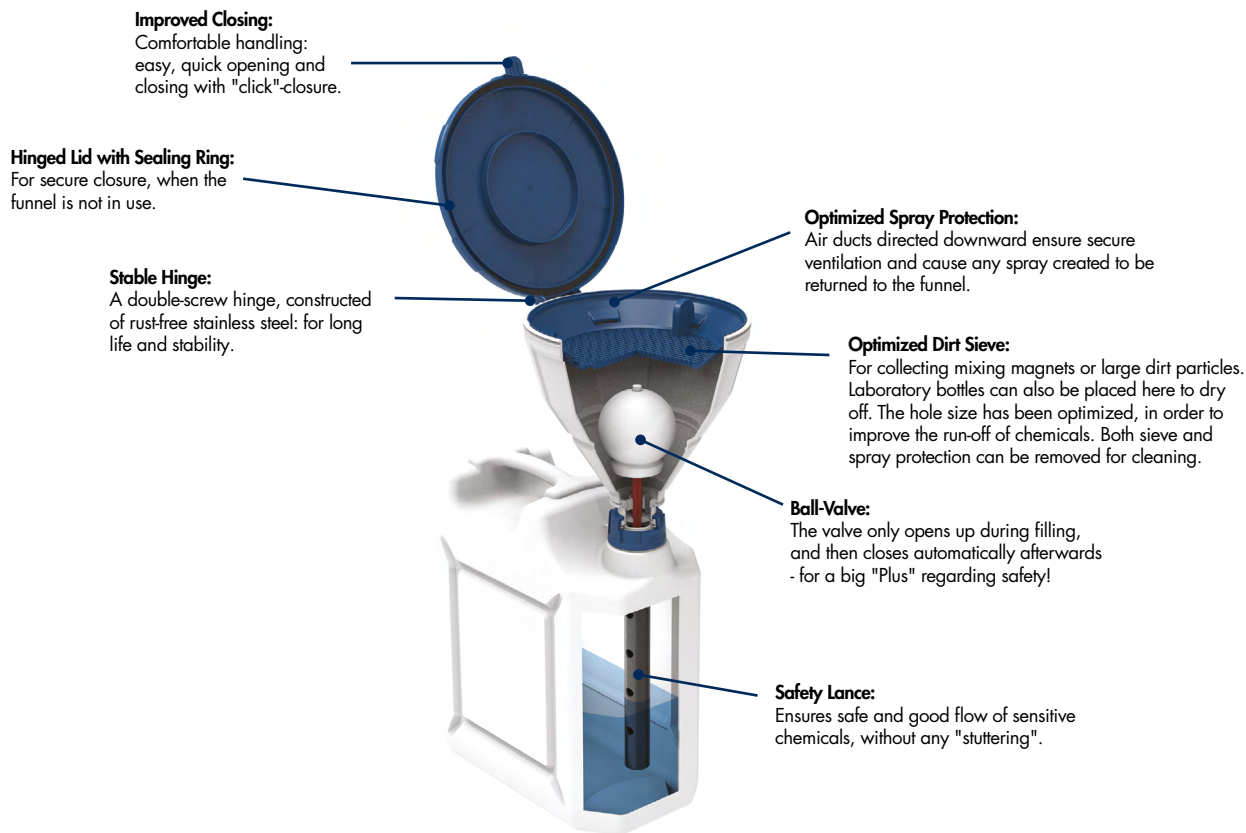
To ensure that you are always safe, we recommend you replace your filters every 3 months with the S version, every 6 months with the M version and every year with the L version.



Arnold Safety Funnel: ball valve and hinged lid

This funnel allows you to safely empty your used solvents into a canister: the funnel is fixed to the canister and remains stable during transfer; the ball system opens when depositing liquids and then closes automatically. In addition, it is equipped with a PE-HD grid to filter out residues and to collect magnetic bars or other solid materials. The funnel can be equipped with a "lance" for a better diffusion of the liquid in the canister.

As for the lid, it allows the canister + funnel to be hermetically sealed.



| Thread of container | Lance 220 mm | P/N | P/N Electrically conductive |
|--------------------------|--------------|--------|-----------------------------|
| GL45 | x | 317642 | 317622 |
| GL45 | - | --- | 317638 |
| S50 | x | 317649 | 317629 |
| S51 | x | 317644 | 317624 |
| B53 | x | 317632 | --- |
| S55 | x | 317645 | 317625 |
| S60/61 | x | 317641 | 317621 |
| S65 | x | 317646 | 317626 |
| S70/71 | x | 317648 | 317628 |
| B83 | x | 317647 | 317627 |
| S90 | x | 317643 | 317623 |
| S95 | x | --- | 317635 |
| R2" BSP/G2" + 2" TriSure | - | --- | 317630 |





Models without ball valve, for highly viscous liquids

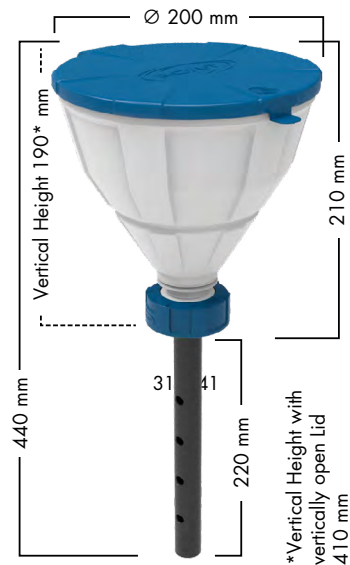
| Thread of container | P/N Electrically conductive |
|---------------------|-----------------------------|
| GL45 | 317633 |
| S60/61 | 317634 |

| Description | Color | P/N |
|-------------|-------|--------|
| Dirt sieve | Blue | 317640 |
| | Black | 317620 |

SafetyWaste set: Canister + Arnold funnel

| Description | 10 L | 20 L |
|---|--------|--------|
| Kit: Canister S55 + Safety funnel ball Arnold (white) | 307450 | --- |
| Electrostatic conductive kit: Canister 60/61 with floater | 307320 | 307321 |

- Material: PE-HD
- Color Blue / White / Black



* The total height can vary, dependent upon the thread adapter with which the funnel has been delivered.

TECHNICAL TIP

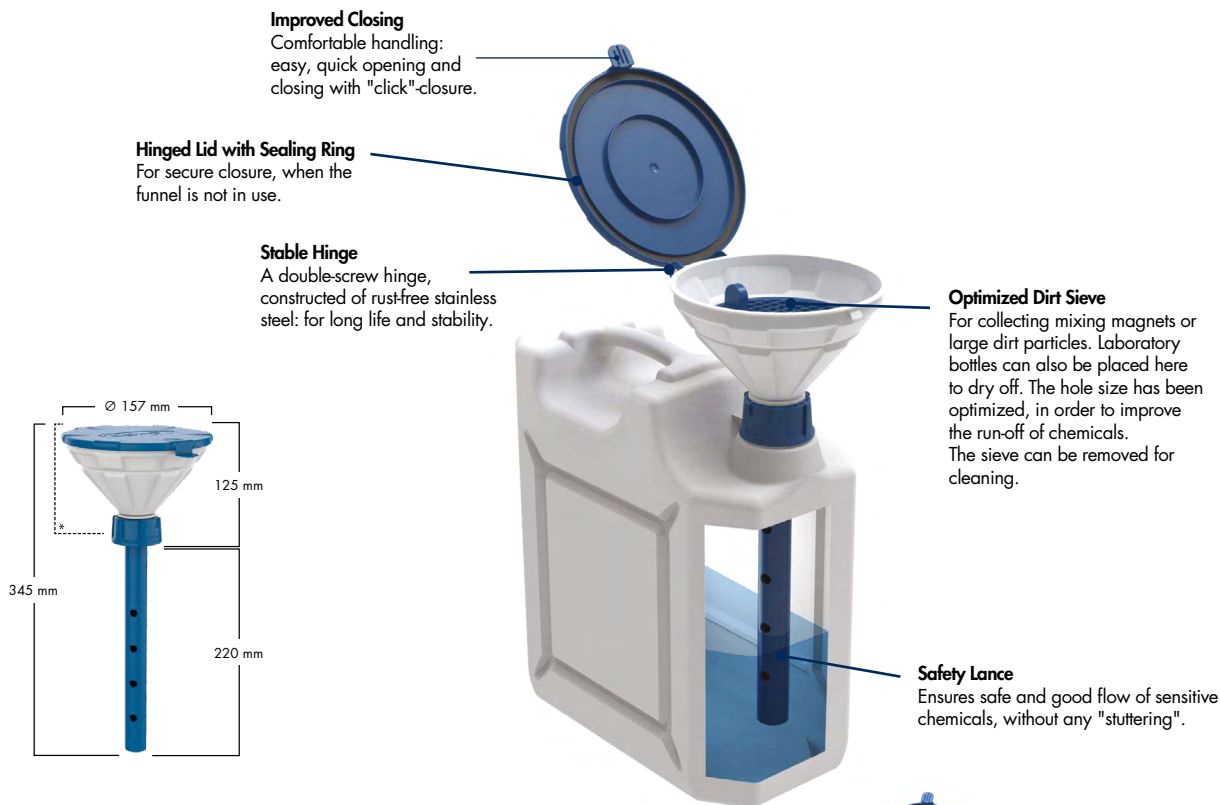
Electrostatic conductive systems:

All components made of PE-HD EL can be earthed and are suitable for voltage equalisation according to TRGS 727. TRGS 727.

Electroconductive PE-HD EL has an earth resistance discharge of $< 109 \Omega$, according to DIN EN 61340-5-1 and is suitable for zones 0, 1 and 2 in accordance with the Ordinance on Hazardous Substances (GefStoffV), EN 1127-1, DIN EN 60079-10-1 and DIN EN 60079-10-2. It is resistant to chemicals as defined in SEFA 3 and SEFA 8.



Safety funnel Marco with hinged lid



| Thread of canister | Lance 220 mm | Integrated level control | Kit standard | Electrically conductive |
|--------------------|--------------|--------------------------|--------------|-------------------------|
| GL45 | - | - | 318952 | 318962 |
| GL45 | x | - | 318992 | --- |
| S50 | - | - | 318955 | --- |
| S50 | x | - | 318995 | 318985 |
| S51 | - | - | 318953 | --- |
| S51 | x | - | 318993 | 318983 |
| S55 | - | - | 318951 | 318961 |
| S55 | x | - | 318991 | 318981 |
| S60/61 | - | - | 318950 | 318960 |
| S60/61 | x | - | 318990 | 318980 |
| S60/61 | - | x 150 | --- | 317637 |
| S60/61 | - | x 190 | --- | 317651 |
| S65 | - | - | 318954 | 318964 |
| S65 | x | - | 318994 | 318984 |

| | Blue | Black electrically conductive |
|--|--------|-------------------------------|
| Dirt sieve | 318999 | 318989 |
| Replacement dirt sieve with small holes 3 x 3 mm | 118999 | --- |
| Replacement lid | 318998 | 318988 |

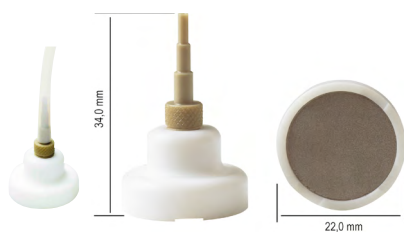
SafetyWaste set: Canister + Marco funnel

| | 2.5 L | 5.0 L | 10 L |
|--|--------|--------|--------|
| Standard version | 307316 | 307317 | 307318 |
| Electrically conductive version with collecting tray | --- | --- | 307315 |



CONSUMABLES

HPLC accessories - Mobile phase filters



"Last Drop" filter

- Flat bottom to allow pumping of the last milliliters of mobile phase, reducing the risk of de-priming
- Large filtration surface
- Stainless steel or PTFE filter element with different porosities
- 2 types of connections possible:
 - Tripod or 3 diameter adapter for tubes with internal diameter 1.5, 2.2 and 3.5 mm
 - 1/4"-28 connections for 1/8" external diameter tubes

| | 2 μm | Max flow rate | 2.5 μm | Max flow rate | 5 μm | Max flow rate | 10 μm | Max flow rate |
|--|-----------------|---------------|-------------------|---------------|-----------------|---------------|------------------|---------------|
| Tripods: adapter for tubes 1.5 - 2.2 and 3.5 mm internal diameter | | | | | | | | |
| Stainless steel frit | 921321 | 28 mL/min | --- | --- | GM9030 | 30 mL/min | 921341 | 30 mL/min |
| PTFE frit | --- | --- | 921361 | 1.2 mL/min | 921371 | 2.6 mL/min | 921381 | 3.5 mL/min |
| Hydrophobic PTFE frit | --- | --- | --- | --- | --- | --- | YE4860 | 11 mL/min |
| 1/4"-28 fittings for 1/8" OD tubing | | | | | | | | |
| Stainless steel frit | GM9030 | 28 mL/min | --- | --- | GM8980 | 30 mL/min | AU0680 | 30 mL/min |
| PTFE frit | --- | --- | AU0650 | 1.2 mL/min | AU0660 | 2.6 mL/min | AU0670 | 3.5 mL/min |
| Hydrophobic PTFE frit | --- | --- | --- | --- | --- | --- | YE4861 | 11 mL/min |



"Last drop" filters + helium bubbling

2 in 1, this filter combines the solvent filter and the helium bubbling filter.

- Stainless steel or PTFE filtering part parallel to the bottom of the solvent tank to remove almost all the solvent (porosity available in 2, 5 and 10 μm)
- Stainless steel or PTFE filtering part on the side for helium bubbling (porosity 10 μm)

| | 2 μm | Max flow rate | 2.5 μm | Max flow rate | 5 μm | Max flow rate | 10 μm | Max flow rate |
|-----------------------|-----------------|---------------|-------------------|---------------|-----------------|---------------|------------------|---------------|
| Stainless steel frit | 413511 | 30 mL/min | --- | --- | T78650 | 30 mL/min | 413521 | 30 mL/min |
| PTFE frit | --- | --- | 413531 | 1.2 mL/min | T78640 | 2.6 mL/min | 413541 | 3.5 mL/min |
| Hydrophobic PTFE frit | --- | --- | --- | --- | --- | --- | YE4820 | 11 mL/min |

Replacement parts

| Description | P/N | Qty |
|-----------------------------|--------|------|
| PEEK nuts 1/4"-28 tube 1/8" | 921390 | 10 u |
| 1/8" ETFE ferrules | 163840 | 10 u |



Biocompatible high flow rate last drop filters

- The solution to combine biocompatibility and high flow rate
- Ceramic frit
- Glass body
- 1/8" tube connection

| Description | 1-1.6 µm | Max flow rate | 10-16 µm | Max flow rate | 40-100 µm | Max flow rate |
|----------------------|----------|---------------|----------|---------------|-----------|---------------|
| Ceramic frit | YE4870 | 30 mL/min | YE4800 | 50 mL/min | YE4810 | 200 mL/min |
| PEEK replacement nut | YE4630 | | 1u | | | |

Economical last drop filters

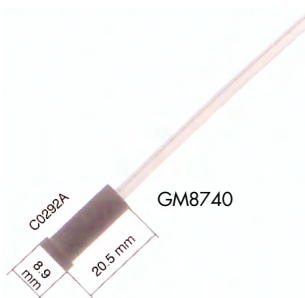
- Stainless steel frit (2 or 10 µm) crimped into a PTFE body
- Easy to install (1/8" tube can be simply plugged in it)
- Reduces the risk of your HPLC pump de-priming
- Two models are available: 19 mm and 22 mm

| Ø & nature/ Porosity of the frit | 2 µm | Max flow rate | 2.5 µm | Max flow rate | 5 µm | Max flow rate | 10 µm | Max flow rate |
|--|--------|---------------|--------|---------------|--------|---------------|--------|---------------|
| 19 mm PTFE | --- | | U88890 | 1.2 mL/min | U88900 | 2.6 mL/min | U88880 | 3.5 mL/min |
| 22 mm PTFE | --- | | AU0530 | 1.2 mL/min | AU0540 | 2.6 mL/min | U88910 | 3.5 mL/min |
| 19 mm SS | 983020 | 30 mL/min | --- | --- | --- | --- | 983030 | 30 mL/min |
| 22 mm SS | 983040 | 30 mL/min | --- | --- | --- | --- | 983050 | 30 mL/min |

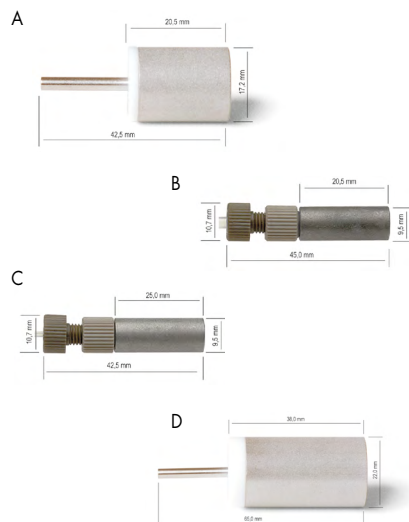
Biocompatible suction filter

- Totally inert polymer (no metal parts in contact with the solvent)
- Tube connections using a ferrule and nut:
allowing all 1/8" tubing to be attached regardless of internal diameter
- Replaceable filter element

| Description | 5 µm | Max flow rate | 20 µm | Max flow rate |
|----------------------|--------|---------------|--------|---------------|
| Complete PTFE filter | 821760 | 2.2 mL/min | U88370 | 500 mL/min |
| Replacement filter | 821770 | 2.2 mL/min | U88380 | 500 mL/min |
| Economical PE filter | GM8740 | 300 mL/min | --- | --- |



HPLC accessories - Mobile phase filters



Stainless steel filters for mobile phase or degassing

- Different configurations and porosities
- Tube connections using a ferrule and a nut: this allows all 1/8" or 1/16" tubes to be fixed regardless of internal diameter or socket connections in tubes with an internal diameter of 1/8".
- The 2 μm version is ideal as a helium diffuser (0 to 400 mL/min) in any configuration

| \emptyset & nature/ Porosity of the frit | 2 μm | Max flow rate | 10 μm | Max flow rate | 20 μm | Max flow rate |
|---|-----------------|---------------|------------------|---------------|------------------|---------------|
| 1/8" (model B) | 188104 | 35 mL/min | 887133 | 100 mL/min | U88480 | 120 mL/min |
| 1/16" (model C) | 230381 | 35 mL/min | 976602 | 35 mL/min | U88490 | 35 mL/min |

| \emptyset & nature/ Porosity of the frit | 2 μm | Max flow rate | 25 μm | Max flow rate | | |
|---|-----------------|---------------|------------------|---------------|--|--|
| 17.2 mm (model A) | 344510 | 50 mL/min | --- | --- | | |
| 22.0 mm (model D) | 542410 | 95 mL/min | 344540 | 100 mL/min | | |

Low pressure in-line cartridge filters

- Easy to replace
- 1/4"-28 connection
- Three different porosities
- Stainless steel body
- Stainless steel frit pressed into an inert cartridge



| | 2 μm | Max flow rate | 10 μm | Max flow rate | 75 μm | Max flow rate |
|-----------|-----------------|---------------|------------------|---------------|------------------|---------------|
| P/N / 5 u | GC3410 | 30 mL/min | GC3400 | 30 mL/min | GC3420 | 30 mL/min |

Union and nuts not included.

All flow rates were measured with methanol/water (1:1).

RELATED PRODUCTS

Dispensing box: UptiVial™ Kit
A single reference for your bottles, caps & glassware, an attractive price and a dispenser box.
Available in stock. See chapter:
Bottles, Capsules & Glassware - UptiVial™





Opti-Solv direct connection filters

A solution for the protection of columns and valves, adapted to your needs according to your applications.

- Easy to use, they are installed as a 10 - 32 manual clamp fitting.
- Compatible with all columns
- Version without dead volume

Opti-Solv Mini filter

The Opti-Solv mini filter is equipped with 2 frit materials of different porosities (5 µm then 0.5 ; 2 ; 5 µm)

| Filter porosity | P/N | Qty |
|-----------------|-------------|-----|
| 0.5 µm | 10-04-00095 | 5 u |
| 2 µm | 10-04-00097 | 5 u |
| 5 µm | 10-04-02768 | 5 u |

Opti Solv Micro Filter up to 6,000 psi

Internal frit volume: < 200 nl

| Filter porosity | Standard | Biocompatible | Qty |
|-----------------|-------------|---------------|-----|
| 0.5 µm | --- | 10-04-03621 | 5 u |
| 1 µm | 10-04-03357 | --- | 5 u |
| 2 µm | 10-04-03389 | --- | 5 u |
| 10 µm | --- | 10-04-03707 | 5 u |

Optisolv nanofilter

Ideal for mass spectrometry applications to avoid clogging of the electrospray and nanospray mechanisms.

Internal volume < 50 nL

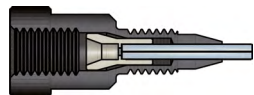
| Filter porosity | Biocompatible | Qty |
|-----------------|---------------|-----|
| 0.5 µm | 10-04-03625 | 5 u |

In-line filters Upti-filter

Protection of your HPLC columns and pre-columns.

- Direct in-line mounting by simple manual tightening.
- Lower dead volume than traditional in-line filters.
- Filter body in PEEK, with stainless steel filter element 0.5 µm or 2 µm
- Maximum operating pressure: 5,000 psi or 350 bar

| Description | P/N | Qty |
|--|--------|------|
| PEEK in-line filter with 2 µm stainless steel filter element | R21281 | 10 u |
| PEEK in-line filter with 0.5 µm stainless steel filter element | T50270 | 10 u |





In-line high pressure filters

The EXP Precolumn hand tight filter system is ideal for protecting UHPLC columns with small particle sizes.

Simple, innovative and easy to use, this hand-tight assembly is validated up to 20,000 psi and tested up to 30,000 psi.

The reusable holder allows the use of 0.5 μm or 0.2 μm filter cartridges with very low dead volume and low dispersion.

It is equipped with EXP type "fitting" titanium/PEEK ferrule.



Very high pressure UHPLC filters - Opti-Solv EXP2 (External Pressure)

| | 1 u | 5 u | 10 u |
|------------------------|-------------|-------------|-------------|
| Filter bodies | 15-04-05242 | --- | --- |
| 0.2 μm frit | --- | 15-04-05263 | 15-04-05264 |
| 0.5 μm frit | --- | 15-04-05261 | 15-04-05262 |
| 2 μm frit | --- | 15-04-05259 | 15-04-05260 |

In-line filters or direct connection

- Up to 15,000 psi
- Volume 5 μL
- Stainless steel body and ferrule
- 0.5 μm stainless steel frit



| | In-line filter | Filter with direct connection |
|-------------------------------|----------------|-------------------------------|
| Body + frit 0.5 μm | 850-1025 | 850-1020 |
| Frit 0.5 μm (5 u) | 850-1020-01 | 850-1020-01 |

High capacity in-line filters

- 316 stainless steel filter
- Filtering surface: 2.2 cm^2

| | Internal Volume | Standard version 6,000 psi | High pressure version 15,000 psi | Replacement frits per 5 u |
|-------------------|-------------------|-------------------------------|-------------------------------------|------------------------------|
| 2 μm | 120 μL | 850-1310 | 850-1310HP | 850-1320 |
| 0.5 μm | 100 μL | 850-1315 | 850-1315HP | 850-1325 |

Replaceable and interchangeable frits.

Iso-Prep inline filter (21.2 mm)

- For protecting 10.0 ; 15.0 ; 21.2 ; 30.0 ; 50.0 mm preparative columns
- Use up to 8 000 psi or 550 bar
- 2 μm frit and 21.2 mm diameter, easy frit replacement



| Description | P/N | Qty |
|--|--------|-----|
| In line filter 21.2 mm (body + 2 μm frit) | CE4600 | 1 u |
| Replacement frit | CE4620 | 1 u |



Electronic flowmeters for liquids

The solution to know the real flow rate delivered by your HPLC pump

- Flow measurement from 50 $\mu\text{L}/\text{min}$ to 25 mL/min
- Fast, accurate flow reading (4 digit display)
- Accuracy < 1.0% (0.5% from 0.25 mL/min to 5 mL/min)
- Volumetric measurement - not dependent of solvent nature
- Calibrated device, delivered with a certificate
- Compact device: 138 x 76 x 45 mm
- 320 g

These flowmeters, with a very wide range of flow rates, allow you to qualify your pump with a certified instrument.

The small volume of the internal cell (140 μL) reads the flow rate very quickly (about 25 s at 1 mL/min).

The measured solvent is only in contact with PEEK, PTFE, and borosilicate glass parts. This measurement is not dependent of the solvent as long as the viscosity does not exceed 10 cP.

For the qualification of your equipment, the flow meter can be connected to your computer via RS232 or USB (optional) or to a specific printer in order to record the flow rate.

The device is delivered in a case with all the useful accessories (cleaning, mounting bracket, user manual and certificate). It cannot be used online.



| Description | P/N |
|---|--------|
| Liquid flow meter from 0.05 to 25 mL/min calibrated at 1 mL/min | U95540 |
| Liquid flow meter from 0.05 to 25 mL/min calibrated at 0.5 - 1.0 - 1.5 mL/min | U95550 |
| Liquid flow meter from 0.05 to 25 mL/min calibrated at 0.1 - 1.0 - 2 mL/min | HV9150 |
| Options | P/N |
| Option interface USB | BL6290 |
| Printer | CA1700 |
| Battery operated | |
| RS232 interface | |
| Delivered with 10 rolls of paper | |
| Compact: 47 x 92 x 108 mm | |
| 330 g | |

Recalibration on request.



HPLC accessories - Empty HPLC columns



Empty HPH™ analytical columns

- HPLC & UHPLC compatible
- Maximum tube resistance: 1,200 bar

The HPH kit includes one HPH™ stainless steel tube, one 2 µm inlet frit, one 0.5 µm outlet frit, two stainless steel end fittings, two 1/16" plugs.

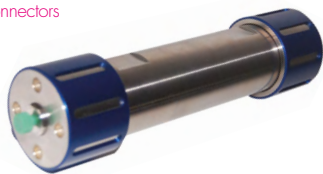
| Dimension | P/N | Qty | Dimension | P/N | Qty |
|--------------|-------------|-------|--------------|-------------|-------|
| 250 x 4.6 mm | HPH-250/046 | 1 kit | 250 x 3.0 mm | HPH-250/030 | 1 kit |
| 200 x 4.6 mm | HPH-200/046 | 1 kit | 150 x 3.0 mm | HPH-150/030 | 1 kit |
| 150 x 4.6 mm | HPH-150/046 | 1 kit | 125 x 3.0 mm | HPH-125/030 | 1 kit |
| 125 x 4.6 mm | HPH-125/046 | 1 kit | 100 x 3.0 mm | HPH-100/030 | 1 kit |
| 100 x 4.6 mm | HPH-100/046 | 1 kit | 75 x 3.0 mm | HPH-075/030 | 1 kit |
| 75 x 4.6 mm | HPH-075/046 | 1 kit | 50 x 3.0 mm | HPH-050/030 | 1 kit |
| 50 x 4.6 mm | HPH-050/046 | 1 kit | 30 x 3.0 mm | HPH-030/030 | 1 kit |
| 30 x 4.6 mm | HPH-030/046 | 1 kit | 25 x 3.0 mm | HPH-025/030 | 1 kit |
| 25 x 4.6 mm | HPH-025/046 | 1 kit | 250 x 2.1 mm | HPH-250/021 | 1 kit |
| 300 x 4.0 mm | HPH-300/040 | 1 kit | 150 x 2.1 mm | HPH-150/021 | 1 kit |
| 250 x 4.0 mm | HPH-250/040 | 1 kit | 125 x 2.1 mm | HPH-125/021 | 1 kit |
| 200 x 4.0 mm | HPH-200/040 | 1 kit | 100 x 2.1 mm | HPH-100/021 | 1 kit |
| 150 x 4.0 mm | HPH-150/040 | 1 kit | 75 x 2.1 mm | HPH-075/021 | 1 kit |
| 125 x 4.0 mm | HPH-125/040 | 1 kit | 50 x 2.1 mm | HPH-050/021 | 1 kit |
| 50 x 4.0 mm | HPH-050/040 | 1 kit | 30 x 2.1 mm | HPH-030/021 | 1 kit |
| 30 x 4.0 mm | HPH-030/040 | 1 kit | 25 x 2.1 mm | HPH-025/021 | 1 kit |

Stainless steel or PEEK microcolumns a references available on request.

50 mm available on request.

The prep columns are delivered with:

- 1 tube
- 2 frits
- 2 connectors



Empty HPH™ preparative columns

- Easily replaceable capsule frit
- High quality internal surfacing
- Frit 5 µm inlet and 2 µm outlet

| Diameter | Length 250 mm | Length 150 mm | Length 100 mm | Length 50 mm |
|----------|---------------|---------------|---------------|--------------|
| 30 mm | 1E7940 | 1E7930 | 1E7920 | 1E7910 |
| 21.2 mm | 1E79L0 | 1E7890 | 1E7880 | 1E7870 |
| 10 mm | 1E7850 | 1E7840 | 1E7830 | 1E7820 |

Packing tool

| | |
|---|-------------|
| Packing adapter for analytical columns | HPH-ADAPTER |
| Packing adapter with union for 10 mm preparative columns | 1F8000 |
| Packing adapter with union 30 mm for 21.2 and 30 mm preparative columns | 1F8010 |
| Union for 21.2 mm preparative column | 1F8030 |

Plugs

| Description | P/N |
|--------------------|--------|
| Plugs 1/16" (10 u) | AD8762 |





Stainless Steel Frits

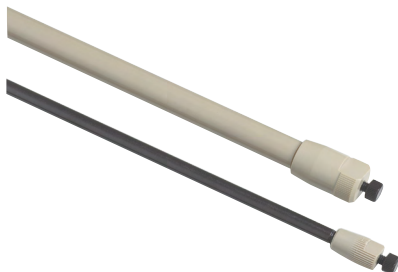
| OD frit | mm | Thickness inches | mm | Porosity | Frit volume | Qty | P/N |
|---------|------|------------------|------|----------|-------------|-----|--------|
| 1/16" | 1.59 | 0.03 | 0.76 | 0.5 µm | 0.39 µL | 5 u | YE3270 |
| | | | | 1 µm | 0.45 µL | 5 u | GM9190 |
| | | | | 2 µm | 0.53 µL | 5 u | GM9180 |
| | | | | 10 µm | 0.60 µL | 5 u | GB3681 |
| 1/8" | 3.18 | 0.04 | 1.02 | 0.5 µm | 2.10 µL | 5 u | GM9150 |
| | | | | 1 µm | 2.43 µL | 5 u | GM9080 |
| | | | | 2 µm | 2.83 µL | 5 u | GM8810 |
| | | | | 10 µm | 3.24 µL | 5 u | 846511 |
| 1/4" | 6.35 | 0.04 | 1.02 | 0.5 µm | 8.39 µL | 5 u | GM9090 |
| | | | | 2 µm | 11.30 µL | 5 u | 165200 |
| | | | | 10 µm | 12.91 µL | 5 u | GM9000 |
| 3/8" | 9.53 | 0.04 | 1.02 | 0.5 µm | 18.91 µL | 5 u | GM8900 |
| | | | | 2 µm | 25.45 µL | 5 u | GM9040 |
| | | | | 10 µm | 29.09 µL | 5 u | AF2600 |
| 1/2" | 12.7 | 0.04 | 1.02 | 0.5 µm | 33.58 µL | 5 u | GM9230 |
| | | | | 2 µm | 45.20 µL | 5 u | GM8890 |
| | | | | 10 µm | 51.66 µL | 5 u | GM8730 |
| 1" | 25.4 | 0.06 | 1.52 | 2 µm | 269.43 µL | 5 u | GM8760 |
| | | | | 10 µm | 307.92 µL | 5 u | GM8530 |

Stainless steel frits with PEEK ring

| OD ring inches | mm | OD frit inches | mm | Thickness inches | mm | Porosity | Frit volume | Qty | P/N |
|----------------|------|----------------|------|------------------|------|----------|-------------|-------|--------|
| 0.118 | 3 | 0.38 | 0.97 | 0.028 | 0.7 | 0.5 µm | 0.13 µL | 5 u | AU0490 |
| | | | | | | 2 µm | 0.18 µL | 5 u | U87240 |
| | | | | | | 5 µm | 0.20 µL | 5 u | AU0500 |
| | | 0.077 | 1.96 | 0.028 | 0.7 | 0.5 µm | 0.55 µL | 5 u | AU0510 |
| | | | | | | 2 µm | 0.74 µL | 5 u | AU0520 |
| | | | | | | 5 µm | 0.80 µL | 5 u | U87250 |
| 1/4" | 6.35 | 0.078 | 2 | 0.062 | 1.59 | 10 µm | 0.87 µL | 5 u | PIZ020 |
| | | | | | | 0.5 µm | 1.30 µL | 5 u | U87220 |
| | | | | | | 2 µm | 1.74 µL | 5 u | 137853 |
| | | | | | | 0.5 µm | 3.32 µL | 5 u | U87190 |
| | | | | | | 2 µm | 4.47 µL | 5 u | 335381 |
| | | | | | | 0.5 µm | 4.94 µL | 5 u | U87180 |
| | | 0.153 | 3.9 | 0.062 | 1.59 | 2 µm | 4.47 µL | 5 u | 538140 |
| | | | | | | 0.5 µm | 6.87 µL | 5 u | U87170 |
| | | | | | | 2 µm | 9.24 µL | 5 u | 170550 |
| | | | | | | 0.5 µm | 1.75 µL | 5 u | U87200 |
| | | | | | | 2 µm | 2.25 µL | 5 u | U87210 |
| | | | | | | 0.125 | 3.2 | 0.062 | 1.59 |



HPLC accessories - Biocompatible empty HPLC column



PEEK columns - Biocompatible

- Biocompatible
- High pressure applications
- Filling system available

2.1 mm ID columns: 210 bar (3,000 psi) during analysis and 350 bar (5,000 psi) during column packing with the YE4020 packing kit.

4.0 mm ID columns: 350 bar (5,000 psi) during analysis and 560 bar (8,000 psi) when packing the column with the packing kit 113331.

Tolerance: 0.05 mm

PEEK columns

| ID / length | 30 mm | 50 mm | 100 mm | 150 mm | 250 mm | 300 mm |
|-------------|--------|--------|--------|--------|--------|--------|
| 2.1 mm ID | YE4230 | YE4360 | YE3780 | YE3870 | YE4110 | --- |
| 4.0 mm ID | --- | YE4400 | YE3820 | YE3920 | YE4120 | YE4240 |

The columns are delivered without frit.

PEEK column end fittings

| ID | 2.1 mm ID | 4.0 mm ID |
|----------------------|-----------|-----------|
| P/N of a column end. | 737660 | U89400 |

PEEK columns frit

| Column ID | Qty frit | Titanium frit 5 µm | Polyethylene 10 µm |
|-----------|----------|-----------------------|-----------------------|
| 2.1 mm | 5 u | FI4210 | YE4670 |
| 4.0 mm | 5 u | CP8640 | YE4680 |

Packing adapters

| Column ID | Packing adapter kit complete packing adapter | Packing adapter | Replacement seal |
|-----------|---|-----------------|------------------|
| 2.1 mm | YE4020 | GM8570 | GM9060 |
| 4.0 mm | 113331 | GM8490 | 113350 |

PEEK pre-columns

| Description | Ti Frits 5 µm | Ti Frits 2 µm |
|-----------------------|---------------|---------------|
| Holder + pre-column | YE4560 | YE4561 |
| Pre-column with frits | YE4530 | YE4520 |
| Replacement frits | YE4330 | YE4000 |

| Description | P/N |
|-----------------------------------|--------|
| Packing kit | GM9600 |
| Replacement seal for packing tool | GM9140 |





Purigaz Filters

- Purification of non-corrosive gases: reduction of contaminants to less than 0.1 ppm (purity > 99.9999%)
- 100% inert and hermetic cartridge system; The gas is only in contact with steel and high purity glass (inside glass to limit diffusion and outside plastic) for safety (no diffusion or micro-leakage).
- Maximum pressure: 15 bar
- Maximum flow rate: 7 L/min and 20 L/min for the High Flow version.
- Quick installation of the unit (base + filters) on an existing line.
- Replacement of filters in record time without contaminating your gas lines, thanks to the check valves at the base plate. No tool required.

Filter Base plates

| | 1 position | 2 positions | 3 positions | 4 positions |
|--------------|------------|-------------|-------------|-------------|
| Brass - 1/8" | PG0210 | PG0220 | PG0230 | PG0240 |
| Brass - 1/4" | 115950 | AY1ERO | AY1EWO | AY1EZO |
| Inox - 1/8" | PG0211 | AY1ETO | AY1EYO | AY1F10 |
| Inox - 1/4" | AY1EQ0 | AY1ES0 | AY1EX0 | AY1F00 |

Triple filter kit (1 position base plate + filter cartridge)

Use a triple filter to remove water, oxygen and hydrocarbons from your carrier gas to protect your gas column.

To save time, we recommend filters packaged in helium or high purity hydrogen. This eliminates the filter purging time.

| Base plate type | Base plate + Triple filter | Base plate + Triple Helium filter | Base plate + Triple Hydrogen filter |
|--------------------|----------------------------|-----------------------------------|-------------------------------------|
| Brass - 1/8" | PG0250 | PG0260 | AY1F90 |
| Brass - 1/4" | AY1F20 | AY1F50 | AY1F80 |
| Inox - 1/8" | AY1F40 | AY1F70 | AY1FB0 |
| Inox - 1/4" | AY1F30 | AY1F60 | AY1FA0 |
| Replacement filter | PG005R | PG006R | PG0500 |



RELATED PRODUCTS

Magic box GC: a storage box and consumables to create or or maintain your gas lines.
See chapter: Consumables - Magic Box™



Applications:
GC/MS - GC/TCD - GC/FID

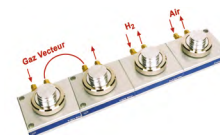




COMBI Purigaz Filters and Base plate kits

| Base plate | 1 position Base plate + filter | | | 2 positions Base plate + filters HYDROCARBON/MOISTURE |
|--------------------|--------------------------------|--------------------------------------|----------------------|--|
| | CO ₂ /SULFUR | CO ₂ /SULFUR/ MOISTURE | OXYGENE/ MOISTURE | |
| Brass - 1/8" | AY1FD0 | AY1FH0 | AY1FL0 | HV7250 |
| Brass - 1/4" | AY1FC0 | AY1FG0 | AY1FK0 | AY1FO0 |
| Inox - 1/8" | AY1FF0 | AY1FJ0 | AY1FN0 | AY1FP1 |
| Inox - 1/4" | AY1FE0 | AY1FI0 | AY1FM0 | AY1FP0 |
| Replacement filter | 1H7530 | NJR060 | NJR050 | PG004R |

Purigaz Filters and multiposition Base plate kits



| | 3 pos Base Plate + TRIPLE Filter + 2 COMBI Filters (Moisture + HC) | Base 4 pos + 1 humidity filter, 1 oxygen filter, and 2 HC filters |
|--------------------|---|--|
| Brass - 1/8" | PG0330 | PG0340 |
| Brass - 1/4" | AY1G00 | AY1G30 |
| Inox - 1/8" | AY1G20 | AY1G50 |
| Inox - 1/4" | AY1G10 | AY1G40 |
| Replacement filter | IK5471 | AY1IV0 |

Purigaz Replacement Filters

| | Capacity | P/N |
|--|--|--------|
| Moisture Filter | 7.2 g water | PG001R |
| Oxygen Filter | 150 mL O ₂ | PG002R |
| Hydrocarbon Filter | 12 g (n-butane) | PG003R |
| COMBI Hydrocarbon / Moisture | 3.5 g H ₂ O, 6 g HC (n-butane) | PG004R |
| COMBI Oxygen / Moisture | 3.5 g H ₂ O, 75 mL O ₂ | NJR050 |
| COMBI Moisture / Carbon Dioxide | 3.5 g H ₂ O, 6 g CO ₂ | NJR060 |
| TRIPLE Filter (Oxygen/Moisture/Hydrocarbon) | 1.8 g H ₂ O, 75 mL O ₂ , 4 g HC (n-butane) | PG005R |
| TRIPLE Helium Filter (Oxygen/Moisture/Hydrocarbon) | 1.8 g H ₂ O, 75 mL O ₂ , 4 g HC (n-butane) | PG006R |
| TRIPLE Hydrogen Filter (Oxygen/Moisture/Hydrocarbon) | 1.8 g H ₂ O, 75 mL O ₂ , 4 g HC (n-butane) | PG0500 |

Applications: GC/FID



Ability to install an electronic recall indicator/audio-visual early warning system: progressive display of the filter status in real time instead of the traditional indicator of a last minute color change (contact us).

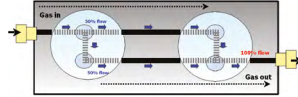




"High Flow" Base Plate - 2 positions

- 100% inert and hermetic cartridge system
- Maximum pressure: 15 bar - Maximum flow rate: 20 L/min
- Not compatible with standard filters and base plates

| Description | P/N / kit |
|-------------------------------------|-----------|
| High Flow Base Plate - Brass - 1/4" | AY1EU0 |
| High Flow Base Plate - Inox - 1/4" | AY1EVO |



"High Flow" Base Plate - 2 positions + Gas Filters

| | 2 hydrocarbon filters | 2 H ₂ O filters | 1 HC filter + 1 H ₂ O filter | 1 O ₂ filter + 1 H ₂ O filter | 1 filter O ₂ / H ₂ O + 1 filter HC / H ₂ O |
|-------------------------------------|-----------------------|----------------------------|---|---|---|
| Filter capacity | 24 g HC* | 14,4 g H ₂ O | 12 g HC* + 7,2 g H ₂ O | 150 mL O ₂ + 7,2 g H ₂ O | |
| High Flow Base Plate - Brass - 1/4" | PG0550 | AY1FS0 | AY1FU0 | AY1FW0 | AY1FY0 |
| High Flow Base Plate - Inox - 1/4" | AY1FR0 | AY1FT0 | AY1FV0 | AY1FX0 | AY1FZ0 |
| Replacement filters / 2 u | PG0510 | PG0520 | NJR070 | NJR080 | AY1IU0 |

*n-butane.



Applications:
ICP / OES - ICP/MS - LC/MS - TOC - Air Zéro generator

Base plate accessories

Base plate connectors

| | 1/8" Laiton | 1/8" Inox | 1/4" Laiton | 1/4" Inox |
|--------------------------------------|-------------|-----------|-------------|-----------|
| Standard base plate connector set | IK4591 | IK4611 | IK4581 | 1K6290 |
| "High flow" base plate connector set | --- | --- | AY1EJ0 | AY1EK0 |

O-ring replacement set

A set of 2x10 replacement O-rings for replacing the O-rings on the in- and outlet valves on a base plate.

P/N : E24021

Wall mount bracket set

P/N : AY1E0

Universal flush-cap set

Flush-cap that mounts on a base plate allowing the gas to pass through the base plate without a filter attached.

P/N : AY1E0

Universal ring nut

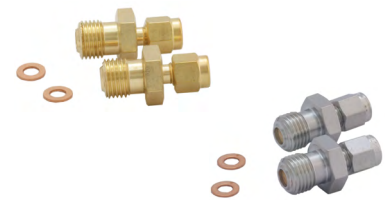
Universal ring nut to mount a filter or flush-cap on a base plate.

P/N : AY1EM0

Particulate filter

Particulate filter for high flow base plates.

| P/N | Particulate filter | Replacement Frits 0.5 um (per 12u) |
|-----|--------------------|------------------------------------|
| | CD0320 | CD0330 |





Click-on inline filters

- Very high capacity and high flow rate up to 25 L/min and 11 bar
- Highest purity 99.9999
- Innovative Click-On connector system with check valves that close the gas line when changing the cartridge
- Dimensions: 20 cm long, 3.2 cm diameter, 0.6 kg

Click On Stainless Steel Filter Kit + Click On Connectors

| Description | Capacity | Trap | Connectors type | Trap + brass connectors | Trap + SS connectors |
|---|--|--------|-----------------|-------------------------|----------------------|
| Moisture trap | 21 g H ₂ O | CA4110 | 1/4" | CD0960 | CD0970 |
| | | | 1/8" | CA7690 | CD0980 |
| Oxygen trap | 3000 mL O ₂ | CA4120 | 1/4" | CD0990 | CD1010 |
| | | | 1/8" | CD1000 | CD1020 |
| Hydrocarbon trap | 36 g HC (like n-butane) | CA4130 | 1/4" | CD1030 | CD1050 |
| | | | 1/8" | CD1040 | CD1060 |
| Combi (oxygen/moisture) trap | 1500 mL O ₂ + 10 g H ₂ O | CA4140 | 1/4" | CD1070 | CD1090 |
| | | | 1/8" | CD1080 | CD1100 |
| Combi (moisture/hydrocarbon) trap | 10 g H ₂ O + 18 g HC | CA4170 | 1/4" | CD1310 | CD1330 |
| | | | 1/8" | CD1320 | CD1340 |
| Triple trap (moisture/oxygen/hydrocarbon) | 6 g H ₂ O + 1 000 mL O ₂ + 12 g HC | CA4150 | 1/4" | CD1150 | CD1170 |
| | | | 1/8" | CD1160 | CD1180 |
| Triple Helium trap (moisture/oxygen/hydrocarbon) | 6 g H ₂ O + 1 000 mL O ₂ + 12 g HC | DZ9230 | 1/4" | CD1230 | CD1250 |
| | | | 1/8" | CD1240 | CD1260 |
| Triple Hydrogen trap (moisture/oxygen/hydrocarbon) | 6 g H ₂ O + 1 000 mL O ₂ + 12 g HC | 1H6610 | 1/4" | 1H6820 | 1H6840 |
| | | | 1/8" | 1H6830 | 1H6850 |
| Carbon dioxide trap | 36 g CO ₂ | 1H6920 | 1/4" | 1H6960 | 1H6980 |
| | | | 1/8" | 1H6970 | 1H6990 |
| Combi (carbon dioxide / moisture) trap | 10 g H ₂ O + 18 g CO ₂ | 1H6930 | 1/4" | 1H7000 | 1H7030 |
| | | | 1/8" | 1H7010 | 1H7040 |



Click On Glass Filter Kit + Click On Connectors

| Description | Capacity | Trap | Connectors type | Trap + brass connectors | Trap + SS connectors |
|---|--|--------|-----------------|-------------------------|----------------------|
| Moisture trap | 6 g H ₂ O | 1H6640 | 1/4" | 1H7050 | 1H7070 |
| | | | 1/8" | 1H7060 | 1H7080 |
| Oxygen trap | 850 mL O ₂ | FJ1400 | 1/4" | 1H7090 | 1H7110 |
| | | | 1/8" | 1H7100 | 1H7120 |
| Hydrocarbon trap | 15 g HC (comme n-butane) | 1H6650 | 1/4" | 1H7130 | 1H7150 |
| | | | 1/8" | 1H7140 | 1H7160 |
| Combi (oxygen/moisture) trap | 415 mL O ₂ + 3 g H ₂ O | CA4240 | 1/4" | CD1110 | CD1130 |
| | | | 1/8" | CD1120 | CD1140 |
| Combi (moisture/hydrocarbon) trap | 3 g H ₂ O + 7 g HC | 1H6660 | 1/4" | 1H7210 | 1H7230 |
| | | | 1/8" | 1H7220 | 1H7240 |
| Triple Hydrogen trap (moisture/oxygen/hydrocarbon) | 6 g H ₂ O + 1 000 mL O ₂ + 12 g HC | 1H6630 | 1/4" | CD1190 | CD1210 |
| | | | 1/8" | CD1200 | CD1220 |
| Triple Helium trap (moisture/oxygen/hydrocarbon) | 2 g H ₂ O + 400 mL O ₂ + 1.5 g HC | CA4220 | 1/4" | CD1270 | CD1290 |
| | | | 1/8" | CD1280 | CD1300 |
| Triple Hydrogen trap (moisture/oxygen/hydrocarbon) | 2 g H ₂ O + 400 mL O ₂ + 1.5 g HC | 1H6670 | 1/4" | 1H7250 | 1H7270 |
| | | | 1/8" | 1H7260 | 1H7280 |
| Carbon dioxide trap | 6 g CO ₂ | 1H6940 | 1/4" | 1H7290 | 1H7310 |
| | | | 1/8" | 1H7300 | 1H7320 |
| Combi (carbon dioxide / moisture) trap | 3.5 g H ₂ O + 3 g CO ₂ | 1H6950 | 1/4" | 1H7330 | 1H7350 |
| | | | 1/8" | 1H7340 | 1H7360 |





Connectors and accessories

| Description | Inox | Brass |
|-----------------------------------|--------|--------|
| Click-on connector set 1/4" (2 u) | CA4280 | CA4290 |
| Click-on connector set 1/8" (2 u) | CA4260 | CA4270 |
| Click-on double connector | CA4300 | --- |

| Description | P/N |
|--|--------|
| Click-on wall-mounting clamp set | CA4330 |
| Click-on replacement O-ring set (2 x 10 u) | CA4310 |



Click-on Big Trap

- Very high capacity and high flow rate up to 25 L/min and 11 bar
- Highest purity 99.9999%
- Innovative Click-On connector system with non-return valves that close the gas line when changing the cartridge

| Description | Capacity | Trap | Connectors type | Trap + brass connectors | Trap + SS connectors |
|---|---|--------|-----------------|-------------------------|----------------------|
| Moisture big trap | 210 g H ₂ O | SNC790 | 1/4" | SNC800 | SNC820 |
| | | | 1/8" | SNC810 | SNC830 |
| Oxygen big trap | 4.5 L O ₂ | SNC840 | 1/4" | SNC850 | SNC870 |
| | | | 1/8" | SNC860 | SNC880 |
| Hydrocarbon big trap | 360 g HC | SNC890 | 1/4" | CD1030 | CD1050 |
| | | | 1/8" | CD1040 | CD1060 |
| Combi Oxygen / Moisture big trap | 105 g H ₂ O + 2,25 L O ₂ | SNC920 | 1/4" | SNC930 | SNC950 |
| | | | 1/8" | SNC940 | SNC960 |
| Combi Moisture / Hydrocarbon big trap | 105 g H ₂ O + 2,25 L O ₂ | SND070 | 1/4" | SND080 | SND100 |
| | | | 1/8" | SND090 | SND110 |
| Triple big trap (moisture/oxygen/hydrocarbon) | 2 L O ₂ + 70 g H ₂ O + 120 g HC | SNC970 | 1/4" | SNC980 | SND000 |
| | | | 1/8" | SNC990 | SND010 |
| Triple Helium big trap (moisture/oxygen/hydrocarbon) | 2 L O ₂ + 70 g H ₂ O + 120 g HC | SND020 | 1/4" | SND030 | SND050 |
| | | | 1/8" | SND040 | SND060 |
| Triple Hydrogen trap (moisture/oxygen/hydrocarbon) | 2 L O ₂ + 70 g H ₂ O + 120 g HC | SND120 | 1/4" | SND130 | SND150 |
| | | | 1/8" | SND140 | SND160 |
| Carbon dioxide big trap | 450 g CO ₂ | SND170 | 1/4" | SND180 | SND200 |
| | | | 1/8" | SND190 | SND210 |
| Combi (carbon dioxide / moisture) big trap | 105 g H ₂ O + 225 g CO ₂ | SND220 | 1/4" | SND230 | SND250 |
| | | | 1/8" | SND240 | SND260 |



Supplied with mounting bracket.

Connectors and accessories

| Description | Brass | Inox |
|---------------------------------|--------|--------|
| Click-on connector set 1/4" 2 u | CA4280 | CA4290 |
| Click-on connector set 1/8" 2 u | CA4260 | CA4270 |
| Double Click-on connector | CA4300 | --- |

| Description | P/N |
|-----------------------------------|--------|
| Big trap mounting brackets | SCN780 |
| O-ring replacement set (2 x 10 u) | CA4310 |





Electronic leak detector

Advion Interchim Scientific leak detector

- Allows quick and easy detection and measurement of gas leaks
- Measures the difference in thermal conductivity between the probe and the ambient air
- Visual and/or audible alarm proportional to the intensity of the leak
- Sensitivity: 0.0005 mL/min for helium
- Very small size (95 g)

| Description | P/N |
|---------------|--------|
| Leak detector | E25103 |

TECHNICAL TIP

Ability to check:

- Good installation of the capillary column
- Injection septa sealing
- All gas lines



The ferrules provide the sealing between the column and the system. The ideal ferrule provides a perfect sealing with different column exterior diameters, with minimal tightening, does not stick to the column or fittings and withstands high thermal cycling. Three types of ferrules are available in packs of 10:



| Material | Benefits | Limitations | T° limits |
|---------------------|--|--|--|
| Graphite | Easy to use, stable seal Higher temperature limit | Flexible, easy to deform or destroy | 450°C |
| Polyimide | Easily reusable Good temperature resistance | Frequent bleeding subject to leakage Polymer bleeding problematic with some NPD and ECD detectors | 350°C |
| Polyimide /Graphite | Hard material, good temperature, reusable | Recommended for GC/MS applications | 400°C 40% graphite (VG2) 400°C 15% graphite (VG1) |
| PTFE | Inert | | 250°C |

Interchim® ferrules

| Straight ferrules | PTFE | Graphite | 100 % polyimide | Polyimide /Graphite (60/40) |
|-------------------|--------|----------|-----------------|-----------------------------|
| 1/16" | 164750 | 164981 | 164420 | 164640 |
| 1/8" | 164762 | 164993 | 164431 | 164650 |
| 1/4" | 164783 | 165001 | 164440 | 164660 |
| 3/8" | --- | 311750 | --- | --- |
| 1/2" | --- | 315280 | --- | --- |

| Reducing ferrules | ID column | PTFE | Graphite | 100 % polyimide | 15 % graphite / 85 % polyimide | 40 % graphite / 60 % polyimide |
|-------------------|----------------|--------|----------|-----------------|--------------------------------|--------------------------------|
| 1/16" to 0.3 mm | 0.10 - 0.18 mm | BN1250 | --- | BN1260 | --- | U73970 |
| 1/16" to 0.4 mm | 0.25 mm | 795981 | 349348 | 314986 | 318842 | 308150 |
| 1/16" to 0.5 mm | 0.32 mm | 522251 | 25614B | 229405 | 338411 | 326787 |
| 1/16" to 0.8 mm | 0.53 mm | 795991 | 17990A | 229412 | 310442 | 33803A |
| 1/16" to 1 mm | 0.65 mm | 796011 | 186073 | 229422 | FL7680 | 571012 |
| 1/16" to 1.2 mm | 0.75 mm | 795951 | 247461 | 795962 | FL7690 | 795971 |

| | | | | | | |
|----------------|---------|--------|--------|--------|--------|--------|
| 1/8" to 1/16" | | 164802 | 165014 | 164452 | --- | 164672 |
| 1/8" to 0.4 mm | 0.25 mm | 795751 | 358221 | 795741 | FL7500 | 390342 |
| 1/8" to 0.5 mm | 0.32 mm | 795771 | 358233 | 795762 | FL7510 | 390354 |
| 1/8" to 0.8 mm | 0.53 mm | 795841 | 358243 | 795831 | FL7520 | 390372 |

| | | | | | | |
|----------------|-----|--------|--------|--------|--------|--------|
| 1/4" to 1/16" | --- | 164832 | 165024 | 164461 | --- | 164681 |
| 1/4" to 1/8" | --- | 164841 | 262824 | 164471 | --- | 164691 |
| 1/4" to 3/16" | --- | BN0740 | --- | --- | --- | --- |
| 1/4" to 0.4 mm | --- | FL7830 | FL7850 | FL7910 | FL7860 | FL7880 |
| 1/4" to 0.5 mm | --- | FL7810 | 795921 | FL7920 | --- | 795911 |
| 1/4" to 0.8 mm | --- | FL7820 | 795941 | FL7930 | --- | 795931 |
| 1/4" to 6 mm | --- | --- | 230340 | --- | --- | 164710 |

| Short ferrules for HP/Agilent | Graphite | 100 % Polyimide | 15 % Graphite / 85 % Polyimide | 40 % Graphite / 60 % Polyimide |
|-------------------------------|----------|-----------------|--------------------------------|--------------------------------|
| 1/16" - 0.4 mm | AH6301 | 164522 | E21981 | Q92342 |
| 1/16" - 0.5 mm | 430393 | AH6341 | E04601 | Q92332 |
| 1/16" - 0.8 mm | 431134 | AH6351 | E04581 | Q92322 |

TECHNICAL TIP

Why replace them?

Signs of wear and tear on a ferrule include:

- Background noise from oxygen diffusion in the system
- Oxygen-catalyzed column bleeding
- Sample degradation
- Sample loss
- Increased detector signal/noise
- Poor retention time reproducibility

How to reduce the problems?

General ferrule installation techniques:

- Do not over tighten, hand tighten the nut and finish tightening with a spanner (1/4 turn).
- Condition the ferrules before use (only for polyimide and polyimide/ graphite).
- Avoid contamination, especially fingerprints.
- Examine used ferrules with a magnifier glass for cracks, chips or other damage before reuse.
- Change the ferrules when installing new columns.





| Ferrules 2 & holes | PTFE | Graphite | 100 % polyimide | 15 % graphite 85 % polyimide | 40 % graphite 60 % polyimide |
|-------------------------|--------|----------|--------------------|---------------------------------|---------------------------------|
| 1/16" to 0.3/0.3 mm | --- | --- | --- | 528150 | --- |
| 1/16" to 0.4/0.4 mm | FL9410 | 528171 | 528161 | FL9400 | 528182 |
| 1/16" to 0.5/0.5 mm | FL9420 | 528211 | 528201 | FL9430 | 528222 |
| 1/16" to 0.4/0.3 mm | --- | --- | --- | 528240 | --- |
| 1/16" to 0.3/0.3/0.3 mm | --- | --- | --- | 528250 | --- |
| 1/8" to 0.5/0.5 mm | 795801 | 795811 | 795781 | FL9440 | 764582 |
| 1/8" to 0.8/0.8 mm | FL9480 | FL9460 | FL9470 | FL9450 | BN0731 |

| Ferrules not drilled | PTFE | Graphite | 100 % polyimide | 40 % graphite 60 % polyimide |
|-------------------------|--------|----------|--------------------|---------------------------------|
| 1/16" | 164901 | BN0691 | 164503 | 164721 |
| 1/8 " | 164911 | BN0711 | 164512 | 164731 |
| 1/4" | 164921 | BN0721 | 164522 | 164471 |
| 3/8" | --- | --- | FL9370 | --- |



High performance septa

Central guide septa :

- Pre-pierced for extended life and reduced coring that guides the syringe needle to the same point for each injection.
- The central guide facilitates needle penetration, avoids septum puncture and reduces the risk of needle twisting.
- Excellent high temperature performance.
- Delivered pre-packaged in protective packaging.

Septa that don't stick:

A unique plasma treatment process ensures non-stick septa, without the use of talcum powder which could cause damage to the needle.

Which septum to choose?

| Septum | Max temperature | Lifetime | Low bleeding | Applications |
|-------------------------|---------------------------|-----------|--------------|---|
| Silicone HT transparent | 340°C | Good | Good | Universal, low bleeding, long life time |
| BTO | High T° optimised - 400°C | Good | Excellent | High temperature, low bleed, compatible with MS detectors |
| Marathon | 350°C | Excellent | Good | High temperature, low bleed, trace analysis |
| Advanced green | 350°C | Very good | Good | Most economical for general GC |
| Blue | 275°C | Good | Good | Specific applications requiring a polyimide barrier layer |
| Puresep P | 300°C | | | |
| Puresep T | 225°C | | | |

Compatibility

| Injector brand | Injector type | Size septum |
|--------------------|-----------------------------------|-------------|
| Agilent/HP | 5880A, 5890, 6850, 6890, 7890 | 11 mm |
| | 5700, 5880, 5900 | 9.5 mm |
| | On-column injection | 5 mm |
| | Purged packed column | 11 mm |
| Bruker/Varian | 1177 Injector | 9 mm |
| | 1040/41/60/61 | 9.5 mm |
| | 1075/77/78 | 11 mm |
| Fisons/Carlo Erba | 1079, 1093/94 SPI | 11.5 mm |
| | 8000 Series | 17 mm |
| PerkinElmer | Sigma series, 8000 Series, Clarus | 11 mm |
| | AutoSystem/Autosystem XL | 11 mm |
| Shimadzu | All | plug |
| | Trace, Focus Split/splitless | 17 mm |
| Thermo Instruments | 9001, GCQ | 9.5 mm |
| | PTV injector | 12.7 mm |

WHY REPLACE THEM :

Septa should be regularly replaced to avoid:

- leakage
- decomposition
- sample loss
- reduced column or split flow
- ghost peaks
- column degradation



Septa with needle guide



Septa for Shimadzu

HOW TO REDUCE PROBLEMS :

- use the recommended temperature range
- replace them regularly
- install them with a simple "by hand"
- use septum purge as soon as possible
- use automatic injectors
- use sharpened syringe needles

RELATED PRODUCTS

Never miss a gas leak again with our electronic detector





Advion Interchim Scientific injection Septa Premium Septa

| Description | Silicone Natural | Marathon | BTO | Advanced green 3 |
|-------------------------------------|------------------|--------------------------------|---------------------------------|---------------------------------|
| 5 mm with center guide | --- | Q99480 / 25 u | Q99450 / 50 u | Q99510 / 50 u |
| 6.4 mm | --- | --- | U08830 / 50 u | --- |
| 9 mm with center guide | --- | Q99490 / 25 u | Q99460 / 50 u | Q99530 / 50 u |
| 9.5 mm = 3/8" | AS4JS0 / 25 u | --- | 983110 / 50 u | 335651 / 50 u |
| 10 mm | AS4JT0 / 25 u | --- | 983120 / 50 u | --- |
| 11 mm = 7/16" with center guide | AS4JU0 / 25 u | Q99390 / 25 u Q99391 / 50 u | E23425 / 50 u E23426 / 100 u | E57851 / 50 u E57854 / 100 u |
| 11.5 mm with center guide | AS4JV0 / 25 u | Q99500 / 25 u | Q99470 / 50 u | Q99520 / 50 u |
| 12.7 mm = 1/2" with center guide | AS4JW0 / 25 u | U13770 / 25 u | 983141 / 50 u | U13840 / 50 u |
| 17 mm | AS4JX0 / 25 u | U13780 / 25 u U13781 / 50 u | AX0780 / 50 u --- | U13850 / 50 u --- |
| Shimadzu | --- | U13790 / 25 u | 815560 / 50 u | 815570 / 50 u |



Shimadzu Plug
5.6 mm & 7 mm



9 mm



9.5 mm



10 mm



11 mm



11.5 mm



12.7 mm



17 mm

Septa general use

| Blue Septa | 50 u | 100 u |
|----------------|--------|--------|
| 5 mm | BVL9L0 | BVL9L1 |
| 6.4 mm (1/4") | 178270 | 178271 |
| 9 mm | BVL9M0 | BVL9M1 |
| 9.5 mm (3.8") | 178285 | 178280 |
| 10 mm | AQ9X80 | AQ9X81 |
| 11 mm (7/16") | 178760 | 178761 |
| 11.5 mm | BVL9P0 | BVL9P1 |
| 12.7 mm (1/2") | 178770 | 178772 |
| 17 mm | BVL9N0 | BVL9N1 |
| Shimadzu plugs | BVL9S0 | BVL9S1 |

| Puresep Septa (/50u) | Puresep™ P | Puresep™ T |
|----------------------|------------|------------|
| 6 mm (1/4") | 305241 | 305251 |
| 9.5 mm (3/8") | 168540 | 305261 |
| 11 mm (7/16") | 259870 | 983200 |
| 11.5 mm | BVL9Q0 | BVL9R0 |
| 12.7 mm (1/2") | 168550 | 305271 |

PURESEP™ P

The septum is made from silicone with a high temperature polyimide layer.

Although the polyimide layer is stable up to 400°C, the recommended upper limit for the septum is 300°C due to the characteristics of the silicone.

PURESEP™ T

The silicone-based septum is coated on one side with a double layer of polyimide and PTFE on the other side.

The polyimide adheres to both silicone and PTFE, providing a better bond and increased durability. The PTFE outer coating ensures maximum inertia and helps to minimise leakage. Maximum inlet temperature of 225°C.



Injection port cleaning kit

- Kit includes: two brushes with stainless steel bristles, one scraper for removing septa residue
- Can be used on all standard instruments

| Description | P/N |
|-----------------------------|--------|
| Injection port cleaning kit | Q70520 |

FID cleaning kit

| Description | P/N |
|------------------|--------|
| FID cleaning kit | 624190 |

Stainless steel Microprobes

Potential uses include: septa removal, small parts cleaning, soldering, packing columns, adjusting electronics, hooking/retrieving small parts, gluing, positioning samples under microscopes and any micro manipulation.

| Description | P/N |
|---------------|--------|
| Kit n°1 (3 u) | HZ9912 |
| Kit n°2 (5 u) | BWIT40 |

Mirror

Mirror on rod for viewing in corners and tight spaces.
Can be used to check the flame of the detector.

| Description | P/N |
|-------------|--------|
| Mirror | BX6523 |

Ferrule removal kit

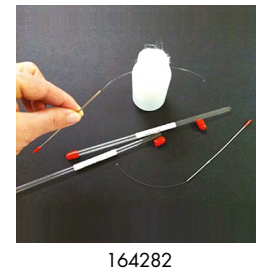
| Description | P/N |
|---------------------|--------|
| Ferrule removal kit | 268630 |

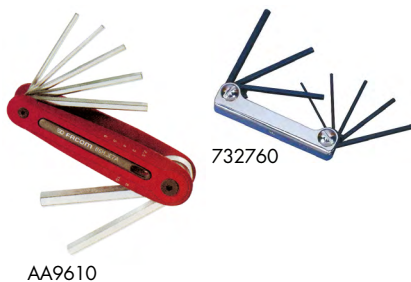
Glass wool & quartz wool

| Description | P/N | Qty |
|-------------------------------------|--------|------|
| Untreated glass wool | 164233 | 50 g |
| DMCS (silanized) treated glass wool | 1F6040 | 10 g |
| Pesticide grade treated glass wool | E21940 | 10 g |
| Untreated quartz wool | 260093 | 15 g |

Glass wool extractor

| Description | P/N |
|----------------------|--------|
| Glass wool extractor | 164282 |





AA9610

732760



AA9370

FJ7250

DV5970

WHICH WRENCH FOR WHICH TUBE?

| Tube diameter | Wrench in inches |
|---------------|------------------|
| 1/16" | 1/4 |
| 1/8" | 7/16 |
| 1/4" | 9/16 |
| 3/8" | 1" 1/16 |
| 1/2" | 1" 5/16 |
| 1" | 1" 7/16 |

Hexagonal wrenches

On a frame

| Dimensions | P/N |
|--|---------|
| mm | AA9610 |
| [2,5-3-4-5-6-8-10] | |
| Inches | AA9611 |
| [1/16-5/64-3/32-1/8-5/32-3/16-1/4] | |
| Inches | 732760* |
| 0.05"-1/16"-5/64"-3/32"-7/64"-1/8"-9/64"-5/32" | |

"Long" Individuals

| A (mm) | B x L (mm) | P/N | A (Inches) | B x L (mm) | P/N |
|--|------------|--------|------------|------------|--------|
| 2 | 16 x 75 | AA9320 | 1/16 | 16 x 62 | AA9370 |
| 3 | 20 x 90 | L62651 | 1/8 | 20 x 90 | AA9380 |
| 4 | 25 x 100 | M10701 | 9/64 | 22 x 95 | M10721 |
| 5 | 28 x 115 | AA9330 | 3/16 | 28 x 115 | AA9390 |
| 6 | 32 x 135 | AA9340 | 1/4 | 32 x 140 | AA9400 |
| 8 | 36 x 150 | AA9350 | 5/16 | 36 x 150 | AA9410 |
| 10 | 40 x 170 | AA9360 | 3/8 | 38 x 170 | AA9420 |
| Kit 1.5 - 2 - 2.5 - 3 - 4 - 5 - 6 - 8 - 10 | | | | | FJ7250 |

TORX male wrenches

| Description | P/N |
|--------------------------------|--------|
| Torx n° 8-10-15-20-25-27-30-40 | DV5970 |

Flat wrenches

| Metric dimensions | P/N | U.S. Dimensions | P/N |
|-------------------|--------|-----------------|--------|
| 7-8 | AA8720 | 1/4-5/16 | E51011 |
| 8-10 | AA8730 | 3/8-7/16 | E51121 |
| 10-13 | AA8740 | 1/2-9/16 | 311380 |
| 13-17 | AA8750 | 5/8-11/16 | BC2510 |
| Box of 8 keys* | AA8711 | Boîte 6 clés** | AA8700 |

* 8-9 ; 10-11 ; 12-13 ; 14-15 ; 16-17 ; 18-19 ; 21-23 ; 22-24

** 1/4-5/16 ; 3/8-7/16 ; 1/2-9/16 ; 5/8-11/16 ; 3/4-13/16 ; 7/8-15/16

1/4" wrench

Designed to easily unscrew hex nuts, with 1/16" tube passing through the slot.

| Description | P/N |
|---------------------------------|--------|
| 1/4" Hex & 5/16" Slotted wrench | 755750 |
| 1/4" hexagonal slotted wrench | 965870 |
| Standard slotted wrench | 311360 |
| Adapter for manual tightening | PIZ050 |



965870

PIZ050



Wrenches

| Length x aperture (mm) | P/N |
|------------------------|--------|
| 100 x 13 | AA9430 |
| 150 x 19 | AA9440 |
| 205 x 24 | AA9450 |
| 255 x 28 | AA9460 |
| 305 x 34 | AA9470 |



Multi-grip pliers

| | High performance | High performance | Standard | Mini |
|-----------------|-------------------|------------------|------------|----------------|
| handles | Ergonomic | Chrome | PVC coated | Comfort coated |
| Maximum opening | Ergonomic handles | 52 mm | 46 mm | 14 mm |
| P/N | AA9651 | AA9480 | AA9490 | GV8440 |



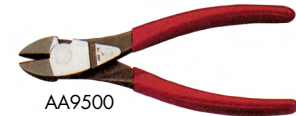
Band wrench

| Description | P/N |
|-------------|--------|
| Band wrench | BU6420 |



Cutting pliers

| Length | P/N |
|--------|--------|
| 14 cm | AA9500 |



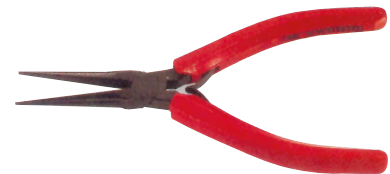
Universal" pliers

| Length | P/N |
|--------|--------|
| 165 mm | AA9510 |



Nose pliers

| | Straight | Straight | Curved |
|--------|----------|----------|--------|
| Length | 150 mm | 200 mm | 200 mm |
| P/N | BN3570 | BN3540 | BN3560 |



Straight nose circlip pliers

| Diameter of tips | For inner circlips | For outer circlips |
|------------------|--------------------|--------------------|
| 0.9 mm | CC8270 | CE7420 |
| 1.3 mm | CC8310 | CE7430 |



Tweezers

| Right | Right | Right | Angled 40° | Angled 45° |
|-----------------|-----------------|-------------------|-------------------------|-------------------|
| 130 mm | 155 mm | 165 mm | 155 mm | 150 mm |
| pointed beaks | long thin beaks | long strong beaks | strong long ridged beak | thin ridged beaks |
| stainless steel | carbon steel | stainless steel | stainless steel | stainless steel |
| CC6480 | E27041 | CE7390 | CE7400 | CC6470 |
| | | | | Plastic |
| | | | | AU0640 |





AA3110



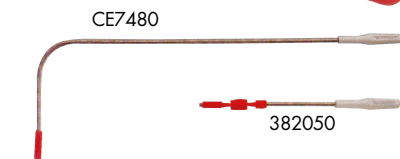
AA9190



DV7590



CE7480



382050



FO2510



382090



268630



AU0610

FO2550

Screwdriver

| For slotted screws | | "Phillips" | | | "Pozidriv" | | | Torx | | |
|--------------------|--------|------------|------------|--------|------------|------------|--------|------|------------|--------|
| l x L (mm) | P/N | N° | D x L (mm) | P/N | N° | D x L (mm) | P/N | N° | D x L (mm) | P/N |
| 3.5 x 100 | AA9110 | 0 | 3 x 75 | AA9190 | 0 | 3 x 75 | AA9300 | 10 | 3 x 75 | E24381 |
| 4.0 x 150 | AA9120 | 1 | 4.5 x 100 | E51071 | 1 | 4.5 x 100 | E27031 | 20 | 4 x 100 | E24371 |
| 5.5 x 150 | AA9130 | 2 | 6 x 125 | E51081 | 2 | 6 x 125 | E51101 | 25 | 5 x 100 | BE8830 |
| 6.5 x 200 | AA9160 | 3 | 8 x 150 | E51091 | 3 | 8 x 150 | AA9310 | 30 | 6 x 125 | BE8840 |

Magnetic bit holder screwdriver

6 bits:

- For slotted screws 0.5 mm x 4 mm and 0.8 mm x 5.5 mm
- For Phillips screw n°1 and n°2
- For Pozidriv screw n°1 and n°2

| Description | P/N |
|---------------------------------|--------|
| Magnetic bit holder screwdriver | DV7590 |

Cutters

| Description | Blade 9 mm | Blade 18 mm |
|--------------|------------|-------------|
| Cutter | CE7450 | CE7470 |
| Spare blades | GV8460 | GV8450 |

Magnets

| Description | P/N |
|---|--------|
| Magnetic finger extra thin (Ø 7 mm) flexible 530 mm | CE7480 |
| Magnetic pen | 382050 |

Vernier caliper

- Accuracy 1/50th - 0.02 mm
- Measuring capacity: 200 mm

| Description | P/N |
|-----------------|--------|
| Vernier caliper | FO2510 |

Set of drills

| Description | P/N |
|---|--------|
| 20 drills from 0.34 to 1 mm (0.0135" to 0.039") | 382090 |

PTFE rolls

| Description | P/N |
|---------------------------|--------|
| PTFE rolls (12 m x 12 mm) | E01901 |

Ferrule extractors

| Description | P/N |
|------------------------------|--------|
| Ferrule extractors (2 sizes) | 268630 |
| 1/16" - 1/8" ferrule pullers | FO2550 |
















File


| Description | P/N |
|-------------|--------|
| File | AU0610 |




Set of 120 pieces

Screwdrivers with sockets for most common needs, including laboratory use.

-  Pozidriv®: PZ00, PZ0, PZ1, PZ2, PZ3
-  Phillips®: PH00, PH0, PH1, PH2, PH3
-  Slot: 3, 4, 4.5, 5, 5.5, 6, 6.5, 7, 8 mm
-  Torx®: T5, T6, T7, T8, T9, T10, T15, T20, T25, T27, T30, T40, T45
-  Torx® drilled: TT8, TT10, TT15, TT20, TT25, TT27, TT30, TT35, TT40, T45
-  TS10, TS15, TS20, TS25, TS27, TS30, TS40, TS45, TS50
-  Square: SQ0, SQ1, SQ2, SQ3
-  6 pans: 1.5, 2, 2.5, 3, 4, 5, 5.5, 6, 8 mm
-  6 pans drilled: 2, 2.5, 3, 4, 5, 6 mm
-  6 pans: 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4"
-  Spanner®: 4, 6, 8, 10 mm
-  XZN®: M5, M6, M8
-  Butterfly: 1, 2, 3
-  Torq-set®: 6, 8, 10
-  Triwing®: 1, 2, 3, 4

 Sockets: 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 mm

 Sockets: 5/32", 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 7/16", 1/2"



| Description | P/N | Qty |
|----------------|--------|-----|
| Box 120 pieces | HO8610 | 1 u |



Proteomics
Protein Assay

Introduction

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Coo Protein assays (modified bradford)

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Biochemicals

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E.4 - E.5

E.4

E.5

E.6

E.6

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E.7

E.8 - E10

E.8 - E10

E.8

E.8

E.9

E.9

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E.10

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Cellular Biology
Cell Assays

Apoptosis - Cellular Viability

Ion indicators

Cellular Structures

Oxidative metabolism

Cell Culture

Components for cell culture

Microbiology

E.16 - E.19
E.16 - E.18

E.16 - E.17

E.17 - E.18

E.18

E.18

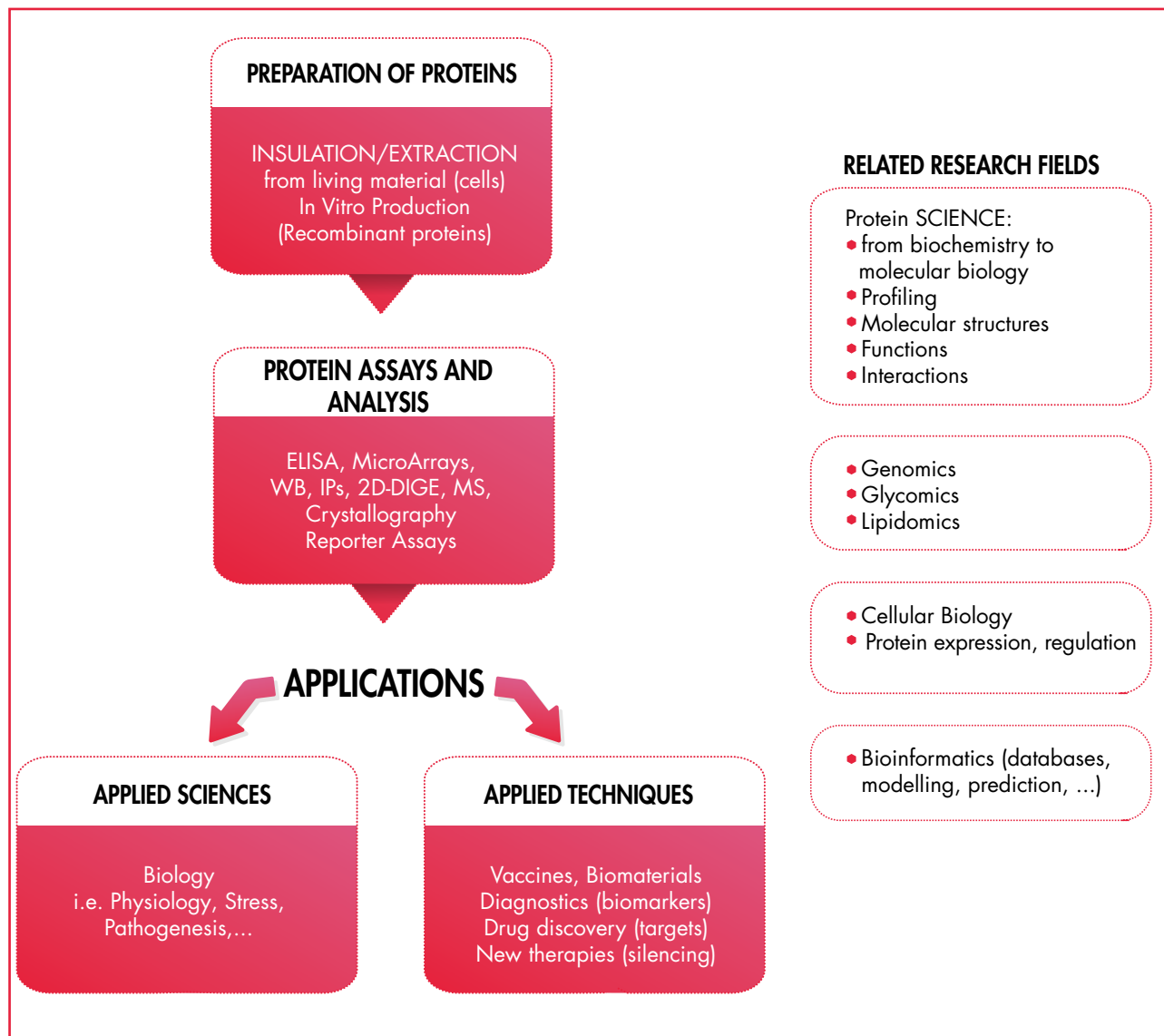
E.19

E.19

E.19



Introduction to Protein & Peptide assays



TECHNICAL TIP

Proteomics

The term "Proteome" appeared in 1995 to designate the concept of "protein mapping" (Wasinger et al). Proteomics is the set of techniques used to analyze proteins: 2-D electrophoresis, analysis of amino acid compositions, mass spectrometry...

The combination of these techniques allows the identification of proteins before the identification of the genes coding for them. Currently, proteomics allows not only the identification of proteins but also their respective abundances and modifications. Molecular and biochemical analyses are essential for the development of proteomic knowledge. The ultimate goals are the finest determination of the structure of a protein (posttranslational modifications), protein expression and protein interactions (localization in cells according to physiological processes).

Proteomics techniques are interdisciplinary with genomics and cell biology. Its applications cover the fields of cell biology, molecular biology, diagnosis, and therapy.



Protein & peptide assays

To perform protein and polypeptide assays, several techniques exist in solutions and gels. Among these techniques, colorimetric assays are widely used because of their ease of use and sensitivity. The most universal and accurate is the BC Assay. Fluorimetric methods are preferred when high sensitivities are required or for the determination of small peptides.

These biochemical methods, as sensitive as they are, are not selective; they allow you to determine the total amount of proteins present in your samples. For a specific assay, the second part of this section will introduce you to our proprietary reagents dedicated to ELISA (Enzyme-Linked Immunosorbent Assay) technique. This method will allow you to measure specifically your protein of interest.

The BC Assay and Coomassie (Coomassie) are among the most sensitive assays and have slight interference. However, there is no protein assay that is compatible with all substances present in protein samples and that is both highly sensitive and rapid.

Colorimetric determination of proteins

Protein and polypeptide assays are performed using dyes that interact with certain amino acids or form complexes with peptide bonds. Because of their ease of use and especially their sensitivity, the colorimetric methods, of which the BC Assay kit is a part, are the most widely used.

TECHNICAL TIP

Categories of protein solution assays

Most protein assays use the properties of amino acids (spectral or reaction characteristics), essential constituents of proteins. The techniques are varied, depending on whether the reagent is fixed by adsorption (dyes) or chemical reaction (markers), and whether its color change is detected by spectrometry (colorimetry) or fluorimetry.

They can be classified as follows:

Pure spectrometry method: UV

Methods with old chemical reactions: Nitration, Kjeldal, Ninhydrin Methods with Biuret/Lowry/ BCA chemical reaction

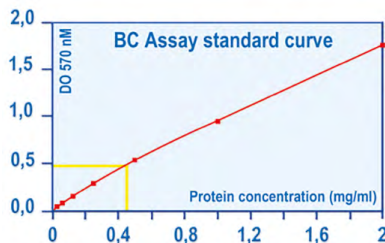
Methods with dyes (ionic/polar interaction): Coomassie (Bradford), Ponceau, 660nm...

We can distinguish some that detect precipitated proteins (Coomassie R250, AmidoBlack) Fluorescent methods, with chemical reaction (OPA, Ninhydrin) sometimes reversible (epicocconone) or by fixation on detergents around proteins (Protein Gel Stain - ORANGE)

Methods for modified protein: Formazans, ...

Methods for detection of immobilized proteins (Blotting, IHC, Electrophoresis), and for modified proteins (glycosylated, phosphorylated): Formazans,...

Proteomics - Total protein assay - The colorimetric method



BC protein assays (BCA)

The most popular dosage - Accurate and highly sensitive

- Full compatibility with detergents, lipids, DNA... and reducing agents when linked to the Protein Preparation Reagent (PPR)⁽¹⁾
- Colorimetric assay - reading at 562 nm
- Perfect linearity - Wide working range (1-200 µg/mL, 5-200 µg/mL or 20-2 000 µg/mL⁽²⁾)

VIDEO

Find all the advantages of using our BC Assay produced in our laboratories in compliance with ISO900 standards.
<https://bit.ly/BCASSA>



The BC Assay is the ultimate development of the Biuret and Lowry assays. It combines the highest performance with an attractive price.

The BC Assay is the most popular assay due to its ease of use (1 step), unmatched linearity over a wide working range (0.5 to 2 mg/mL)⁽²⁾, compatibility with many agents such as detergents (SDS), lipids and nucleic acids and high sensitivity (0.5 µg/mL - 20 µg/mL). It also works perfectly for glycoproteins.

The detection is performed at in between 540 and 590 nm (optimal 562 nm).

The assay is available from Advion Interchim Scientific with extended compatibility to SDS, DTT, Urea, Tris and BME using PPR solution.

⁽¹⁾ Full compatibility with substances not normally tolerated by the classical BC Assay (reducing agents, chelating agents).

⁽²⁾ Sensitivity and working range depend on the protocol followed and the kit used.

Product

No-Interferences BC Assay protein dosage

(The complete BC assay kit. Contains BC Assay UP40840B (2 x 250 mL) and PPR reagent R5594A (500 mL))

R5977

Qty

1kit

(2 x 250 mL, 250/500 tests)

BC Assay protein determination kit

(Standard version - 20 - 2000 µg/mL or 5 - 200 µg/mL (enhanced protocol). Contains 2 reagents to be mixed 1:1.

Kit #UP40840A contains 1 L of Reagent A #UP95424A, 25 mL of Reagent B #UP95425B,

10 x 1 mL BSA @ 2 mg/mL and allows dosing in 500 tubes or 5000 micro well tests).

UP40840A

1kit (1L)

UP40840B

1kit (250 mL)

MicroBC Assay protein determination kit

(Most sensitive version - 0.5 - 200 µg/mL. Contains 3 reagents to be mixed 25:25:1. Kit #UP7586A contains

250 mL of Reagent A #UP67251A, 250 mL of Reagent B #UP67252A, 12 mL of Reagent C #UP67253A,

10 x 1 mL BSA @ 2 mg/mL (allows dosing in 500 tubes or 3400 micro well tests)

UP75860A

1kit (500 mL)

UP75860C

1kit (50 mL)

Product

BC Assay reagent A

P/N

UP95424A

Qty

1 L

P/N

UP95424B

Qty

250 mL

BC Assay reagent B

UP95425A

25 mL

UP95425B

6 mL

MicroBC Assay reagent A

UP67251A

250 mL

UP67251B

25 mL

MicroBC Assay reagent B

UP67252A

250 mL

UP67252B

25 mL

MicroBC Assay reagent C

UP67253A

12 mL

UP67253B

1.2 mL

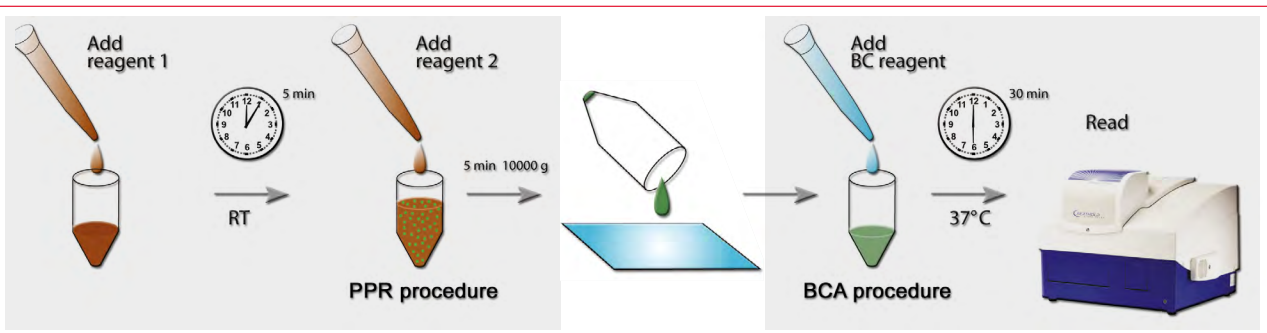
Standard BSA 2 mg/mL

UP36859A

10 x 1 mL

UP36859D

25 mL





Coo Protein assays (modified bradford)

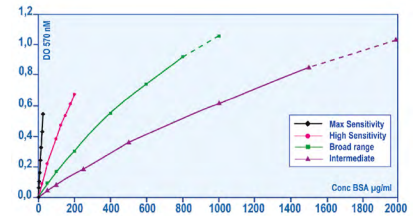
The improved formulation of the Bradford assay

- Full compatibility - with reducing agents... and more⁽¹⁾
- Colorimetric assay - reading at 595 nm
- Excellent linearity / Wide working range (1 - 200 µg/mL, 5 - 200 µg/mL or 20 - 2000 µg/mL⁽²⁾)

Coo Assay is an improved version of the Bradford assay. It is recommended for researchers who need a rapid assay and do not have an incubator and whose samples contain reducing agents that are not compatible with other assay methods. Detection is at 570-610 nm (optimal at 595 nm).

⁽¹⁾ Full compatibility with SDS, reducing agents thanks to the PPR reagent.

⁽²⁾ Sensitivity and working range depend on the protocol followed and the kit used.



| Product | P/N | Qty |
|---|---------------|-----------------------------------|
| No-Interferences BC Assay protein dosage The complete Bradford kit. Contains Coo Assay UP87542B (2 x 250 mL) and PPR R5594A reagent (500 mL). | F86400+R5594A | 1 kit (2 x 250 mL, 250/500 tests) |
| Coo Assay protein dosage The original dosage for maximum flexibility. Sensitivity: 0.5 µg/mL. Maximum linearity. Working range 1 to 2000 µg/mL - UPF8600 kit contains 1 L Coo reagent #UPF863420 and 10 x 1 mL BSA @ 2 mg/mL. Allows the determination in 500 tubes or 4000 micro well tests. | UPF86400 | 1 kit (1L) |
| | UPF86401 | 1 kit (250 mL) |
| Coo Assay Standard protein dosage Sensitivity: 1 µg/mL. Working range 1 to 1500 µg/mL - UP36858A contains 1L Coo reagent #36858a and 10 x 1 mL BSA @ 2mg/mL, allows dosing in 500 tubes or 4000 micro well tests. | UP36858A | 1 kit (1L) |
| | UP36858B | 1 kit (250 mL) |
| Coo Assay MAX protein dosage Sensitivity: 0.5 µg/mL. Maximum linearity. Working range 1 to 1000 µg/mL - UP87542A contains 1 L Coo reagent #87542a and 10 x 1 mL BSA @ 2 mg/mL, allows assay in 500 tubes or 4000 micro well tests. | UP87542A | 1 kit (1 L) |
| | UP87542B | 1 kit (250 mL) |



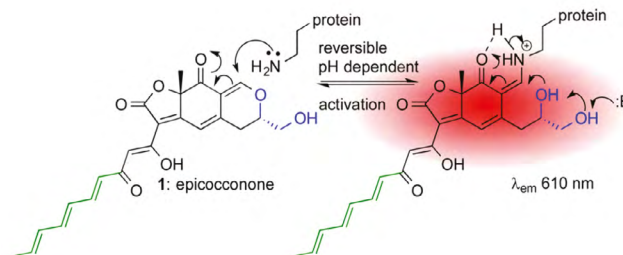


Fluorimetric assay

Protein and peptide assay based on epicocconone

Accurate and sensitive fluorescent assay of peptides and proteins based on a patented Epicoccone analogue.

- Very sensitive: 100 ng/mL (peptides) and 40 ng/mL (proteins)
- Low protein-to-protein variability
- Excellent for glycoproteins Wide dynamic range of linearity (magnitude of 3)
- Safe and easy to dispose (biodegradable - no solvents or heavy metals)
- Simple and fast: 60 minutes
- Usable in HTS



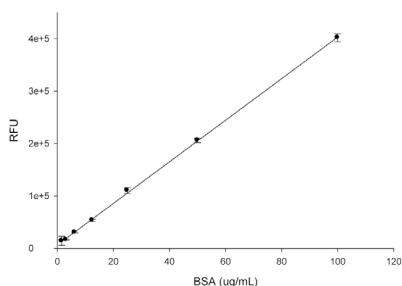
This assay uses an innovative synthetic Epicocconone analogue that is more stable to light and temperature. The results are therefore more reproducible compared to all other Epicocconone-based assays such as LavaPep. The marker binds reversibly to Lysines, Arginines and Histidines of peptides and proteins, generating an intense red fluorescence. High sensitivity is obtained with a wide dynamic range.

This assay does not precipitate or denature peptides, and samples can be reused. It is more reliable than alternative fluorescent assays, especially for hard to measure proteins. Moreover, this assay is economical and can be used for many applications: MS and HPLC, N-terminal sequencing, DIGE...

| Product | P/N | Qty |
|---|-----------|--------------------|
| Protein & Peptide Fluorescent Assay, RED EpicoccoStab Contains enough reagents for 2000 tests. 60 minute protocol. Sensitivity: 40 nM. | FP-CH4191 | 1 kit (2000 tests) |

OPA Protein Quantitation

- Fluorescent (λ_{abs} : 338 \pm 5 nm, λ_{em} : 455 \pm 10 nm)
- High sensitivity: 0.1 to 50 μ g/mL
- Odorless



The OPA assay is an effective alternative to standard assays when others do not provide sufficient sensitivity or are not compatible with the midpoint of the proteins to be assayed. Thus, this assay is ideal for samples prepared for SDS-PAGE (which contain SDS, DTT or β -mercaptoethanol) or for Immunoassays (Tween-20 and Tween-80) or for cellular and bacterial extracts (Triton X100, Brij[®]-35, CHAPS...). This kit also allows the detection of amino acids in chromatography.

| Product | P/N | Qty |
|--|--------|-------------------|
| OPA Protein Quantitation Contains OPA (350 μ l), reducing solution (200 μ l), Assay Buffer (20 ml) and standard BSA 1 mg/mL (500 μ l), sufficient for 500 assays. | 51225A | 1 kit (500 tests) |


I Selection Guide I

| Method | Detection | Threshold of detection | Comment | Interchim® key products |
|---------------|-----------------------|---|--|---|
| Biuret | Colorimetric | Not very sensitive (1-20 mg) | This assay is based on the reduction of Cu ²⁺ ions under alkaline condition. | Biuret Assay #GS4320 Biuret-Gornall Protein Assay #1E5351 |
| Lowry | Colorimetric (750 nm) | High sensitivity (5-10 µg) | Improved Biuret method (Folin-Ciocalteu reagent increases color development) not very easy to use (reagents must be fresh and therefore produced every day; requires 2 incubations; time and temperature must be controlled; possible interference with biological sample components). | #381080 (Alternatively, the BC Assay is more efficient and more easy to handle) |
| Bicinchoninic | Colorimetric (562 nm) | High sensitivity (0.5 µg/mL - 20 µg/mL) | Colorimetric assay, based on chelation of Cu ²⁺ ions by bicinchoninic acid with development of an intense purple color. It is the popular standard method, easy to use, reproducible, linear (large working range), low P/P variations, and high compatibility with detergent, lipids, DNA/RNAs and all substances not tolerated by the Lowry method such as reducing agents, chelating agents... | BC Assay #40840A/ MicroBC Assay #75860A |
| Formazan | | | Colorimetric assay based on WST. | Protein Assay Kit #T32790 |
| Bradford | Colorimetric (595 nm) | Very sensitive (2-5 µg of proteins) | Colorimetric assay based on dye interaction (Coomassie) with certain amino acids; very well-known and used but with many modifications of procedures. Important protein to protein variations. Very fast method (1-5 min), without incubation and for solutions containing reducing agents. | Coo Assay #UPF86400A |
| Epicocconone | Fluorimetric | Very sensitive 40 ng/mL | Reversible detection of proteins by binding with this dye. This dosing is fully compatible with the MS. | RED Epicoccostab Fluorescent Assay #FP-CH419A |
| AccuOrange | Fluorimetric | 0.1-15 µg/mL | Very low P/P variation, but low tolerance to non-detergents ionic unless combined with PPR. | AccuOrange Assay #1A8080 OPA AA/Peptides/Proteins Assay #02727A |
| OPA assay | Fluorimetric | 0.1 to 50 µg/mL | Very sensitive, this assay is especially dedicated to samples containing detergents (SDS, tween 20, tween 80, Brij®-35, CHAPS) and other reducing agents (DTT, β-Mercaptoethanol). | OPA AA/Peptides/Proteins Assay #FP-02727A |



Proteomics - Specific Protein Assay - Build your ELISA kit - Secondary Antibodies

The above biochemical methods quantify proteins only for the properties they share. These methods are not selective or specific to a particular protein. To assay a specific protein or target present in a biological sample, it is necessary to use more discriminating methods such as Enzyme-Linked Immunosorbent Assay (ELISA). You'll find in the following pages our proprietary reagents dedicated to detection in ELISA.

Secondary antibodies

We offer secondary antibodies references. This offer is based on 2 proprietary product lines, FluoProbes® and Uptima. Our product lines offer excellent quality secondary antibodies conjugated with different types of labels from HRP, biotin and PAL to fluorochromes dyes (FP-488, FP-547H, FP-594 and FP-647). They can be used for most immunological applications.

To carry out your ELISA, the most used secondary antibodies are those coupled to biotin or to enzymes (peroxidase or alkaline phosphatase). We will see in the following paragraph the interest of biotinylated antibodies associated with streptavidin.

Antibodies coupled to peroxidase or alkaline phosphatase enzymes allow not only the detection of the "primary antibody-antigen" complex but also the revelation of the signal thanks to the use of a revelation substrate. Here are the references we have selected. These references are all conjugated either peroxidase or alkaline phosphatase.

| Type of antibody | Peroxidase | Qty | Alkaline Phosphatase | Qty |
|------------------|------------|------|----------------------|------|
| Anti-rabbit goat | UP511380 | 1 mg | UP225950 | 1 mg |
| Anti-mouse goat | UP446330 | 1 mg | UP437050 | 1 mg |
| Anti-human goat | UP135242 | 1 mg | UP762742 | 1 mg |

The streptavidin-biotinylated antibody couple

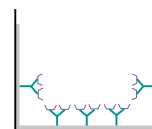
Commonly used in ELISA, the use of the "biotinylated streptavidin-HRP secondary antibody" pair is necessary if you want to improve the limit of detection (LOD) of your test.

Indeed, the improvement of signal detection by this method comes from the high affinity between biotin and streptavidin. Streptavidin is a tetrameric protein with a molecular weight of 60 kDa ; and has four binding sites to biotin. Its binding affinity for biotin is very high (in the femtomolar range) and it is because biotin and streptavidin interact more strongly than analyte molecules which can be captured on an ELISA plate.

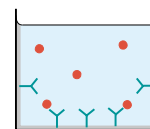
| Enzymatic conjugates | Streptavidin | Qty |
|----------------------|--------------|------|
| Peroxidase | UP395888 | 1 mg |
| Alkaline Phosphatase | UP518498 | 1 mg |
| Non-conjugated | UP51558C | 5 mg |

| Type of antibody | Biotin | Qty |
|------------------|----------|------|
| Anti-rabbit goat | UP766530 | 2 mg |
| Anti-mouse goat | UP740460 | 2 mg |
| Anti-human goat | UP826500 | 2 mg |

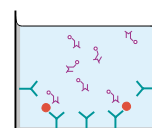
ELISA SANDWICH



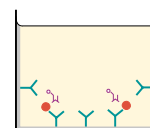
Plates are pre-coated with the capture antibody and blocked with a proprietary formulation of proteins.



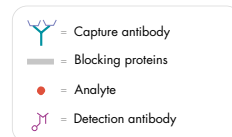
1. Incubate with standard or sample



2. Wash to remove all unbound reagents. Incubate with Antibody/HRP Conjugate.



3. Wash to remove all unbound reagents. Develop with TMB/Stop Solution.



Secondary antibodies are antibodies obtained after immunization of animals (donkey, goat, rabbit, or mouse) against human or animal immunoglobulins, by purification (polyclonal antibodies) or possibly hybridoma culture (monoclonal antibodies). They are then coupled to a marker (fluorescent or enzymatic) and used to visualize primary antibodies in various techniques (ELISA, Blotting, CMF). It is necessary to optimize the protocol at each step in order to obtain a quality secondary antibody.

Streptavidin is a bacterial protein isolated from *Streptomyces avidinii*, it is similar to egg white avidin for its high affinity for biotin (10-14 mol/L), but with more favorable chemical properties. Indeed, unlike egg white avidin which has a net positive charge at neutral pH and contains about 7% carbohydrates, streptavidin has a more neutral isoelectric point and does not contain carbohydrates. This reduces electrostatic interactions, especially for biotechnological applications, with negatively charged serum or membrane proteins. For detection techniques, streptavidin gives less background noise.





Substrate

Substrate for peroxidase

TMB is a popular substrate used to detect HRP activity. It is widely used in ELISA assays, as well as in Western blot.

The product of the reaction with peroxidase is blue in color (measured at 370 nm or 652 nm), or yellow when the reaction is stopped after the addition of an acid (measured at 450 nm). It has a higher sensitivity than conventional substrates such as OPD and ABTS with a very low background.

Enzymes represent a powerful system of signal amplification in biological assays, due to their ability to be conjugated with antibodies or other probes, while maintaining their activity. This is the case of peroxidase (HRP) and alkaline phosphatase (AP), which are the most used enzymes in immunological assays. The substrates are converted into colored products or light emission and detected by spectrophotometers or luminometers. Depending on the technique, the color or light is measured either at the site where the enzyme has been immobilized (precipitation of substrates), or in the solutions where they have been released (soluble substrates like for ELISA). The intensity of the color or light emitted is correlated with the concentration of the primary antibody or antigen measured.

Uptima® TMB Wise ELISA Peroxidase Substrate

- New sensitive and safer formulation
- High sensitivity
- Complies with REACH Annex XVII
- No regulated organic solvents
- Excellent stability (at least 24 months)

| Description | P/N | Qty |
|---|----------|--------|
| Uptima® TMB Wise ELISA Peroxidase Substrate | UP664770 | 200 mL |
| | UP664771 | 500 mL |
| | UP664772 | 1 L |

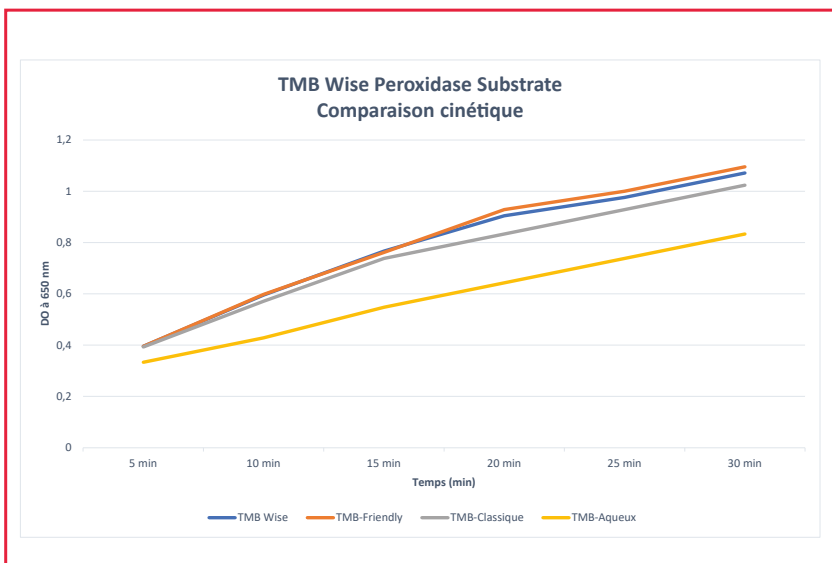
Related Products:

| | | |
|-----------------------|----------|--------|
| Stop Solution for TMB | UPS29590 | 250 mL |
| | UPS29591 | 1 L |

Converts the blue color of TMB into a stable and intense yellow color.

Our other references of TMB for ELISA

| Description | P/N | Qty | Applications |
|---|----------|--------|---|
| TMB Friendly ELISA Substrate solution | UP664700 | 200 mL | ELISAs / HRP |
| | UP664701 | 500 mL | |
| | UP664702 | 1 L | |
| TMB "Check+" solution (30 months stability) | S08173 | 200 mL | ELISAs / HRP (with a visual inspection of deposits) |
| | S08174 | 500 mL | |
| | S08175 | 1 L | |
| TMB Aqueous Solution (24 months stability) | UPS08181 | 200 mL | ELISAs / HRP (dedicated to diagnostic kits) |
| | UPS08182 | 500 mL | |
| | UPS08183 | 1L | |



Proteomics - Specific Protein Assay - Build your ELISA kit - Substrates



Substrates of alkaline phosphatase

The use of alkaline phosphatase is preferable to peroxidase in applications where a more linear response with lower background is required. Chromogenic substrates.

pNPP Uptima, solution, ready-to-use for ELISA

pNPP (p-Nitrophenyl Phosphate) is the preferred substrate for high sensitivity detection of alkaline phosphatase in ELISA assays. It gives a yellow product which absorbs at 405 nm.

- Very high sensitivity and low background noise
- Very stable (30 months at +4°C)
- Excellent batch-to-batch reproducibility

| Description | P/N | Qty |
|---|----------|--------|
| Uptima pNPP ELISA chromogenic substrate | UP664790 | 200 mL |
| | UP664791 | 500 mL |
| | UP664792 | 1 L |

Buffers and Saturants for ELISA

| Description | P/N | Qty |
|--|----------|--------|
| Coating buffer, 10X concentrate for the preparation of 500 mL of buffer. | J07190 | 50 mL |
| Seablock (for ELISA) Saturant of non-mammalian origin to solve your background noise problems | UP40301A | 500 mL |
| BSA 30% solution Eliminates dissolution and aggregate problems | UP900101 | 500 mL |
| | UP900102 | 1 L |
| PBS solution, 10X concentrate | N14012 | 1 L |
| | N14013 | 4 L |
| TBS solution, 10X concentrate | UPU75132 | 1 L |
| | UPU75133 | 5 L |
| PBST solution, 10X concentrate | N1381A | 1 L |
| 10X concentrated PBS + 0.5% tween 20 | 1N2000 | 1 L |



Derivatization reagents

AQCtag

Fluorescent derivatization reagent for mass spectrometric detection of amino acids. AQCtag can be used for covalent labeling of proteins and peptides. Suitable for the analysis of amino acid sequences by ($\lambda_{ex.}/em.$: 248/398 nm).

| Product | P/N | Qty |
|-------------------------------|-----------|--------|
| AQCtag, >95%, CAS 148757-94-2 | FP-BS68D0 | 100 mg |

Other derivatization reagents:

| Product | P/N | Qty |
|--|-----------|-----|
| o-phthalaldehyde (OPA) | FP-02727A | 1 g |
| 5-dimethylamino-1-naphthalenesulphonyl-chloride (Dansyl) | FP-01395A | 1 g |

ABD-F

Thiol group quantification

ABD-F is a useful reagent for the sensitive and specific detection of thiols both by TLC and HPLC. When combined with a reducing agent such as tributylphosphine, it can also be used for the determination of disulfides in peptides and proteins.

| Product | P/N | Qty |
|--|-----------|-------|
| ABD-F (375/508 nm), >98%, CAS 91366-65-3 | FP-57564A | 10 mg |

Synthesis of labelled peptides

FMOC-Lys(Dye)-OH

FluoProbes® offers a number of FMOC-Lys(Dye)-OH

| Product | P/N | Qty |
|----------------------|-----------|-----|
| FMOC-Lys(5/6-FAM)-OH | FP-HG0852 | 1 g |

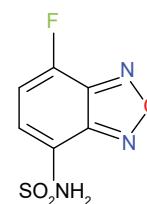
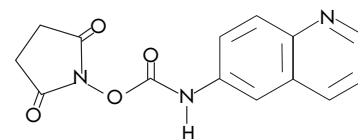
Other biochemicals for peptide labeling online at
www.advion-interchim.com

Peptide assay

Protein & Peptide Fluorescent Assay, RED EpicoccoStab

Peptide separation methods require precise loading of peptide mixtures to achieve the required sensitivity without overloading. EpicoccoStab spontaneously conjugates to the amine residues of peptides to give a product with strong red fluorescence. The reversible binding allows the peptides to be analyzed later (i.e. MS).

| Product | P/N | Qty |
|---|-----------|--------------------|
| Protein & Peptide Fluorescent Assay, RED EpicoccoStab (< 60min. > 40nM) | FP-CH4191 | 1 kit (2000 tests) |

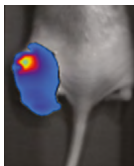


RELATED PRODUCTS

Trypsin, Mass Spectrometry Grade, TPCk treated,
Affinity Purified
P/N BSTWB1, 5 x 20 µg



Proteomics - Expression of proteins



J. of Bone Oncology 5 (2016) 5-14
(photo credit V. Trichet).

Expression measurement

D-Luciferin, K⁺ Salt, FluoProbes Pure Grade

Bioluminescent substrate of Firefly luciferase.

Firefly luciferase produces light by the ATP-dependent oxidation of luciferin. The 560 nm chemiluminescence from this reaction peaks within seconds, with light output that is proportional to luciferase activity when luciferin and ATP are present in excess. Firefly luciferase is used as a label using luciferin as the substrate for detection. One particular advantage is that there is low endogenous luciferase activity in mammalian tissues besides its high sensitivity.

| Description | P/N | Qty |
|--|-----------|-----|
| D-Luciferin, K ⁺ Salt, FluoProbes Pure Grade, CAS 115144-35-9 | FP-M1224D | 1 g |

Coenzyme A, free acid

Prolong the signal of Firefly Luciferase Bioluminescence.

| Description | P/N | Qty |
|------------------------------------|-----------|----------|
| Coenzyme A, free acid, CAS 85-61-0 | FP-62737B | 2x250 mg |

Coelenterazine H

Renilla luciferase bioluminescent substrate - up to 20 times brighter than native coelenterazine with Apoaequorin.

- Long shelf-life (packed under Argon)
- Faster to dissolve due to its fine crystal structure
- Consistent quality between aliquots

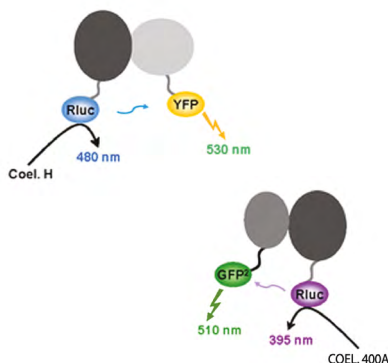
The product is shipped as filtered, lyophilized, batch controlled substrate.

| Description | P/N | Qty |
|----------------------------------|----------|------------|
| Coelenterazine H, CAS 50909-86-9 | UPR30783 | 2 x 0,5 mg |

Coelenterazine 400a

Renilla luciferase bioluminescent substrate with emission at 400 nm - preferred for BRET with GFP.

| Description | P/N | Qty |
|-------------------------------------|----------|------|
| Coelenterazine 400a, CAS 70217-82-2 | UPBB8392 | 1 mg |



Other products for protein expression online at www.interchim.com
LIFE SCIENCES > Biochemistry & Proteomics > Protein Expression



Blotting

BCIP/NBT Substrate Solution

Alkaline phosphatase substrate in ready-to-use solution.

| Description | P/N | Qty |
|-----------------------------|----------|-----|
| BCIP/NBT Substrate Solution | UP099858 | 1 L |

Buffers

MOPS UltraPure

Zwitterionic buffer ideal for denaturing agarose gel electrophoresis of RNA. Having a buffer range between 6.5-7.9

10X MOPS-SDS is used as a running buffer in protein electrophoresis of proteins form 12-200KDa. Running Buffers are used at 1x concentration working strength.

| Description | P/N | Qty |
|-----------------|--------|------|
| MOPS, UltraPure | 062002 | 1 kg |

TG-SDS Powder (RNase, DNase and Protease Free)

Migration buffer formulated for the separation of denatured proteins.

| Description | P/N | Qty |
|--|--------|----------------|
| TG-SDS Powder (RNase, DNase and Protease Free) | 865984 | 40 L for 1 bag |

TG-SDS 10X Solution

Concentrated buffer to be diluted to 1X - pH 8.3 (no adjustment required).

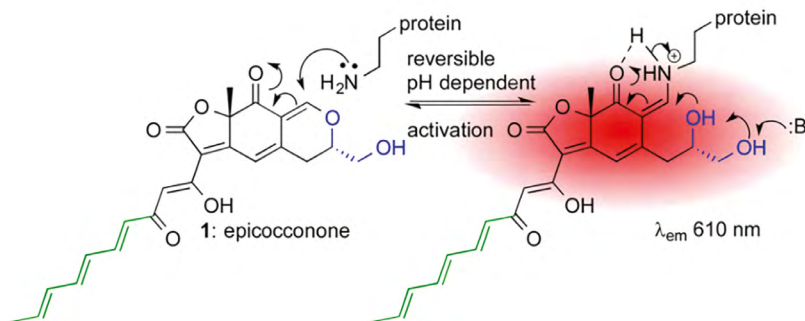
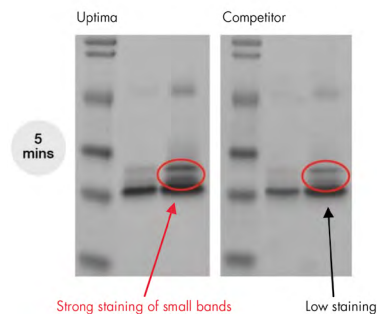
| Description | P/N | Qty |
|--|--------|-----|
| TG-SDS 10X (0.25M Tris, 1.92M Glycine, 1% SDS) | 91495E | 5 L |

Gel dye

Protein Gel Stain 100X, RED Epicocconone based

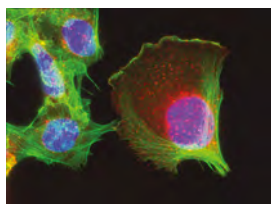
Red fluorescent dye for sensitive and reversible staining of total proteins in 1D and 2D electrophoresis, and loading control in Western blot.

| Description | P/N | Qty |
|---|-----------|-------|
| Protein Gel Stain 100X, RED Epicocconone based | FP-1K9520 | 10 mL |
| Other application: Protein & Peptide EpicoccoStab Fluorescent Assay Kit | FP-CH4191 | 1 kit |



Other products for protein electrophoresis online at www.interchim.com
LIFE SCIENCES > Biochemistry & Proteomics > Electrophoresis





Fluorescent Labels

Cyanines and FluoProbes® AF dyes

Cyanines and FluoProbes® AF dyes are popular fluorophores for microscopy, imaging, and other applications. The dyes have very high molar extinction coefficient. It makes them very bright labels for biomolecules.

Sulfonated forms are water soluble analogs, useful for the labeling of sensitive proteins in purely aqueous environments.

| FluoProbes® dye | $\lambda_{exc.}/\lambda_{em.}$ (nm) | NHS dyes | Hydrazide | Alkyne | Amine | Maleimide | COOH | DBCO |
|------------------------|-------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Cyanine2 min.dye | 490/510 | FP-LV2330 | --- | --- | --- | --- | --- | --- |
| Cyanine3 | 555/570 | FP-BB7494 | FP-SJH870 | FP-1A6320 | FP-WZE091 | FP-OO2030 | FP-CY3CAB | --- |
| DiSulfo-Cyanine3 | 548/563 | FP-1B7980 | FP-LQV050 | FP-OB8390 | FP-OB8313 | FP-SIJ050 | FP-1E1704 | FP-B35TA1 |
| Cyanine5 | 646/662 | FP-BB2070 | FP-IO2490 | FP-OO5590 | FP-JO6660 | FP-OO2381 | FP-OO2380 | --- |
| DiSulfo-Cyanine5 | 646/662 | FP-IO0511 | FP-1C4681 | FP-1C4640 | FP-OB8450 | FP-1N8961 | FP-KV5740 | FP-B43111 |
| Tri-Sulfo-Cyanine5 | 647/655 | FP-111951 | --- | --- | --- | --- | --- | --- |
| DiSulfo-Cyanine7 | 750/773 | FP-1B8001 | FP-LQV270 | FP-OB8280 | FP-WZE180 | FP-OB8290 | FP-1G7745 | --- |
| Tetra-Sulfo-Cyanine7.5 | 778/797 | FP-AWHGX1 | --- | --- | --- | --- | --- | --- |
| AF350 | 346/445 | FP-M17231 | FP-M17571 | --- | --- | FP-GF8181 | FP-AXCJIA | FP-BVLB60 |
| AF405 | 398/421 | FP-U90663 | --- | --- | --- | --- | --- | FP-B432J1 |
| AF488 | 494/517 | FP-R08112 | FP-846631 | FP-AXCECA | --- | --- | FP-AY1DEB | FP-B432L1 |
| 547H | 550/575 | FP-1H0880 | FP-1H1200 | --- | FP-1H0900 | FP-CB1000 | FP-1H0870 | --- |
| AF555 | 555/572 | FP-R59822 | FP-R99412 | --- | --- | --- | --- | FP-B432P1 |
| 565A | 563/592 | FP-BA7040 | --- | --- | --- | --- | --- | --- |
| AF647 | 650/665 | FP-R09353 | --- | FP-AXESGB | --- | FP-S28371 | --- | FP-B432S1 |
| 647H | 655/676 | FP-1H0930 | FP-AS3BV0 | --- | FP1H0950 | FP-CB1010 | FP-1H0920 | --- |

Markers

Alkaline phosphatase, Calf Intestin

Enzymatic marker for ELISA, blotting and histochemistry tests.

- High stability : Less than 10% activity lost over 48 months ensuring reliable and consistent performance of your assay
- Choice of Specific activities: ≥ 2600 or 6000 DEA U/mg protein

| Description | P/N | Qty |
|---|--------|----------|
| Alkaline phosphatase, Calf Intestin, ≥ 2600 DEA U/mg protein | 166571 | 100 mg |
| Alkaline Phosphatase ImmunoGrade, ≥ 6000 DEA U/mg protein | 852857 | 10 000 U |

Horseradish Peroxidase (HRP)

Immunoassay label for ELISA, and in blotting and histochemistry.

- $>90\%$ isozyme C provides exceptional purity so that you can be confident in your results
- Consistent and reliable performance
- Optimised large scale manufacturing processes produce high volumes of clinical chemistry and immunoassay grades

| Description | P/N | Qty |
|--|----------|-----|
| Horseradish Peroxidase (HRP) RZ >3.0 , ≥ 250 U/mg | UP146501 | 1 g |

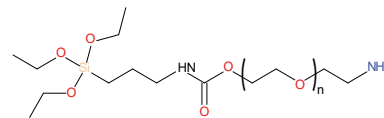


Crosslinkers

Silane-PEG-NH₂, 2000Da

Linear heterobifunctional PEG reagent with silane and amine.

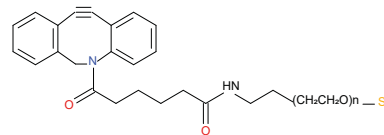
| Description | P/N | Qty |
|-------------------------------------|--------|-----|
| Silane-PEG-NH ₂ , 2000Da | WT9702 | 1 g |



DBCO-PEG-Thiol, 400Da

Click Chemistry reagent, stable in aqueous buffer.

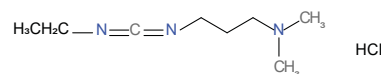
| Description | P/N | Qty |
|-----------------------|--------------|-------|
| DBCO-PEG-Thiol, 400Da | PG2-DBTH-400 | 50 mg |



EDAC (EDC)

Carbodiimide salt for coupling in the synthesis of amides and carboxylic esters.

| Description | P/N |
|--------------------------------------|--------|
| EDAC (EDC), Hcl >98%, CAS 25952-53-8 | 52005E |



Biochemical

Bovine Albumin, Fract.V, Standard Grade

Suitable for most biotechnologies, including saturation for Western blot or ELISA.

| Description | P/N | Qty |
|---|--------|-------|
| Bovine Albumin, Fract.V, Standard Grade | Q84171 | 500 g |

Sodium Azide, 10% w/v Solution

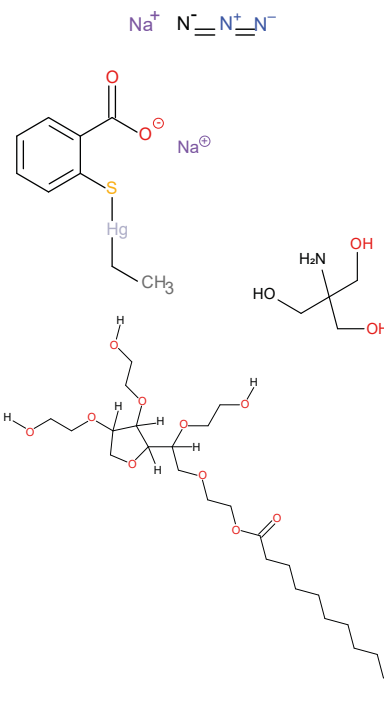
Preservative for use in general biology and chromatography.

| Description | P/N | Qty |
|---|--------|-----|
| Sodium Azide, 10% w/v Sol., 0,2 µm filtered, CAS 26628-22-8 | NJK631 | 1 L |

Thimerosal, 1% w/v Solution

Preservative for use in general biology and chromatography.

| Description | P/N | Qty |
|--|--------|------|
| Thimerosal, 1% w/v Sol., DNase- Rnase-free, 0,2 µm filtered, CAS 54-64-8 | LO8992 | 2 mL |



Tris Buffered Saline (TBS) 10X Solution

pH stabilization solution used in Western Blot and ELISA.

| Description | P/N | Qty |
|--|----------|-----|
| Tris Buffered Saline (TBS), 10X Solution | UPU75132 | 1 L |

Tween 20 - Oxidant free, 10% Solution

Common detergent for protein extraction and other molecular biology applications.

| Description | P/N | Qty |
|--|--------|-----------|
| Tween 20 - Oxidant free, 10% Solution, CAS 9005-64-5 | 158740 | 5 x 10 mL |

Other products for protein biochemistry online at www.interchim.com
LIFE SCIENCES > Biochemistry & Proteomics > Biochemistry

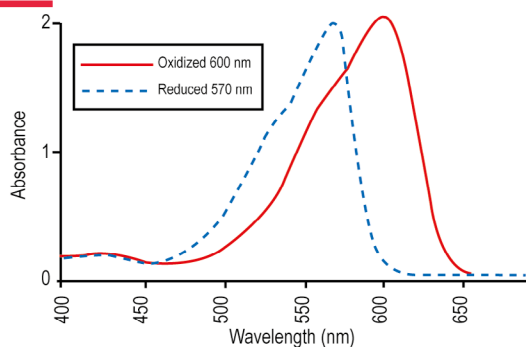


Apoptosis - Cellular Viability

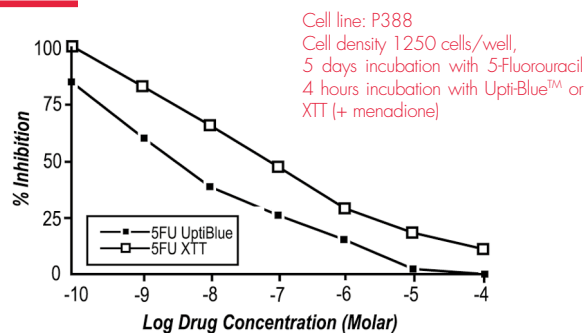
UptiBlue™ Viable Cell Counting Reagent

High throughput, sensitive, safe and economical homogeneous assay of cell viability by fluorescence or absorbance measurement.

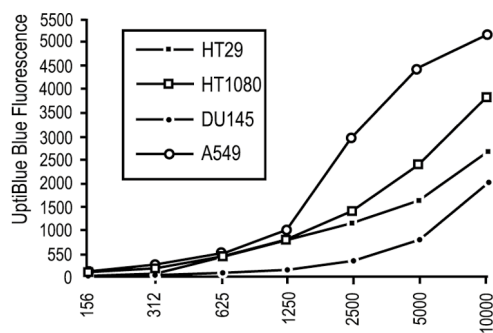
UPTIBLUE SPECTRUM - ABSORBANCES



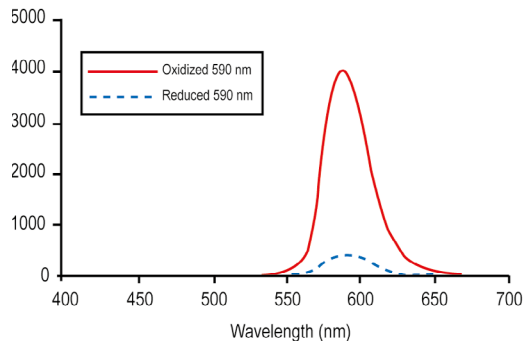
COMPARISON OF CYTOTOXICITY TESTS



CELL PROLIFERATION ASSAY



UPTIBLUE SPECTRUM - FLUORESCENCE



Description

UptiBlue™ Viable Cell Counting Reagent

P/N

UP669413

Qty

100 mL

Annexin V - FluoProbes®

Rapid and reliable detection of apoptotic cells by measuring phosphatidylserine externalization.

Description

Annexin V - FluoProbes® 488 (493/518 nm)

P/N

FP-BH4140

Qty

500 µL

Annexin V - FluoProbes® Rhodamine - TRITC (542/565 nm)

FP-475741

300 µ

Annexin V - FluoProbes® 547H (557/572 nm)

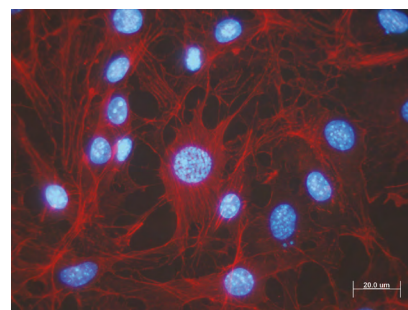
FP-BZ9620

300 µ

Annexin V - FluoProbes® 647H (653/675 nm)

FP-BZ9630

300 µ





WST-1 Cell Proliferation Reagent

In vitro detection of cell viability based on cleavage of tetrazolium salt by mitochondrial dehydrogenases.

| Description | P/N | Qty |
|---|--------|-----|
| WST-1 Cell Proliferation Reagent, CAS 150849-52-8 | F98884 | 1 g |

PMA (Propidium MonoAzide)

Selective detection of live bacteria by qPCR.

| Description | P/N | Qty |
|---------------------------|-----------|------|
| PMA (Propidium MonoAzide) | FP-BZ9340 | 1 mg |

Calcein AM

Measurement of eukaryotic cell viability and cell adhesion (494/517 nm).

| Description | P/N | Qty |
|------------------------------------|-----------|--------|
| Calcein AM, CAS 148504-34-1 | FP-895514 | 1 mg |
| Calcein AM, 1 mg/mL in dry DMSO | FP-855422 | 1 mL |
| Calcein AM, 4 mM in anhydrous DMSO | FP-FI9820 | 100 µL |

CFDA

Membrane-permeant, pH sensitive dye, fluorescent after being hydrolyzed by intracellular esterases.

| Description | P/N | Qty |
|-----------------------|-----------|-----|
| CFDA, CAS 124387-19-5 | FP-33953B | 1 g |

Ion indicators

Fura-2 AM

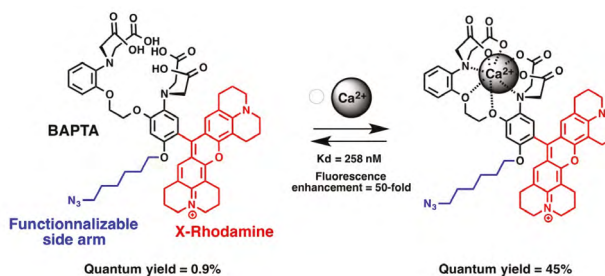
Ratiometric calcium indicator (340-380/510 nm) permeable to the membrane.

| Description | P/N | Qty |
|-------------|-----------|------------|
| Fura-2 AM | FP-42776A | 1 mg |
| | FP-42776C | 20 x 50 µg |

CaRuby-nano

Calcium red indicator (575/610 nm) activated with Azide group (Click Chemistry).

| Description | P/N | Qty |
|-------------|-----------|------|
| CaRuby-nano | FP-CARUBN | 1 mg |





SBFI, AM

Ratiometric sodium indicator (340-380/500 nm) permeable to the membrane.

| Description | P/N | Qty |
|-------------|-----------|------------|
| SBFI, AM | FP-82902B | 20 x 50 µg |

Cellular Structures

Fluoro-Jade C, neurodegeneration fluorescent marker

Stains all degenerating neurons with high contrast.

| Description | P/N | Qty |
|---|-----------|-------|
| Fluoro-Jade C, neurodegeneration fluorescent marker | FP-CD0860 | 30 mg |

Propidium Iodide (PI) solution

Membrane-impermeant counterstain in multicolor fluorescent assays. Commonly used to selectively stain dead cells in a mixed live-dead population.

| Description | P/N | Qty |
|---|-----------|-------|
| Propidium Iodide, 1 mg/ml in water (493/636 nm), CAS 25535-16-4 | FP-36774A | 10 ml |

Oxidative metabolism

Dihydroethidium

Evaluation of the production of reactive oxygen species (ROS), mainly superoxide radicals.

| Description | P/N | Qty |
|-----------------------|-----------|--------|
| Dihydroethidium (DHE) | FP-52492C | 100 mg |

DAF-FM diacetate

Cell-permeable probe to measure the nitric oxide (NO) levels.

| Description | P/N | Qty |
|---|-----------|-----------|
| DAF-FM diacetate (500/515 nm), CAS 254109-22-3 | FP-R1228A | 1 mg |
| SuperOxide Dismutase (SOD) Assay Kit, WST based | S311-10 | 500 tests |

Other products for cell assays online at www.interchim.com
LIFE SCIENCES > Cell Biology > Cell Assays



Other products for cell culture online at
www.interchim.com
LIFE SCIENCES > Cell Biology > Cell Culture

Components for cell culture

Bovine Albumin, Low endotoxin, 30% solution

Additive for cell culture media and for most demanding cell assays.

| Description | P/N | Qty |
|--|--------|-------|
| Bovine Albumin, Low endotoxin < 15.0 EU/mg, 0.2µm filtrated solution (30%) | C71151 | 50 ml |

Hybridokine (Hybridoma Growth Factor)

Factor for improving hybridoma growth and yield.

- Contains a mixture of growth factors for the culture of hybridoma
- An ideal alternative for feeder cell layers (no risk of contamination)
- Improves the selection and then cloning efficiency of antibody producing hybridomas, as well as their stabilization (increases the number of cells which secrete antibody, increases the cell viability including under stress conditions such as defrosting)
- Convenient: dilute 1:10 with growth medium and add to hybridoma cells recommended for use at a final concentration of 2.5 % (v/v) in medium
- Hybridokine is offered sterile and lyophilized, stable 2 years.

| Description | P/N | Qty |
|---------------------------------------|----------|-------|
| Hybridokine (Hybridoma Growth Factor) | UP826430 | 12 mL |

Phosphate Buffered Saline (PBS) 20x Concentrate

Supplied at pH 6.8, the pH increases with dilution to pH 7.4.

| Description | P/N | Qty |
|---|--------|-----|
| Phosphate Buffered Saline (PBS) 20x Concentrate, pH 6.8 | N1376B | 1 L |

POPSO Disodium salt

Biological buffer for in vitro cell culture, enzymatic assays and some electrophoretic applications at physiological pH.

| Description | P/N | Qty |
|---|--------|-------|
| POPSO Disodium salt, >99 %, CAS 108321-07-9 | 692232 | 100 g |

Microbiology

Marine Broth

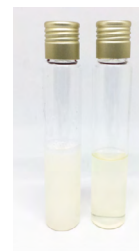
For the isolation and enumeration of heterotrophic marine bacteria.

| Description | P/N | Qty |
|--------------|--------|-------|
| Marine Broth | A2WT30 | 500 g |

NZCYM Broth, Powder

Escherichia coli Preparation and recovery of competent cells.

| Description | P/N | Qty |
|---------------------|--------|-------|
| NZCYM Broth, Powder | N1473A | 500 g |



Capillary Columns

Interchim - Uptibond Excellium

Overview
UBEX 1 MS
UBEX 5 MS
UBEX 624 MS
UBEX WAX MS
UBEX 1
UBEX 5
UBEX 1701
UBEX 624
UBEX WAX
UBEX FFAP

F.2 - F.12

F.2 - F.12

F.2
F.3
F.4
F.5
F.6
F.7
F.8
F.9
F.10
F.11
F.12

GC Packed Columns

Interchim - UptiPacked

F.13

F.13





UptiBond multi-application capillary columns development comes from a collaboration between Advion Interchim Scientific's GC specialists and a team of researchers from one of the leading players in gas chromatography.

UptiBond columns are manufactured according to the specifications defined by our teams.

- Rigorous validation of the capillary tube, especially concerning its degree of deactivation
- Proprietary grafting technology
- Control of the smoothness of the film deposit and its thickness along the entire length

The characteristics defined for our UptiBond columns are validated:

- In-process analytical monitoring
- Analytical test at the end of the cycle
- Validation of constants



These strict procedures ensure the perfect batch-to-batch reproducibility of our UptiBond columns. Upon your request, our laboratories will work on your specific needs and offer you the services meeting your requirements.

Toxicology

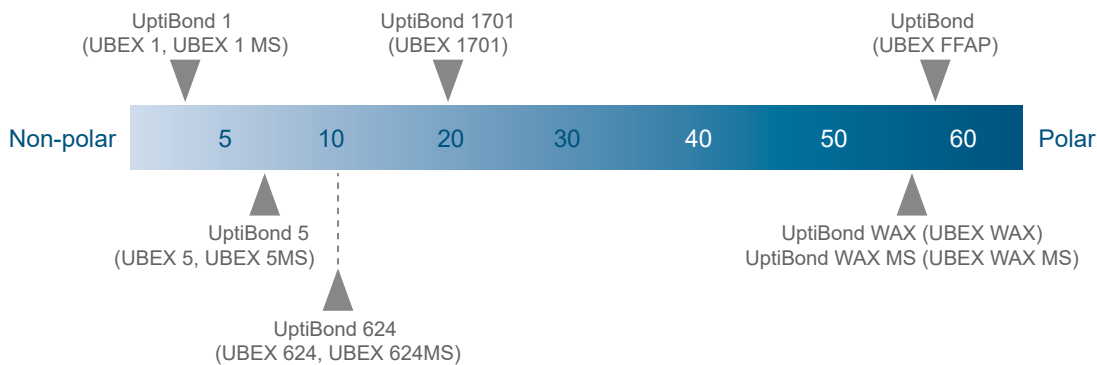
- Analysis:
 - on organic tissues
- Drug screening
- Doping screening

Environment

- Analysis of:
 - aromatic hydrocarbons traces
- Organochlorine, nitrogenous and chlorinated pesticides
- Semi-volatile compounds, phenols
- Volatile organic acids

Chemistry

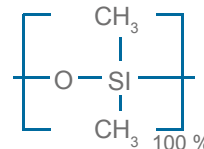
- Analysis of :
 - hydrocarbons, alcohols, organic acids, volatile amines, glycols, aldehydes
 - solvents





UBEX 1 MS

Composition: 100% Methyl Polysiloxane (Crossbonded)
 Polarity: Non polar / Low bleeding
 Max Temperature: 350°C
 Equivalent to: AT-1 MS, BPX-1, CP-Sil 5 CB MS, DB-1 MS, Equity-1, HP-1 MS, Optima 1MS, OV-1MS, Rtx-1 MS, SPB-1, ZB-1 MS
 USP Classification: G1, G2, G9, G38
 Applications: Hydrocarbons, pesticides, phenols, amines, essential oils, gases (refinery), MTBE, oxygenated compounds, sulfur compounds, aromas.
 EPA Methods: EPA 504.1, 505, 606



| Inner diameter | Film thickness | 10 m | 20 m | 30 m | 40 m | 50 m | 60 m |
|----------------|----------------|-----------------|-----------------|----------------|-----------------|-----------------|-----------------|
| 0.18 mm | 0.18 µm | UBEX1MS-101818 | UBEX1MS-201818 | --- | UBEX1MS-401818 | UBEX1MS-501818 | UBEX1MS-601818 |
| | 0.20 µm | UBEX1MS-101820 | UBEX1MS-201820 | --- | UBEX1MS-401820 | UBEX1MS-501820 | UBEX1MS-601820 |
| | 0.36 µm | --- | UBEX1MS-201836 | --- | UBEX1MS-401836 | --- | UBEX1MS-601836 |
| | 0.40 µm | UBEX1MS-101840 | UBEX1MS-201840 | --- | UBEX1MS-401840 | UBEX1MS-501840 | UBEX1MS-601840 |
| 0.20 mm | 0.10 µm | UBEX1MS-102010 | UBEX1MS-202010 | --- | UBEX1MS-402010 | UBEX1MS-502010 | UBEX1MS-602010 |
| | 0.20 µm | UBEX1MS-102020 | UBEX1MS-202020 | --- | UBEX1MS-402020 | UBEX1MS-502020 | UBEX1MS-602020 |
| | 0.33 µm | UBEX1MS-122033 | UBEX1MS-252033 | UBEX1MS-302033 | --- | UBEX1MS-502033 | UBEX1MS-602033 |
| | 0.40 µm | UBEX1MS-102040 | UBEX1MS-202040 | --- | UBEX1MS-402040 | UBEX1MS-502040 | UBEX1MS-602040 |
| | 1.00 µm | UBEX1MS-1020100 | UBEX1MS-2020100 | --- | UBEX1MS-4020100 | UBEX1MS-5020100 | UBEX1MS-6020100 |

| Inner diameter | Film thickness | 10 m | 15 m | 30 m | 50 m | 60 m | 105 m |
|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|
| 0.25 mm | 0.10 µm | --- | UBEX1MS-152510 | UBEX1MS-302510 | UBEX1MS-502510 | UBEX1MS-602510 | --- |
| | 0.25 µm | UBEX1MS-102525 | UBEX1MS-152525 | UBEX1MS-302525 | --- | UBEX1MS-602525 | UBEX1MS-1052525 |
| | 0.50 µm | UBEX1MS-102550 | UBEX1MS-152550 | UBEX1MS-302550 | UBEX1MS-502550 | UBEX1MS-602550 | UBEX1MS-1052550 |
| | 1.00 µm | UBEX1MS-1025100 | UBEX1MS-1525100 | UBEX1MS-3025100 | UBEX1MS-5025100 | UBEX1MS-6025100 | UBEX1MS-10525100 |
| 0.32 mm | 0.10 µm | UBEX1MS-103210 | UBEX1MS-153210 | UBEX1MS-303210 | UBEX1MS-503210 | UBEX1MS-603210 | UBEX1MS-1053210 |
| | 0.25 µm | UBEX1MS-103225 | UBEX1MS-153225 | UBEX1MS-303225 | UBEX1MS-503225 | UBEX1MS-603225 | UBEX1MS-1053225 |
| | 0.50 µm | UBEX1MS-103250 | UBEX1MS-153250 | UBEX1MS-303250 | UBEX1MS-503250 | UBEX1MS-603250 | UBEX1MS-1053250 |
| | 1.00 µm | UBEX1MS-1032100 | UBEX1MS-1532100 | UBEX1MS-3032100 | UBEX1MS-5032100 | UBEX1MS-6032100 | UBEX1MS-10532100 |
| | 1.50 µm | UBEX1MS-1032150 | UBEX1MS-1532150 | UBEX1MS-3032150 | UBEX1MS-5032150 | UBEX1MS-6032150 | UBEX1MS-10532150 |
| 0.53 mm | 0.10 µm | UBEX1MS-105310 | UBEX1MS-155310 | UBEX1MS-305310 | --- | --- | --- |
| | 0.25 µm | --- | UBEX1MS-155325 | UBEX1MS-305325 | UBEX1MS-505325 | UBEX1MS-605325 | --- |
| | 0.50 µm | UBEX1MS-105350 | UBEX1MS-155350 | UBEX1MS-305350 | UBEX1MS-505350 | UBEX1MS-605350 | --- |
| | 1.00 µm | UBEX1MS-1053100 | UBEX1MS-1553100 | UBEX1MS-3053100 | UBEX1MS-5053100 | UBEX1MS-6053100 | UBEX1MS-7553100 |
| | 1.50 µm | UBEX1MS-1053150 | UBEX1MS-1553150 | UBEX1MS-3053150 | UBEX1MS-5053150 | UBEX1MS-6053150 | UBEX1MS-7553150 |

Some dimensions are also available with integrated guard column.



GC Capillary columns - UptiBond™



UBEX 5 MS

Composition: 5% Phenyl, 95% Methyl Polysiloxane (Crossbonded)

Polarity: Low Polarity / Low bleeding

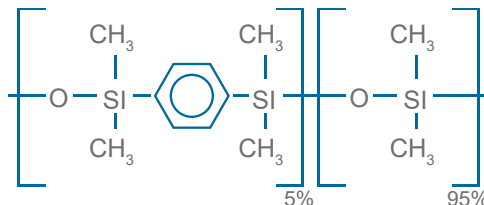
Max Temperature: 350°C

Equivalent to: 007-5 ms, AT-5 ms, BPX-5, DB-5 ms, HP-5 ms, Rtx-5 ms, SPB-5, Equity-5 ms, Optima 5MS, ZB-5 ms

USP Classification: G27, G36, G41

Applications: Drugs, Fatty Acid Methyl Esters (FAME), halogenated compounds, semi-volatiles, pesticides

EPA Methods: EPA 513, 528, 604, 606, 610, 613, 625, 1625, 1653, 8100, 8141A/B



| Inner diameter | Film thickness | 10 m | 20 m | 30 m | 40 m | 50 m | 60 m |
|----------------|----------------|-----------------|------------------|----------------|-----------------|-----------------|-----------------|
| 0.18 mm | 0.18 µm | UBEX5MS-101818 | UBEX5MS-201818 | --- | UBEX5MS-401818 | UBEX5MS-501818 | UBEX5MS-601818 |
| | 0.20 µm | UBEX5MS-101820 | UBEX5MS-201820 | --- | UBEX5MS-401820 | UBEX5MS-501820 | UBEX5MS-601820 |
| | 0.36 µm | --- | UBEX5MS-201836 | --- | UBEX5MS-401836 | --- | UBEX5MS-601836 |
| | 0.40 µm | UBEX5MS-101840 | UBEX5MS-201840 | --- | UBEX5MS-401840 | UBEX5MS-501840 | UBEX5MS-601840 |
| 0.20 mm | 0.10 µm | UBEX5MS-102010 | UBEX5MS-202010 | --- | UBEX5MS-402010 | UBEX5MS-502010 | UBEX5MS-602010 |
| | 0.20 µm | UBEX5MS-102020 | UBEX5MS-202020 | --- | UBEX5MS-402020 | UBEX5MS-502020 | UBEX5MS-602020 |
| | 0.33 µm | UBEX5MS-122033* | UBEX5MS-252033** | UBEX5MS-302033 | --- | UBEX5MS-502033 | UBEX5MS-602033 |
| | 0.40 µm | UBEX5MS-102040 | UBEX5MS-202040 | --- | UBEX5MS-402040 | UBEX5MS-502040 | UBEX5MS-602040 |
| | 1.00 µm | UBEX5MS-1020100 | UBEX5MS-2020100 | --- | UBEX5MS-4020100 | UBEX5MS-5020100 | UBEX5MS-6020100 |

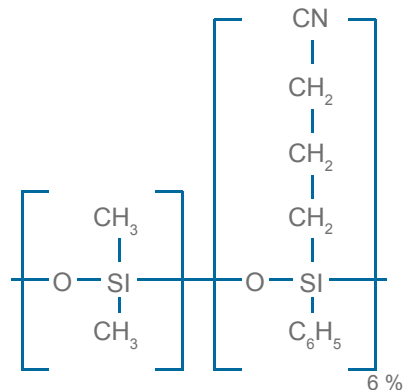
| Inner diameter | Film thickness | 10 m | 15 m | 30 m | 50 m | 60 m | 75 m |
|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 0.25 mm | 0.10 µm | --- | UBEX5MS-152510 | UBEX5MS-302510 | UBEX5MS-502510 | UBEX5MS-602510 | --- |
| | 0.25 µm | UBEX5MS-102525 | UBEX5MS-152525 | UBEX5MS-302525 | UBEX5MS-502525 | UBEX5MS-602525 | --- |
| | 0.50 µm | UBEX5MS-102550 | UBEX5MS-152550 | UBEX5MS-302550 | UBEX5MS-502550 | UBEX5MS-602550 | --- |
| | 1.00 µm | UBEX5MS-1025100 | UBEX5MS-1525100 | UBEX5MS-3025100 | UBEX5MS-5025100 | UBEX5MS-6025100 | --- |
| 0.32 mm | 0.10 µm | UBEX5MS-103210 | UBEX5MS-153210 | UBEX5MS-303210 | UBEX5MS-503210 | UBEX5MS-603210 | --- |
| | 0.25 µm | UBEX5MS-103225 | UBEX5MS-153225 | UBEX5MS-303225 | UBEX5MS-503225 | UBEX5MS-603225 | --- |
| | 0.50 µm | UBEX5MS-103250 | UBEX5MS-153250 | UBEX5MS-303250 | UBEX5MS-503250 | UBEX5MS-603250 | --- |
| | 1.00 µm | UBEX5MS-1032100 | UBEX5MS-1532100 | UBEX5MS-3032100 | UBEX5MS-5032100 | UBEX5MS-6032100 | --- |
| | 1.50 µm | UBEX5MS-1032150 | UBEX5MS-1532150 | UBEX5MS-3032150 | UBEX5MS-5032150 | UBEX5MS-6032150 | --- |
| 0.53 mm | 0.10 µm | UBEX5MS-105310 | UBEX5MS-155310 | UBEX5MS-305310 | --- | --- | --- |
| | 0.25 µm | --- | UBEX5MS-155325 | UBEX5MS-305325 | UBEX5MS-505325 | UBEX5MS-605325 | --- |
| | 0.50 µm | UBEX5MS-105350 | UBEX5MS-155350 | UBEX5MS-305350 | UBEX5MS-505350 | UBEX5MS-605350 | --- |
| | 1.00 µm | UBEX5MS-1053100 | UBEX5MS-1553100 | UBEX5MS-3053100 | UBEX5MS-5053100 | UBEX5MS-6053100 | UBEX5MS-7553100 |
| | 1.50 µm | UBEX5MS-1053150 | UBEX5MS-1553150 | UBEX5MS-3053150 | UBEX5MS-5053150 | UBEX5MS-6053150 | UBEX5MS-7553150 |

Some dimensions are also available with integrated guard column.



UBEX 624 MS

Composition: 6% Cyanopropylphenyl, 94% Methyl Polysiloxane (Crossbonded)
 Polarity: Intermediate polarity / Low bleeding
 Max Temperature: 260°C
 Equivalent to: 007-624, 007-1301, AT-624, CP-1301, DB-1301, DB-624, HP-1301, HP-624, Rtx-624, Rtx-1301, SPB-1301, SPB-624, VF-624 ms, ZB-624
 USP Classification: G43, 467 (OVIs)
 Applications: Residual solvents, volatile organic compounds (VOC), alcohols oxygenated compounds.
 EPA Methods: EPA 501.3, 502.1, 502.2, 503.1, 504.1, 524.2, 601, 602, 603, 624, 1624, 8010B, 8021B, 8030A, 8260B



| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m |
|----------------|----------------|------------------|-------------------|-------------------|-------------------|-------------------|
| 0.18 mm | 0.18 µm | UBEX624MS-101818 | UBEX624MS-201818 | UBEX624MS-401818 | UBEX624MS-501818 | UBEX624MS-601818 |
| | 0.20 µm | UBEX624MS-101820 | UBEX624MS-201820 | UBEX624MS-401820 | UBEX624MS-501820 | UBEX624MS-601820 |
| | 0.40 µm | UBEX624MS-101840 | UBEX624MS-201840 | UBEX624MS-401840 | UBEX624MS-501840 | --- |
| | 1.00 µm | --- | UBEX624MS-2018100 | UBEX624MS-4018100 | UBEX624MS-5018100 | UBEX624MS-6018100 |
| 0.20 mm | 1.12 µm | --- | UBEX624MS-2020112 | UBEX624MS-4020112 | UBEX624MS-5020112 | UBEX624MS-6020112 |

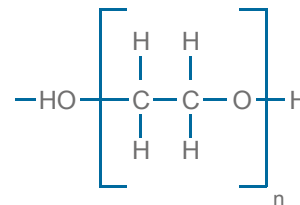
| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m | 75 m |
|----------------|----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 0.25 mm | 0.10 µm | --- | UBEX624MS-152510 | UBEX624MS-302510 | UBEX624MS-502510 | UBEX624MS-602510 | --- |
| | 0.25 µm | UBEX624MS-102525 | UBEX624MS-152525 | UBEX624MS-302525 | UBEX624MS-502525 | UBEX624MS-602525 | --- |
| | 0.50 µm | UBEX624MS-102550 | UBEX624MS-152550 | UBEX624MS-302550 | UBEX624MS-502550 | UBEX624MS-602550 | --- |
| | 1.00 µm | UBEX624MS-1025100 | UBEX624MS-1525100 | UBEX624MS-3025100 | UBEX624MS-5025100 | UBEX624MS-6025100 | --- |
| | 1.40 µm | --- | --- | UBEX624MS-3025140 | UBEX624MS-5025140 | UBEX624MS-6025140 | --- |
| | 3.00 µm | --- | --- | UBEX624MS-3025300 | UBEX624MS-5025300 | UBEX624MS-6025300 | --- |
| 0.32 mm | 0.10 µm | UBEX624MS-103210 | UBEX624MS-153210 | UBEX624MS-303210 | UBEX624MS-503210 | UBEX624MS-603210 | --- |
| | 0.25 µm | UBEX624MS-103225 | UBEX624MS-153225 | UBEX624MS-303225 | UBEX624MS-503225 | UBEX624MS-603225 | --- |
| | 0.50 µm | UBEX624MS-103250 | UBEX624MS-153250 | UBEX624MS-303250 | UBEX624MS-503250 | UBEX624MS-603250 | --- |
| | 1.00 µm | UBEX624MS-1032100 | UBEX624MS-1532100 | UBEX624MS-3032100 | UBEX624MS-5032100 | UBEX624MS-6032100 | --- |
| | 1.50 µm | UBEX624MS-1032150 | UBEX624MS-1532150 | UBEX624MS-3032150 | UBEX624MS-5032150 | UBEX624MS-6032150 | --- |
| | 1.80 µm | --- | --- | UBEX624MS-3032180 | UBEX624MS-5032180 | UBEX624MS-6032180 | UBEX624MS-7532180 |
| | 3.00 µm | --- | UBEX624MS-1532300 | UBEX624MS-3032300 | UBEX624MS-5032300 | UBEX624MS-6032300 | --- |
| 0.53 mm | 0.10 µm | UBEX624MS-105310 | UBEX624MS-155310 | UBEX624MS-305310 | --- | --- | --- |
| | 0.25 µm | --- | UBEX624MS-155325 | UBEX624MS-305325 | UBEX624MS-505325 | UBEX624MS-605325 | --- |
| | 0.50 µm | UBEX624MS-105350 | UBEX624MS-155350 | UBEX624MS-305350 | UBEX624MS-505350 | UBEX624MS-605350 | --- |
| | 1.00 µm | --- | UBEX624MS-1553100 | UBEX624MS-3053100 | UBEX624MS-5053100 | UBEX624MS-6053100 | UBEX624MS-7553100 |
| | 1.50 µm | --- | UBEX624MS-1553150 | UBEX624MS-3053150 | UBEX624MS-5053150 | UBEX624MS-6053150 | UBEX624MS-7553150 |
| | 3.00 µm | --- | UBEX624MS-1553300 | UBEX624MS-3053300 | UBEX624MS-5053300 | UBEX624MS-6053300 | UBEX624MS-7553300 |

Some dimensions are also available with integrated guard column.



UBEX WAX MS

Composition: 100% Polyethyleneglycol (PEG) (Crossbonded)
 Polarity: High polarity - Low bleeding
 Max temperature: 250°C
 Equivalent to: 007-CW, AT-WAX MS, BP-20, DB-WAX, HP-INNOWAX I,
 OmegaWax, RTX-WAX, Stabilwax, VF-WAX MS, ZB-WAX PLUS
 USP Classification: G14, G15, G16, G20, G39, G47, USP 467 (OVIs)
 Applications: Solvents, glycols, alcohols
 EPA Methods: EPA 602, 603, 619...



| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m |
|----------------|----------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 0.18 mm | 0.18 µm | UBEXWAXMS-101818 | UBEXWAXMS-201818 | UBEXWAXMS-401818 | UBEXWAXMS-501818 | UBEXWAXMS-601818 |
| | 0.20 µm | UBEXWAXMS-101820 | UBEXWAXMS-201820 | UBEXWAXMS-401820 | UBEXWAXMS-501820 | UBEXWAXMS-601820 |
| | 0.40 µm | UBEXWAXMS-101840 | UBEXWAXMS-201840 | UBEXWAXMS-401840 | UBEXWAXMS-501840 | UBEXWAXMS-601840 |
| 0.20 mm | 0.10 µm | UBEXWAXMS-102010 | UBEXWAXMS-202010 | UBEXWAXMS-402010 | UBEXWAXMS-502010 | UBEXWAXMS-602010 |
| | 0.20 µm | UBEXWAXMS-102020 | UBEXWAXMS-202020 | UBEXWAXMS-402020 | UBEXWAXMS-502020 | UBEXWAXMS-602020 |
| | 0.40 µm | UBEXWAXMS-102040 | UBEXWAXMS-202040 | UBEXWAXMS-402040 | UBEXWAXMS-502040 | UBEXWAXMS-602040 |
| | 1.00 µm | UBEXWAXMS-1020100 | UBEXWAXMS-2020100 | UBEXWAXMS-4020100 | UBEXWAXMS-5020100 | UBEXWAXMS-6020100 |

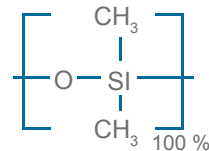
| Inner diameter | Film thickness | 10 m | 15 m | 30 m | 50 m | 60 m | 75 m |
|----------------|----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 0.25 mm | 0.10 µm | --- | UBEXWAXMS-152510 | UBEXWAXMS-302510 | UBEXWAXMS-502510 | UBEXWAXMS-602510 | --- |
| | 0.25 µm | UBEXWAXMS-102525 | UBEXWAXMS-152525 | UBEXWAXMS-302525 | UBEXWAXMS-502525 | UBEXWAXMS-602525 | --- |
| | 0.50 µm | UBEXWAXMS-102550 | UBEXWAXMS-152550 | UBEXWAXMS-302550 | UBEXWAXMS-502550 | UBEXWAXMS-602550 | --- |
| | 1.00 µm | UBEXWAXMS-1025100 | UBEXWAXMS-1525100 | UBEXWAXMS-3025100 | UBEXWAXMS-5025100 | UBEXWAXMS-6025100 | --- |
| 0.32 mm | 0.10 µm | UBEXWAXMS-103210 | UBEXWAXMS-153210 | UBEXWAXMS-303210 | UBEXWAXMS-503210 | UBEXWAXMS-603210 | --- |
| | 0.25 µm | UBEXWAXMS-103225 | UBEXWAXMS-153225 | UBEXWAXMS-303225 | UBEXWAXMS-503225 | UBEXWAXMS-603225 | --- |
| | 0.50 µm | UBEXWAXMS-103250 | UBEXWAXMS-153250 | UBEXWAXMS-303250 | UBEXWAXMS-503250 | UBEXWAXMS-603250 | --- |
| | 1.00 µm | UBEXWAXMS-1032100 | UBEXWAXMS-1532100 | UBEXWAXMS-3032100 | UBEXWAXMS-5032100 | UBEXWAXMS-6032100 | --- |
| | 1.50 µm | UBEXWAXMS-1032150 | UBEXWAXMS-1532150 | UBEXWAXMS-3032150 | UBEXWAXMS-5032150 | UBEXWAXMS-6032150 | --- |
| 0.53 mm | 3.00 µm | UBEXWAXMS-1032300 | UBEXWAXMS-1532300 | UBEXWAXMS-3032300 | UBEXWAXMS-5032300 | UBEXWAXMS-6032300 | --- |
| | 0.10 µm | UBEXWAXMS-105310 | UBEXWAXMS-155310 | UBEXWAXMS-305310 | --- | --- | --- |
| | 0.25 µm | UBEXWAXMS-155325 | --- | UBEXWAXMS-305325 | UBEXWAXMS-505325 | UBEXWAXMS-605325 | --- |
| | 0.50 µm | UBEXWAXMS-105350 | UBEXWAXMS-155350 | UBEXWAXMS-305350 | UBEXWAXMS-505350 | UBEXWAXMS-605350 | --- |
| | 1.00 µm | UBEXWAXMS-1053100 | UBEXWAXMS-1553100 | UBEXWAXMS-3053100 | UBEXWAXMS-5053100 | UBEXWAXMS-6053100 | UBEXWAXMS-7553100 |
| | 1.50 µm | UBEXWAXMS-1053150 | UBEXWAXMS-1553150 | UBEXWAXMS-3053150 | UBEXWAXMS-5053150 | UBEXWAXMS-6053150 | UBEXWAXMS-7553150 |
| | 2.00 µm | UBEXWAXMS-1053200 | UBEXWAXMS-1553200 | UBEXWAXMS-3053200 | UBEXWAXMS-5053200 | UBEXWAXMS-6053200 | UBEXWAXMS-7553200 |
| 2.50 µm | --- | UBEXWAXMS-1553250 | UBEXWAXMS-3053250 | UBEXWAXMS-5053250 | UBEXWAXMS-6053250 | UBEXWAXMS-7553250 | |

Some dimensions are also available with integrated guard column.



UBEX 1

Composition: 100% Methyl Polysiloxane (Crossbonded)
 Polarity: Non polar
 Max temperature*: 350°C
 Equivalent to: 007-1, AT-1, BP-1, CP Sil 5CB, DB-1, OV-1, HP-1, Rtx-1, SPB-1, ZB-1
 Applications: Hydrocarbons, pesticides, phenols, amines, essential oils, gases (refinery), MTBE, oxygenated compounds, sulfur compounds, aromas.
 EPA Methods: EPA 504.1, 505, 606



*The maximum temperature may change depending on the inside diameter and film thickness.

| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m |
|----------------|----------------|---------------|---------------|---------------|---------------|---------------|
| 0.18 mm | 0.18 µm | UBEX1-101818 | UBEX1-201818 | UBEX1-401818 | UBEX1-501818 | UBEX1-601818 |
| | 0.20 µm | UBEX1-101820 | UBEX1-201820 | UBEX1-401820 | --- | --- |
| | 0.40 µm | UBEX1-101840 | UBEX1-201840 | UBEX1-401840 | UBEX1-501840 | UBEX1-601840 |
| 0.20 mm | 0.10 µm | UBEX1-102010 | UBEX1-202010 | UBEX1-402010 | UBEX1-502010 | UBEX1-602010 |
| | 0.20 µm | UBEX1-102020 | UBEX1-202020 | UBEX1-402020 | UBEX1-502020 | UBEX1-602020 |
| | 0.40 µm | UBEX1-102040 | UBEX1-202040 | UBEX1-402040 | UBEX1-502040 | UBEX1-602040 |
| | 1.00 µm | UBEX1-1020100 | UBEX1-2020100 | UBEX1-4020100 | UBEX1-5020100 | UBEX1-6020100 |

| Inner diameter | Film thickness | 10 m | 15 m | 30 m | 50 m | 60 m | 75 m |
|----------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 0.25 mm | 0.10 µm | --- | UBEX1-152510 | UBEX1-302510 | UBEX1-502510 | UBEX1-602510 | --- |
| | 0.25 µm | UBEX1-102525 | UBEX1-152525 | UBEX1-302525 | UBEX1-502525 | UBEX1-602525 | --- |
| | 0.50 µm | UBEX1-102550 | UBEX1-152550 | UBEX1-302550 | UBEX1-502550 | UBEX1-602550 | --- |
| | 1.00 µm | UBEX1-1025100 | UBEX1-1525100 | UBEX1-3025100 | UBEX1-5025100 | UBEX1-6025100 | --- |
| 0.32 mm | 0.10 µm | UBEX1-103210 | UBEX1-153210 | UBEX1-303210 | UBEX1-503210 | UBEX1-603210 | --- |
| | 0.25 µm | UBEX1-103225 | UBEX1-153225 | UBEX1-303225 | UBEX1-503225 | UBEX1-603225 | --- |
| | 0.50 µm | UBEX1-103250 | UBEX1-153250 | UBEX1-303250 | UBEX1-503250 | UBEX1-603250 | --- |
| | 1.00 µm | UBEX1-1032100 | UBEX1-1532100 | UBEX1-3032100 | UBEX1-5032100 | UBEX1-6032100 | --- |
| | 1.50 µm | UBEX1-1032150 | UBEX1-1532150 | UBEX1-3032150 | UBEX1-5032150 | UBEX1-6032150 | --- |
| | 3.00 µm | UBEX1-1032300 | UBEX1-1532300 | UBEX1-3032300 | UBEX1-5032300 | UBEX1-6032300 | --- |
| | 4.00 µm | --- | --- | UBEX1-3032400 | --- | --- | --- |
| | 5.00 µm | UBEX1-1032500 | UBEX1-1532500 | UBEX1-3032500 | UBEX1-5032500 | UBEX1-6032500 | --- |
| 0.53 mm | 0.10 µm | UBEX1-105310 | UBEX1-155310 | UBEX1-305310 | --- | --- | --- |
| | 0.25 µm | --- | UBEX1-155325 | UBEX1-305325 | UBEX1-505325 | UBEX1-605325 | --- |
| | 0.50 µm | UBEX1-105350 | UBEX1-155350 | UBEX1-305350 | UBEX1-505350 | UBEX1-605350 | --- |
| | 1.00 µm | UBEX1-1053100 | UBEX1-1553100 | UBEX1-3053100 | UBEX1-5053100 | UBEX1-6053100 | UBEX1-7553100 |
| | 1.50 µm | UBEX1-1053150 | UBEX1-1553150 | UBEX1-3053150 | UBEX1-5053150 | UBEX1-6053150 | UBEX1-7553150 |
| | 2.65 µm | UBEX1-1053265 | --- | --- | --- | --- | --- |
| | 3.00 µm | UBEX1-1053300 | UBEX1-1553300 | UBEX1-3053300 | UBEX1-5053300 | UBEX1-6053300 | UBEX1-7553300 |
| | 5.00 µm | UBEX1-1053500 | UBEX1-1553500 | UBEX1-3053500 | UBEX1-5053500 | UBEX1-6053500 | UBEX1-7553500 |
| | 7.00 µm | --- | UBEX1-1553700 | UBEX1-3053700 | --- | --- | --- |

Some dimensions are also available with integrated guard column.

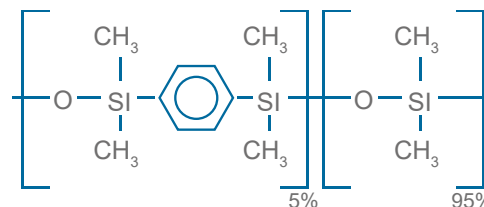


UBEX 5

Composition: 5% Phenyl, 95% Methyl Polysiloxane (Crossbonded)
 Polarity: Low Polarity
 Max temperature*: 350°C
 Equivalent to: 007-5, AT-5, BP-5, CP-Sil 8 CB, DB-5, HP-5 OV-5, Rtx-5,
 SPB-5, ZB-5 USP

Classification: G27, G36, G41

Applications: Drugs, Fatty Acid Methyl Esters (FAME), halogenated compounds, semi-volatiles, pesticides
 EPA Methods: EPA 611/8110, 604, 606, 607, 608/8081, 609, 612, 613, 615,
 619, 622, 8015B, 8041, 8061A, 8082, 8091, 8121, 8141...



*The maximum temperature may change depending on the inside diameter and film thickness.

| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m |
|----------------|----------------|---------------|---------------|---------------|---------------|---------------|
| 0.18 mm | 0.18 µm | UBEX5-101818 | UBEX5-201818 | UBEX5-401818 | UBEX5-501818 | UBEX5-601818 |
| | 0.20 µm | UBEX5-101820 | UBEX5-201820 | UBEX5-401820 | UBEX5-501820 | UBEX5-601820 |
| | 0.40 µm | UBEX5-101840 | UBEX5-201840 | UBEX5-401840 | UBEX5-501840 | UBEX5-601840 |
| 0.20 mm | 0.10 µm | UBEX5-102010 | UBEX5-202010 | UBEX5-402010 | UBEX5-502010 | UBEX5-602010 |
| | 0.20 µm | UBEX5-102020 | UBEX5-202020 | UBEX5-402020 | UBEX5-502020 | UBEX5-602020 |
| | 0.40 µm | UBEX5-102040 | UBEX5-202040 | UBEX5-402040 | UBEX5-502040 | UBEX5-602040 |
| | 1.00 µm | UBEX5-1020100 | UBEX5-2020100 | UBEX5-4020100 | UBEX5-5020100 | UBEX5-6020100 |

| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m | 75 m |
|----------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 0.25 mm | 0.10 µm | --- | UBEX5-152510 | UBEX5-302510 | UBEX5-502510 | UBEX5-602510 | --- |
| | 0.25 µm | UBEX5-102525 | UBEX5-152525 | UBEX5-302525 | UBEX5-502525 | UBEX5-602525 | --- |
| | 0.50 µm | UBEX5-102550 | UBEX5-152550 | UBEX5-302550 | UBEX5-502550 | UBEX5-602550 | --- |
| | 1.00 µm | UBEX5-1025100 | UBEX5-1525100 | UBEX5-3025100 | UBEX5-5025100 | UBEX5-6025100 | --- |
| 0.32 mm | 0.10 µm | UBEX5-103210 | UBEX5-153210 | UBEX5-303210 | UBEX5-503210 | UBEX5-603210 | --- |
| | 0.25 µm | UBEX5-103225 | UBEX5-153225 | UBEX5-303225 | UBEX5-503225 | UBEX5-603225 | --- |
| | 0.50 µm | UBEX5-103250 | UBEX5-153250 | UBEX5-303250 | UBEX5-503250 | UBEX5-603250 | --- |
| | 1.00 µm | UBEX5-1032100 | UBEX5-1532100 | UBEX5-3032100 | UBEX5-5032100 | UBEX5-6032100 | --- |
| | 1.50 µm | UBEX5-1032150 | UBEX5-1532150 | UBEX5-3032150 | UBEX5-5032150 | UBEX5-6032150 | --- |
| | 3.00 µm | UBEX5-1032300 | UBEX5-1532300 | UBEX5-3032300 | UBEX5-5032300 | UBEX5-6032300 | --- |
| | 4.00 µm | --- | --- | UBEX5-3032400 | --- | --- | --- |
| | 5.00 µm | UBEX5-1032500 | UBEX5-1532500 | UBEX5-3032500 | UBEX5-5032500 | UBEX5-6032500 | --- |
| | 7.00 µm | --- | --- | --- | --- | --- | --- |
| 0.53 mm | 0.10 µm | UBEX5-105310 | UBEX5-155310 | UBEX5-305310 | UBEX5-505310 | UBEX5-605310 | --- |
| | 0.25 µm | --- | UBEX5-155325 | UBEX5-305325 | UBEX5-505325 | UBEX5-605325 | --- |
| | 0.50 µm | UBEX5-105350 | UBEX5-155350 | UBEX5-305350 | UBEX5-505350 | UBEX5-605350 | --- |
| | 1.00 µm | UBEX5-1053100 | UBEX5-1553100 | UBEX5-3053100 | UBEX5-5053100 | UBEX5-6053100 | UBEX5-7553100 |
| | 1.50 µm | UBEX5-1053150 | UBEX5-1553150 | UBEX5-3053150 | UBEX5-5053150 | UBEX5-6053150 | UBEX5-7553150 |
| | 2.65 µm | UBEX5-1053265 | --- | --- | --- | --- | UBEX5-7553300 |
| | 3.00 µm | UBEX5-1053300 | UBEX5-1553300 | UBEX5-3053300 | UBEX5-5053300 | UBEX5-6053300 | UBEX5-7553500 |
| | 5.00 µm | UBEX5-1053500 | UBEX5-1553500 | UBEX5-3053500 | UBEX5-5053500 | UBEX5-6053500 | --- |
| | 7.00 µm | --- | UBEX5-1553700 | UBEX5-3053700 | --- | --- | --- |

Some dimensions are also available with integrated guard column.



UBEX 1701

Composition: 14% Cyanopropylphenyl, 86% Methyl Polysiloxane (Crossbonded)

Polarity: Intermediate polarity

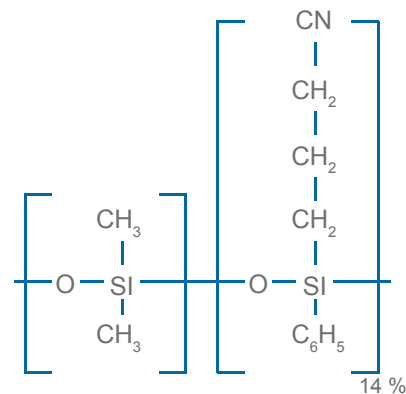
Max temperature*: 280 °C

Equivalent to: 007-1701, AT-1701, BP-10, CP-Sil 19 CB, DB-1701, HP-1701, OV-1701, Rtx-1701, SPB-1701, VF-1701 ms, ZB-1701

USP Classification: G46

EPA Methods / Normatives: EPA 513, 515.2, 552.2, 607, 619, 622, 8091, 8121...

*The maximum temperature may change depending on the inside diameter and film thickness.



| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m |
|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 0,18 mm | 0,18 µm | UBEX1701-101818 | UBEX1701-201818 | UBEX1701-401818 | UBEX1701-501818 | UBEX1701-601818 |
| | 0,20 µm | UBEX1701-101820 | UBEX1701-201820 | UBEX1701-401820 | UBEX1701-501820 | UBEX1701-601820 |
| | 0,40 µm | UBEX1701-101840 | UBEX1701-201840 | UBEX1701-401840 | UBEX1701-501840 | UBEX1701-601840 |
| 0,20 mm | 0,18 µm | UBEX1701-102018 | UBEX1701-202018 | UBEX1701-402018 | UBEX1701-502018 | UBEX1701-602018 |
| | 0,20 µm | UBEX1701-102020 | UBEX1701-202020 | UBEX1701-402020 | UBEX1701-502020 | UBEX1701-602020 |
| | 0,40 µm | UBEX1701-102040 | UBEX1701-202040 | UBEX1701-402040 | UBEX1701-502040 | UBEX1701-602040 |

| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m |
|----------------|----------------|------------------|------------------|------------------|------------------|------------------|
| 0,25 mm | 0,10 µm | | UBEX1701-152510 | UBEX1701-302510 | UBEX1701-502510 | UBEX1701-602510 |
| | 0,25 µm | UBEX1701-102525 | UBEX1701-152525 | UBEX1701-302525 | UBEX1701-502525 | UBEX1701-602525 |
| | 0,50 µm | UBEX1701-102550 | UBEX1701-152550 | UBEX1701-302550 | UBEX1701-502550 | UBEX1701-602550 |
| | 1,00 µm | UBEX1701-1025100 | UBEX1701-1525100 | UBEX1701-3025100 | UBEX1701-5025100 | UBEX1701-6025100 |
| 0,32 mm | 0,10 µm | UBEX1701-103210 | UBEX1701-153210 | UBEX1701-303210 | UBEX1701-503210 | UBEX1701-603210 |
| | 0,25 µm | UBEX1701-103225 | UBEX1701-153225 | UBEX1701-303225 | UBEX1701-503225 | UBEX1701-603225 |
| | 0,50 µm | UBEX1701-103250 | UBEX1701-153250 | UBEX1701-303250 | UBEX1701-503250 | UBEX1701-603250 |
| | 1,00 µm | UBEX1701-1032100 | UBEX1701-1532100 | UBEX1701-3032100 | UBEX1701-5032100 | UBEX1701-6032100 |
| | 1,50 µm | UBEX1701-1032150 | UBEX1701-1532150 | UBEX1701-3032150 | UBEX1701-5032150 | UBEX1701-1032300 |
| 0,53 mm | 3,00 µm | | UBEX1701-1532300 | UBEX1701-3032300 | UBEX1701-5032300 | UBEX1701-6032300 |
| | 0,10 µm | UBEX1701-105310 | UBEX1701-155310 | UBEX1701-305310 | | |
| | 0,25 µm | | UBEX1701-155325 | UBEX1701-305325 | UBEX1701-505325 | UBEX1701-605325 |
| | 0,50 µm | UBEX1701-105350 | UBEX1701-155350 | UBEX1701-305350 | UBEX1701-505350 | UBEX1701-605350 |
| | 1,00 µm | UBEX1701-1053100 | UBEX1701-1553100 | UBEX1701-3053100 | UBEX1701-5053100 | UBEX1701-6053100 |
| | 1,50 µm | UBEX1701-1053150 | UBEX1701-1553150 | UBEX1701-3053150 | UBEX1701-5053150 | UBEX1701-6053150 |
| | 3,00 µm | | UBEX1701-1553300 | UBEX1701-3053300 | UBEX1701-5053300 | UBEX1701-6053300 |

Some dimensions are also available with integrated guard column.



UBEX 624

Composition: 6% Cyanopropylphenyl, 94% Methyl Polysiloxane (Crossbonded)

Polarity: Intermediate polarity

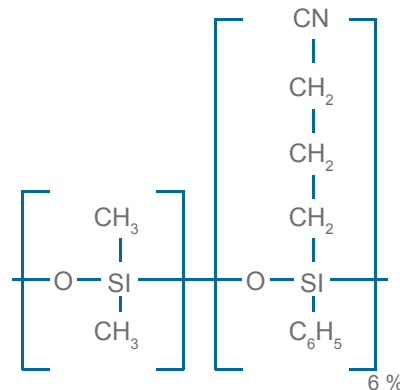
Max temperature*: 260°C

Equivalent to: 007-624, 007-1301, AT-624, CP-1301, DB-1301, DB-624, HP-1301, HP-624, Rtx-624, Rtx-1301, SPB-1301, SPB-624, VF-624 ms, ZB-624

USP Classification: G43

Applications: Residual solvents, volatile organic compounds (VOC), alcohols oxygenated compounds.

EPA Methods: EPA 501.3, 502.1, 502.2, 503.1, 504.1, 524.2, 601, 602, 603, 624, 1624, 8010B, 8021B, 8030A, 8260B...



*The maximum temperature may change depending on the inside diameter and film thickness.

| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m |
|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| 0.18 mm | 0.18 µm | UBEX624-101818 | UBEX624-201818 | UBEX624-401818 | UBEX624-501818 | UBEX624-601818 |
| 0.20 mm | 1.12 µm | --- | UBEX624-2020112 | UBEX624-4020112 | UBEX624-5020112 | UBEX624-6020112 |

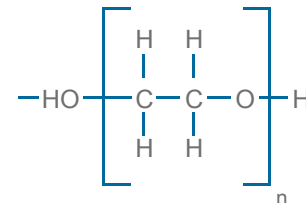
| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m | 75 m |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 0.25 mm | 0.10 µm | --- | UBEX624-152510 | UBEX624-302510 | UBEX624-502510 | UBEX624-602510 | --- |
| | 0.25 µm | UBEX624-102525 | UBEX624-152525 | UBEX624-302525 | UBEX624-502525 | UBEX624-602525 | --- |
| | 0.50 µm | UBEX624-102550 | UBEX624-152550 | UBEX624-302550 | UBEX624-502550 | UBEX624-602550 | --- |
| | 1.00 µm | UBEX624-1025100 | UBEX624-1525100 | UBEX624-3025100 | UBEX624-5025100 | UBEX624-6025100 | --- |
| | 1.40 µm | --- | --- | UBEX624-3025140 | UBEX624-5025140 | UBEX624-6025140 | --- |
| 0.32 mm | 3.00 µm | --- | --- | UBEX624-3025300 | UBEX624-5025300 | UBEX624-6025300 | --- |
| | 0.10 µm | UBEX624-103210 | UBEX624-153210 | UBEX624-303210 | UBEX624-503210 | UBEX624-603210 | --- |
| | 0.25 µm | UBEX624-103225 | UBEX624-153225 | UBEX624-303225 | UBEX624-503225 | --- | --- |
| | 0.50 µm | UBEX624-103250 | UBEX624-153250 | UBEX624-303250 | UBEX624-503250 | UBEX624-603250 | --- |
| | 1.00 µm | UBEX624-1032100 | UBEX624-1532100 | UBEX624-3032100 | UBEX624-5032100 | UBEX624-6032100 | --- |
| | 1.50 µm | UBEX624-1032150 | UBEX624-1532150 | UBEX624-3032150 | UBEX624-5032150 | UBEX624-6032150 | --- |
| | 1.80 µm | --- | --- | UBEX624-3032180 | UBEX624-5032180 | UBEX624-6032180 | UBEX624-7532180 |
| 3.00 µm | UBEX624-1032300 | UBEX624-1532300 | UBEX624-3032300 | UBEX624-5032300 | UBEX624-6032300 | --- | |
| 0.53 mm | 0.10 µm | --- | UBEX624-155310 | UBEX624-305310 | --- | --- | --- |
| | 0.25 µm | --- | UBEX624-155325 | UBEX624-305325 | UBEX624-505325 | UBEX624-605325 | --- |
| | 0.50 µm | UBEX624-105350 | UBEX624-155350 | UBEX624-305350 | UBEX624-505350 | UBEX624-605350 | --- |
| | 1.00 µm | UBEX624-1053100 | UBEX624-1553100 | UBEX624-3053100 | UBEX624-5053100 | UBEX624-6053100 | UBEX624-7553100 |
| | 1.50 µm | UBEX624-1053150 | UBEX624-1553150 | UBEX624-3053150 | UBEX624-5053150 | UBEX624-6053150 | UBEX624-7553150 |
| | 3.00 µm | UBEX624-1053300 | UBEX624-1553300 | UBEX624-3053300 | UBEX624-5053300 | UBEX624-6053300 | UBEX624-7553300 |

Some dimensions are also available with integrated guard column.



UBEX WAX

Composition: 100 % Polyethylene glycol (PEG) (Crossbonded)
 Polarity: High polarity
 Max temperature*: 250°C
 Equivalent to: 007-CW, AT-Wax, BP-20, CP-Wax 52 CB, DB-Wax, HP-Wax, InnoWax, OmegaWax, Rtx-Wax, ZB-Wax
 USP Classification: G14, G15, G16, G20, G39, G47, USP 467 (OVIs)
 Applications: Solvents, glycols, alcohols
 EPA Methods: EPA 602, 603, 619, 8121..



*The maximum temperature may change depending on the inside diameter and film thickness.

| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m |
|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 0.18 mm | 0.18 µm | UBEXWAX-101818 | UBEXWAX-201818 | UBEXWAX-401818 | UBEXWAX-501818 | UBEXWAX-601818 |
| | 0.20 µm | UBEXWAX-101820 | UBEXWAX-201820 | UBEXWAX-401820 | UBEXWAX-501820 | UBEXWAX-601820 |
| | 0.40 µm | UBEXWAX-101840 | UBEXWAX-201840 | UBEXWAX-401840 | UBEXWAX-501840 | UBEXWAX-601840 |
| 0.20 mm | 0.10 µm | UBEXWAX-102010 | UBEXWAX-202010 | UBEXWAX-402010 | UBEXWAX-502010 | UBEXWAX-602010 |
| | 0.20 µm | UBEXWAX-102020 | UBEXWAX-202020 | UBEXWAX-402020 | UBEXWAX-502020 | UBEXWAX-602020 |
| | 0.40 µm | UBEXWAX-102040 | UBEXWAX-202040 | UBEXWAX-402040 | UBEXWAX-502040 | UBEXWAX-602040 |
| | 1.00 µm | UBEXWAX-1020100 | UBEXWAX-2020100 | UBEXWAX-4020100 | UBEXWAX-5020100 | UBEXWAX-6020100 |

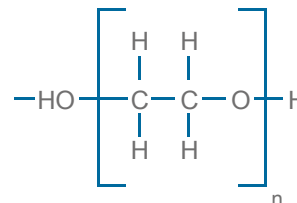
| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m | 75 m |
|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 0.25 mm | 0.10 µm | --- | UBEXWAX-152510 | UBEXWAX-302510 | UBEXWAX-502510 | UBEXWAX-602510 | --- |
| | 0.25 µm | UBEXWAX-102525 | UBEXWAX-152525 | UBEXWAX-302525 | UBEXWAX-502525 | UBEXWAX-602525 | --- |
| | 0.50 µm | UBEXWAX-102550 | UBEXWAX-152550 | UBEXWAX-302550 | UBEXWAX-502550 | UBEXWAX-602550 | --- |
| | 1.00 µm | UBEXWAX-1025100 | UBEXWAX-1525100 | UBEXWAX-3025100 | UBEXWAX-5025100 | UBEXWAX-6025100 | --- |
| 0.32 mm | 0.10 µm | UBEXWAX-103210 | UBEXWAX-153210 | UBEXWAX-303210 | UBEXWAX-503210 | UBEXWAX-603210 | --- |
| | 0.25 µm | UBEXWAX-103225 | UBEXWAX-153225 | UBEXWAX-303225 | UBEXWAX-503225 | UBEXWAX-603225 | --- |
| | 0.50 µm | UBEXWAX-103250 | UBEXWAX-153250 | UBEXWAX-303250 | UBEXWAX-503250 | UBEXWAX-603250 | --- |
| | 1.00 µm | UBEXWAX-1032100 | UBEXWAX-1532100 | UBEXWAX-3032100 | UBEXWAX-5032100 | UBEXWAX-6032100 | --- |
| | 1.50 µm | UBEXWAX-1032150 | UBEXWAX-1532150 | UBEXWAX-3032150 | UBEXWAX-5032150 | UBEXWAX-6032150 | --- |
| 0.53 mm | 3.00 µm | UBEXWAX-1032300 | UBEXWAX-1532300 | UBEXWAX-3032300 | UBEXWAX-5032300 | UBEXWAX-6032300 | --- |
| | 0.10 µm | UBEXWAX-105310 | UBEXWAX-155310 | UBEXWAX-305310 | --- | --- | --- |
| | 0.25 µm | UBEXWAX-155325 | --- | UBEXWAX-305325 | UBEXWAX-505325 | UBEXWAX-605325 | --- |
| | 0.50 µm | UBEXWAX-105350 | UBEXWAX-155350 | UBEXWAX-305350 | UBEXWAX-505350 | UBEXWAX-605350 | --- |
| | 1.00 µm | UBEXWAX-1053100 | UBEXWAX-1553100 | UBEXWAX-3053100 | UBEXWAX-5053100 | UBEXWAX-6053100 | UBEXWAX-7553100 |
| | 1.50 µm | UBEXWAX-1053150 | UBEXWAX-1553150 | UBEXWAX-3053150 | UBEXWAX-5053150 | UBEXWAX-6053150 | UBEXWAX-7553150 |
| | 2.00 µm | UBEXWAX-1053200 | UBEXWAX-1553200 | UBEXWAX-3053200 | UBEXWAX-5053200 | UBEXWAX-6053200 | UBEXWAX-7553200 |
| 2.50 µm | --- | UBEXWAX-1553250 | UBEXWAX-3053250 | UBEXWAX-5053250 | UBEXWAX-6053250 | UBEXWAX-7553250 | |

Some dimensions are also available with integrated guard column.



UBEX FFAP

Composition: Polyethylene glycol (PEG) Acid Modified
 Polarity: High polarity
 Max temperature*: 250°C
 Equivalent to: 007-FFAP, AT-1000, BP-21, CP-Wax 58 CB, DB-FFAP, SPB-1000, Stabilwax-DA
 Applications: Free acids, Organic acids, Acrylate, Nitriles, Ketone, Aldehydes
 USP Classification: G14, G15, G16, G25, G35, G39



*The maximum temperature may change depending on the inside diameter and film thickness.

| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m |
|----------------|----------------|------------------|------------------|------------------|------------------|------------------|
| 0.18 mm | 0.18 µm | UBEXFFAP-101818 | UBEXFFAP-201818 | UBEXFFAP-401818 | UBEXFFAP-501818 | UBEXFFAP-601818 |
| | 0.20 µm | UBEXFFAP-101820 | UBEXFFAP-201820 | UBEXFFAP-401820 | UBEXFFAP-501820 | UBEXFFAP-601820 |
| | 0.40 µm | UBEXFFAP-101840 | UBEXFFAP-201840 | UBEXFFAP-401840 | UBEXFFAP-501840 | UBEXFFAP-601840 |
| 0.20 mm | 0.10 µm | UBEXFFAP-102010 | UBEXFFAP-202010 | UBEXFFAP-402010 | UBEXFFAP-502010 | UBEXFFAP-602010 |
| | 0.20 µm | UBEXFFAP-102020 | UBEXFFAP-202020 | UBEXFFAP-402020 | UBEXFFAP-502020 | UBEXFFAP-602020 |
| | 0.40 µm | UBEXFFAP-102040 | UBEXFFAP-202040 | UBEXFFAP-402040 | UBEXFFAP-502040 | UBEXFFAP-602040 |
| | 1.00 µm | UBEXFFAP-1020100 | UBEXFFAP-2020100 | UBEXFFAP-4020100 | UBEXFFAP-5020100 | UBEXFFAP-6020100 |

| Inner diameter | Film thickness | 10 m | 20 m | 40 m | 50 m | 60 m | 75 m |
|----------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 0.25 mm | 0.10 µm | | UBEXFFAP-152510 | UBEXFFAP-302510 | UBEXFFAP-502510 | UBEXFFAP-602510 | --- |
| | 0.25 µm | UBEXFFAP-102525 | UBEXFFAP-152525 | UBEXFFAP-302525 | UBEXFFAP-502525 | UBEXFFAP-602525 | --- |
| | 0.50 µm | UBEXFFAP-102550 | UBEXFFAP-152550 | UBEXFFAP-302550 | UBEXFFAP-502550 | UBEXFFAP-602550 | --- |
| | 1.00 µm | UBEXFFAP-1025100 | UBEXFFAP-1525100 | UBEXFFAP-3025100 | UBEXFFAP-5025100 | UBEXFFAP-6025100 | --- |
| 0.32 mm | 0.10 µm | UBEXFFAP-103210 | UBEXFFAP-153210 | UBEXFFAP-303210 | UBEXFFAP-503210 | UBEXFFAP-603210 | --- |
| | 0.25 µm | UBEXFFAP-103225 | UBEXFFAP-153225 | UBEXFFAP-303225 | UBEXFFAP-503225 | UBEXFFAP-603225 | --- |
| | 0.50 µm | UBEXFFAP-103250 | UBEXFFAP-153250 | UBEXFFAP-303250 | UBEXFFAP-503250 | UBEXFFAP-603250 | --- |
| | 1.00 µm | UBEXFFAP-1032100 | UBEXFFAP-1532100 | UBEXFFAP-3032100 | UBEXFFAP-5032100 | UBEXFFAP-6032100 | --- |
| | 1.50 µm | UBEXFFAP-1032150 | UBEXFFAP-1532150 | UBEXFFAP-3032150 | UBEXFFAP-5032150 | UBEXFFAP-6032150 | --- |
| | 3.00 µm | UBEXFFAP-1032300 | UBEXFFAP-1532300 | UBEXFFAP-3032300 | UBEXFFAP-5032300 | UBEXFFAP-6032300 | --- |
| 0.53 mm | 0.10 µm | UBEXFFAP-105310 | UBEXFFAP-155310 | UBEXFFAP-305310 | UBEXFFAP-505325 | UBEXFFAP-605325 | --- |
| | 0.25 µm | --- | UBEXFFAP-155325 | UBEXFFAP-305325 | --- | --- | --- |
| | 0.50 µm | UBEXFFAP-105350 | UBEXFFAP-155350 | UBEXFFAP-305350 | UBEXFFAP-505350 | UBEXFFAP-605350 | --- |
| | 1.00 µm | UBEXFFAP-1053100 | UBEXFFAP-1553100 | UBEXFFAP-3053100 | UBEXFFAP-5053100 | UBEXFFAP-6053100 | UBEXFFAP-7553100 |
| | 1.50 µm | UBEXFFAP-1053150 | UBEXFFAP-1553150 | UBEXFFAP-3053150 | UBEXFFAP-5053150 | UBEXFFAP-6053150 | UBEXFFAP-7553150 |
| | 2.00 µm | UBEXFFAP-1053200 | UBEXFFAP-1553200 | UBEXFFAP-3053200 | UBEXFFAP-5053200 | UBEXFFAP-6053200 | UBEXFFAP-7553200 |
| | 2.50 µm | UBEXFFAP-1053250 | UBEXFFAP-1553250 | UBEXFFAP-3053250 | UBEXFFAP-5053250 | UBEXFFAP-6053250 | UBEXFFAP-7553250 |

Some dimensions are also available with integrated guard column.



GC packed columns

UptiPacked™ columns meet all your needs and are quickly manufactured-to-order. Each column is delivered with an identification certificate. To order your column, please indicate your requirements.

Stainless steel packed column

The stainless steel tube used is of high quality and dedicated to GC analysis. The columns are delivered with Swagelok brass fittings.

- Length of the column
- Internal and external diameter
- Phase, impregnation rate
- Media (type, particle size)

Optional: Conditioning, specific treatment, specific fittings, etc.



Glass packed column

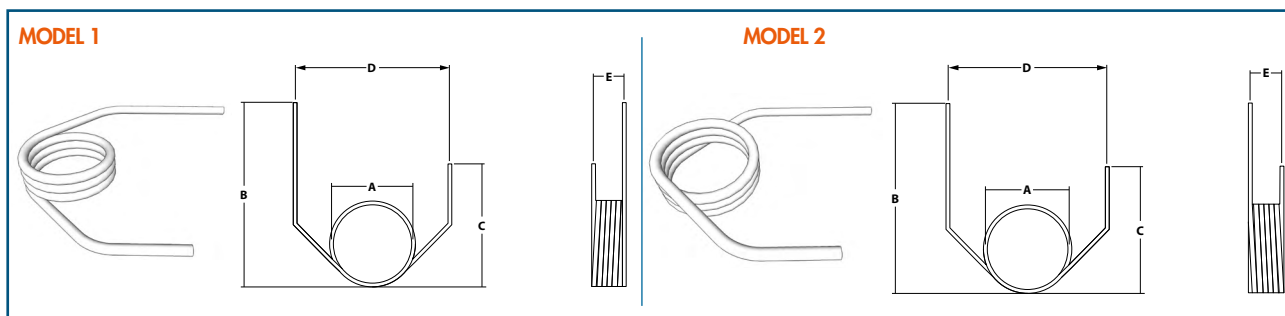
The glass used for these columns is deactivated to limit interferences.

- Length of the column
- Internal and external diameter
- Phase, impregnation rate
- Support (type, granulometry)
- Equipment and configuration or diagram completed with the different dimensions (A, B, C, D, E)



Option: Conditioning, specific treatment, specific fittings, ...

Other available materials: Brass, Aluminium, Nickel and PTFE



GC packing

The impregnated supports are also available by 20 grams or more, as for the filled columns, please indicate your requirements:

- Phase, impregnation rate
- Carrier (type, particle size)
- Chromosorb W-HP, Tenax TA,...



HPLC - Advion Interchim Scientific technologies

G.2 - G.5

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Advion Interchim Scientific (U)HPLC Columns Protection

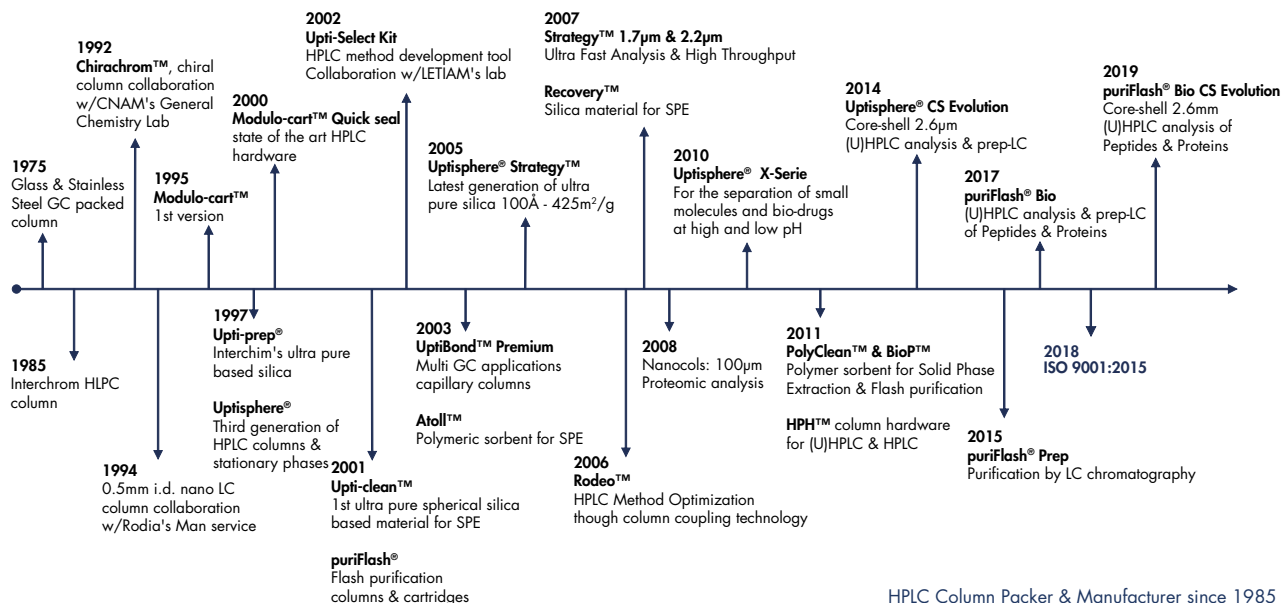
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Advion Interchim Scientific Columns Applications

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HPLC - Advion Interchim Scientific Technologies



Silicas for (U)HPLC, LC-Preparative & Flash Columns

Uptisphere® CS Evolution

Core Shell columns for fast & highly efficient identification & quantification of small molecules.

Uptisphere® Strategy™

(U)HPLC, Analytical & Prep LC Columns with high surface area for identification, quantification & purification of small molecules & pharma compounds.

Uptisphere® 120 Å

HPLC & Prep LC Columns for the identification, quantification of small molecules & pharma compounds.

puriFlash®

Analytical, Prep LC & Flash columns with High Load-ability for routine analysis & easy transfer to purification of small organic molecules in pharma applications.

puriFlash® Bio

(U)HPLC, Analytical, Prep LC & Flash columns for the identification, quantification & purification of Peptides, Polypeptides & Proteins at high & low pH.

Uptisphere® Bio

X-serie™ Uptisphere® 300Å Uptisphere® TP

HPLC & prep LC columns for the identification, quantification of Proteins, Peptides & Polypeptides at high & low pH.





Our silica technologies from Advion Interchim Scientific

All Advion Interchim Scientific Uptisphere® silicas (120 Å, CS Evolution, Strategy™, puriFlash® & puriFlash® Bio) follow rigorous and innovative manufacturing processes. Base silicas are produced in ceramic reactors from standard particles for purification are totally free of all traces of metals for analysis. Each of the different synthesis steps are strictly controlled.

This rigour leads to extremely mechanically stable particles. The particle size and porosity distributions as well as the specific surface areas are perfectly defined and reproducible.

Our puriFlash® & puriFlash® Bio silicas are specifically designed to meet the requirements of preparative liquid chromatography. They combine quality and cost effectiveness.

Our silicas have three major advantages:

1. A perfect control of the surface state.
We physically or chemically modify the surface of the silica to choose the type, the amount of silanols or the overall surface energy according to the objective to be achieved.
2. Cylindrical pores.
The quantity of free silanols and their excellent accessibility enable acquisition of a homogeneous and particularly dense functionalization (grafting). This results in very good loading capacity and stability of these stationary phases under aggressive mobile phase conditions such as basic buffers.
3. High mechanical stability.
Our stationary phases can withstand multiple packings and de-packings without damaging the integrity of the substrate. They are the tool of choice for preparative chromatography.

Modified silicas

The Laboratoire d'Etude des Techniques et des Instruments d'Analyse Moléculaire (LETIAM), a constituent unit of the analytical chemistry group of Paris Sud located at the IUT of Orsay, played a fundamental role in our vision, which led to the development of our stationary phases.

The laboratory of Sciences and Separative Methods - (SMS) of the Institute of Research in Fine Organic Chemistry - (IRCOF) has also helped in our development process with their innovative synthesis schemes for the modification of our "Core-Shell" silicas Uptisphere® CS Evolution.

Today, we offer about 50 selectivities to meet the needs of analysts and chemists for the identification, quantification and purification of small organic molecules, peptides and proteins.

Silica base: standard Pure & Ultra Pure (99.995%)

Particles: irregular, granular, spherical

Particulate Size:

1.7 µm [+/- 0.1]
 2.2 µm [+/- 0.15]
 2.5 - 2.6 µm [+/- 0.1]
 3 - 3.5 µm [+/- 0.2]
 5 µm [+/- 0.3]
 10 µm [+/- 1.0]
 15 µm [+/- 2.0]
 25 - 30 µm [+/- 5]
 50 µm [+/- 10]

Surface / Pore Size:

60Å [+/- 10] / 500m²/g [+/- 50]
 85Å [+/- 5] / 130m²/g [+/- 25]
 100Å [+/- 15] / 425m²/g [+/- 40]
 120Å [+/- 15] / 320m²/g [+/- 40]
 130Å [+/- 15] / 300m²/g [+/- 40]
 200Å [+/- 15] / 150m²/g [+/- 40]
 220Å [+/- 15] / 200m²/g [+/- 40]
 300Å [+/- 40] / 100m²/g [+/- 20]

Metal Traces: Pure standard < 500 ppm - Ultra Pure < 10 ppm (Fe < 1 ppm)

pH Stability: depending on the physical and / or chemical modification



HPLC - Advion Interchim Scientific Technologies - Selection guide

Advion Interchim Scientific Stationary Phase: Selection Guide

| Name | AIS Code | USP Code | Pores size | Surface | Particles size μm | | | | | Bonding | Functionalization | % Carbon | End-Capping |
|--------------------------------|----------|----------|------------|-----------------------|------------------------------|-----|-----|-----|-----|-------------------------|-------------------|----------|---------------------|
| | | | | | 1.7 | 2.2 | 2.6 | 3.0 | 5.0 | | | | |
| Small Organic Molecules | | | | | | | | | | | | | |
| Uptisphere® CS Evolution™ | C18 | L1 | 85 Å | 130 m ² /g | | | x | | | C18 - octadecyl | mono-functional | 9.0 % | One step |
| Uptisphere® CS Evolution™ | C18-HB | L1 | 85 Å | 130 m ² /g | | | x | | | C18 - octadecyl | mono-functional | 8.0 % | One step |
| Uptisphere® CS Evolution™ | C18-RP | L1 | 85 Å | 130 m ² /g | | | x | | | C18 - octadecyl | mono-functional | 6.0 % | Mixte |
| Uptisphere® CS Evolution™ | C18-AQ | L1 | 85 Å | 130 m ² /g | | | x | | | C18 - octadecyl | mono-functional | 6.5 % | Mixte |
| Uptisphere® CS Evolution™ | HIT | L3 | 85 Å | 130 m ² /g | | | x | | | Proprietary | Proprietary | | Proprietary |
| Uptisphere® CS Evolution™ | SI | L3 | 85 Å | 130 m ² /g | | | x | | | Ultra pure silica | | | None |
| Uptisphere® Strategy™ | C18-HQ | L1 | 100 Å | 425 m ² /g | x | x | | x | x | C18 - octadecyl | mono-functional | 19.0 % | Multi step |
| Uptisphere® Strategy™ | C18-3 | L1 | 100 Å | 425 m ² /g | | | | x | x | C18 - octadecyl | mono-functional | 22.0 % | Multi step |
| Uptisphere® Strategy™ | C18-RP | L1 | 100 Å | 425 m ² /g | | x | | x | x | C18 - octadecyl | mono-functional | 16.0 % | Multi step Mixte |
| Uptisphere® Strategy™ | C12 | L87 | 100 Å | 425 m ² /g | | x | | | x | C12 - dodecyl | mono-functional | 16.0 % | One step |
| Uptisphere® Strategy™ | PHC4 | L11 | 100 Å | 300 m ² /g | | x | | x | x | Phenyl - Butyl | mono-functional | 12.0 % | One step |
| Uptisphere® Strategy™ | BPH | L11 | 100 Å | 300 m ² /g | | | | x | x | Bi-Phenyl | mono-functional | 12.0 % | One step |
| Uptisphere® Strategy™ | PFP | L43 | 100 Å | 425 m ² /g | | | | x | x | Penta Fluoro Phenyl | mono-functional | 14.5 % | One step |
| Uptisphere® Strategy™ | HIIC-HIT | L3 | 100 Å | 425 m ² /g | | x | | x | x | Proprietary | Proprietary | | Proprietary |
| Uptisphere® Strategy™ | HIIC-HIA | | 100 Å | 300 m ² /g | | x | | x | x | Proprietary | Proprietary | | Proprietary |
| Uptisphere® Strategy™ | SI | L3 | 100 Å | 425 m ² /g | | x | | x | x | Ultra pure silica | | | none |
| Uptisphere® | C18-HSC | L1 | 60 Å | | | | | x | x | C18 - octadecyl | mono-functional | 20.0 % | Multi step |
| Uptisphere® | C18-ODB | L1 | 120 Å | 320 m ² /g | | x | | x | x | C18 - octadecyl | mono-functional | 18.0 % | One step |
| Uptisphere® | C18-HDO | L1 | 120 Å | 320 m ² /g | | x | | x | x | C18 - octadecyl | mono-functional | 17.0 % | Mixte |
| Uptisphere® | C18-NEC | L1 | 120 Å | 320 m ² /g | | x | | x | x | C18 - octadecyl | mono-functional | 16.0 % | none |
| Uptisphere® | C18TF | L1 | | | | | | | x | C18 - octadecyl | poly-functional | 14.0 % | One step |
| Uptisphere® | C8 | L7 | 120 Å | 320 m ² /g | | | | | x | C8 - octyl | mono-functional | 11.0 % | One step |
| Uptisphere® | MM1 | L44 | 120 Å | 320 m ² /g | | | | | x | C8 /SCX | mono-functional | | One step |
| Uptisphere® | CN | L10 | 120 Å | 320 m ² /g | | | | x | x | CN - cyano | mono-functional | 8.0 % | One step |
| Uptisphere® | OH | L20 | 120 Å | 320 m ² /g | | | | | (x) | OH - diol | mono-functional | 6.0 % | none |
| Uptisphere® | NH2 | L8 | 120 Å | 320 m ² /g | | x | | x | x | NH2 - amino | mono-functional | 5.0 % | none |
| Uptisphere® | SCX | L9 | 120 Å | 320 m ² /g | | | | | x | Strong Cation Exchanger | mono-functional | | none |
| Uptisphere® | SAX | L14 | 120 Å | 320 m ² /g | | | | | x | Strong Anion Exchanger | mono-functional | | none |
| puriflash® Prep | C18-XS | L1 | 100 Å | 300 m ² /g | | | | | x | C18 - octadecyl | mono-functional | 17.0 % | Multi-step |
| puriflash® Prep | C18-HP | L1 | 100 Å | 300 m ² /g | | | | | x | C18 - octadecyl | mono-functional | 16.5 % | One-step |
| puriflash® Prep | C18-AQ | L1 | 100 Å | 300 m ² /g | | | | | x | C18 - octadecyl | mono-functional | 14.0 % | Mixte |

HPLC - Advion Interchim Scientific Technologies - Selection guide



| pH Stability | Chromatographic Mode | Application |
|--------------|---------------------------------|---|
| 1.5 - 7.5 | Reverse | Serves a broad-ship of analytical & prep LC requirements for separating non polar compounds. |
| 1.5 - 8.0 | Reverse | Suitable for non polar compound separation. Exhibits a very hydrophobic surface. HB shows excellent stability under high temperature. |
| 1.5 - 8.0 | Reverse | Suitable for mid & non polar compounds separation. RP shows excellent mechanical stability that makes it an excellent tool for analysis under acidic or basic conditions. |
| 1.5 - 7.0 | Reverse | Suitable for mid & non polar compound separation. Shows excellent stability under 100% aqueous mobile phase condition. |
| 1.5 - 7.0 | Hilic | Aqueous normal phase separation (ANP) of water-soluble compounds. Typical mobile phase: water / ACN (> 70%). ANP is an excellent alternative to RP purification for highly polar compounds. |
| 1.5 - 7.0 | Normal | Non-ionic, polar organic compounds |
| 1.0 - 10 | Reverse | This utility phase serves many pharmaceutical applications. Its 425 m ² /g surface area provide sexcellent loading capacity. |
| 1.0 - 12 | Reverse | The high bonding density of the C18-3 facilitates a high separation of non polar compounds. Multi step bonding technology guarantees a fully end-capped phase, stable under basic pH conditions. C18-3 is an excellent phase for the separation of basic drugs at up to pH: 12. |
| 1.5 - 8.0 | Reverse | Suitable for mid & non polar compounds separation. RP shows excellent mechanical stability that makes it an excellent tool for purification under acidic or basic conditions. |
| 1.5 - 8.0 | Reverse | Non polar compounds. Less retentive than C18 with greater capacity |
| 1.5 - 7.5 | Reverse | Very selective for compounds with aromatic cycles and mid-polar compounds |
| 1.5 - 7.5 | Reverse | Excellent discrimination of aromatic compounds, unsaturated compounds, ketones, alkenes, ... |
| 1.5 - 7.5 | Reverse | Complementary to C18, C8 to separate electron rich compounds. |
| 1.5 - 7.0 | Hilic | Aqueous normal phase separation (ANP) of water-soluble compounds. Typical mobile phase: water / ACN (> 70%) ANP is an excellent alternative to RP purification for highly polar compounds |
| 2.0 - 7.0 | Hilic | Aqueous normal phase separation (ANP) of water-soluble compounds. Typical mobile phase: water / ACN (> 70%) ANP is an excellent alternative to RP purification for highly polar compounds |
| 1.5 - 7.0 | Normal | Non-ionic, polar organic compounds |
| 1.5 - 8.0 | Reverse | Non-polar compounds |
| 1.5 - 7.0 | Reverse | Serves a broad-ship of analytical & prep LC requirements for separating non polar compounds. |
| 1.5 - 7.0 | Reverse | Suitable for mid & non polar compound separation. Shows excellent stability under 100% aqueous mobile phase condition. |
| 1.5 - 6.5 | Reverse | NEC strongly retains the polar and mid-polar compounds. It overcome peak tailing with compounds that contains chains and /or carbon cycles combined with numerous polar groups and/or basic in character. |
| 1.5 - 8.0 | Reverse | Alternative selectivity for challenging separations for - but not limited to - aromatic, polyphenol, PAHs etc. |
| 2.0 - 7.0 | Reverse | Mid-polar and non polar compounds. Less retentive than C18 |
| 2.0 - 6.5 | Reverse / Ion Exchange | Ion exchange and hydrophobic chains are bonded onto the surface of silica providing unique selectivity. Compounds that possess basic functionality are retained by ion exchange functionality. An organic solvent will elute hydrophobic compounds. |
| 2.0 - 7.0 | Reverse / Normal | CN functional groups can be used either in normal phase to purify polar compounds or in reversed phase for mid-polar compounds. |
| 1.5 - 6.5 | Reverse / Normal | The diol function provides globally a neutral surface onto the silica. It leads to greater separation of basic compounds by normal phase vs. regular silica. |
| 2.0 - 6.5 | Reverse / Normal / Ion Exchange | Can be either weak anion exchangers for strong acids, or polar media that can interact with OH, NH, SH ... |
| 1.0 - 7.5 | Ion Exchange | Strong cation exchange (SCX) contains sulfonic acid used to analyze weak basic compounds which have one or more positive charges. |
| 1.0 - 7.5 | Ion Exchange | Strong anion exchanger (SAX) contains quaternary amine, used to analyze weak acid compounds which have one or more negative charges, nucleotides, nucleosides, organic acids ... |
| 1.0 - 10.0 | Reverse | The proprietary multi-step bonding technology guarantees a fully end-capped phase, stable under basic pH conditions up to pH: 10. It's an excellent phase for the integral purification of basic drugs. |
| 1.5 - 7.5 | Reverse | Serves many pharmaceutical applications. Excellent choice for routine purification in reverse phase mode. |
| 2.0 - 7.5 | Reverse | The bonding chemistry enables a starting gradient with 100% of water. Suitable for the purification of mid and non polar compounds. |



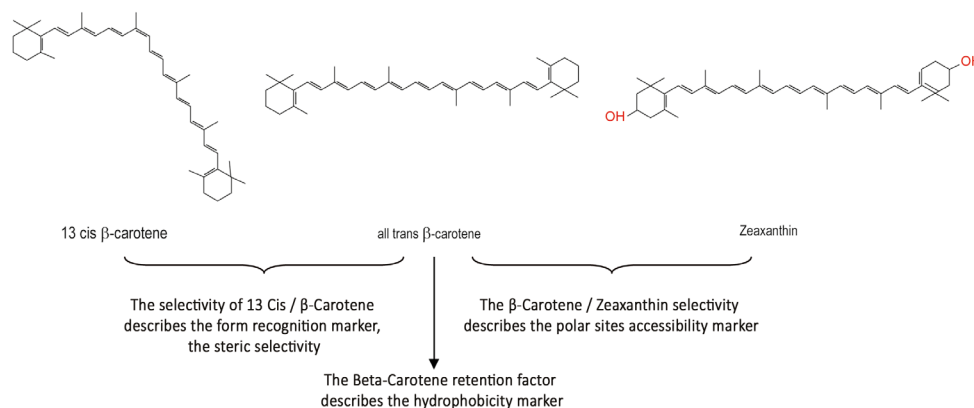


Over the years, scientists have learned how to characterize and classify liquid chromatography stationary phases. The study of these tests and the collaboration developed with the LETIAM, Analytical Chemistry Group of the University of Paris South, have been the development inspiration of most of our HPLC stationary phases.

1. Test of Lesellier & Tchaplal - sub-critical analysis of isomers of carotenoids

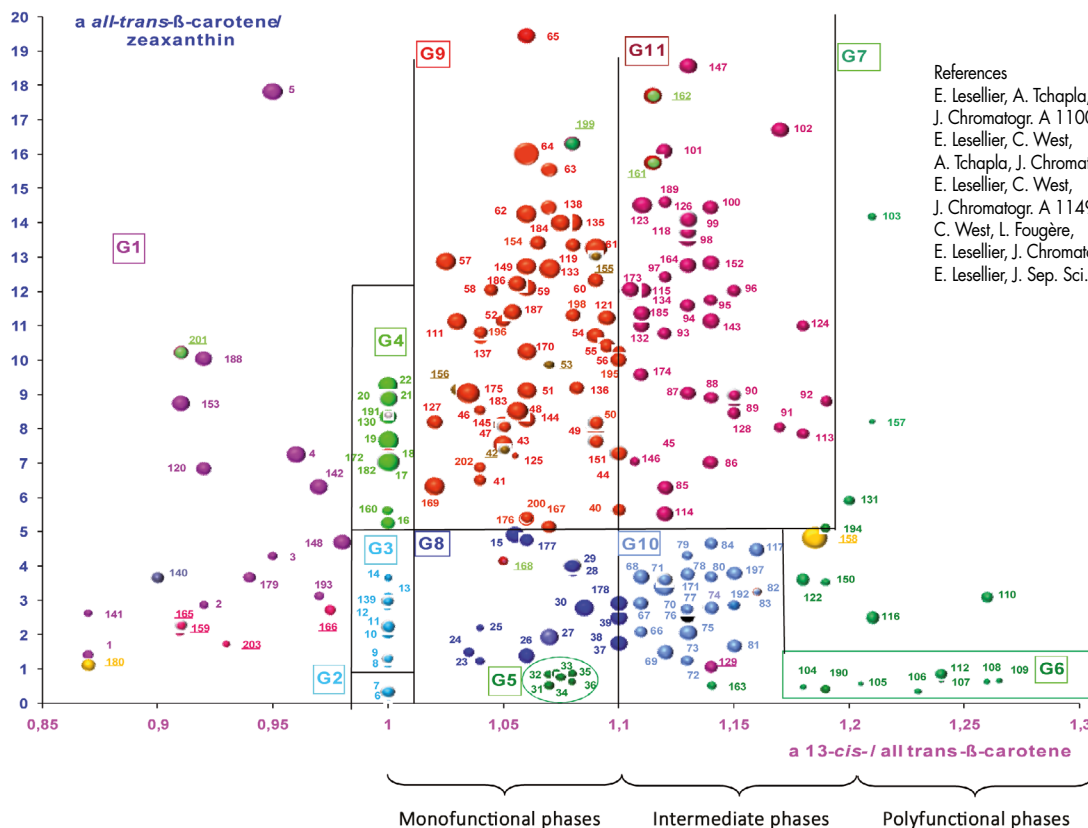
This test compares the major properties of bonded silicas, mainly C18.

It is discriminant for a dozen groups of stationary phases. ~ 200 columns have been evaluated so far.



Results

In the domain of values between 20 and 10 of the y-axis, the stationary phases have a very low accessibility to polar sites. Between 10 and 5, the accessibility to polar sites is medium main, it becomes very important for the values less than 5.



References

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HPLC stationary phases classification model



HPLC columns evaluated

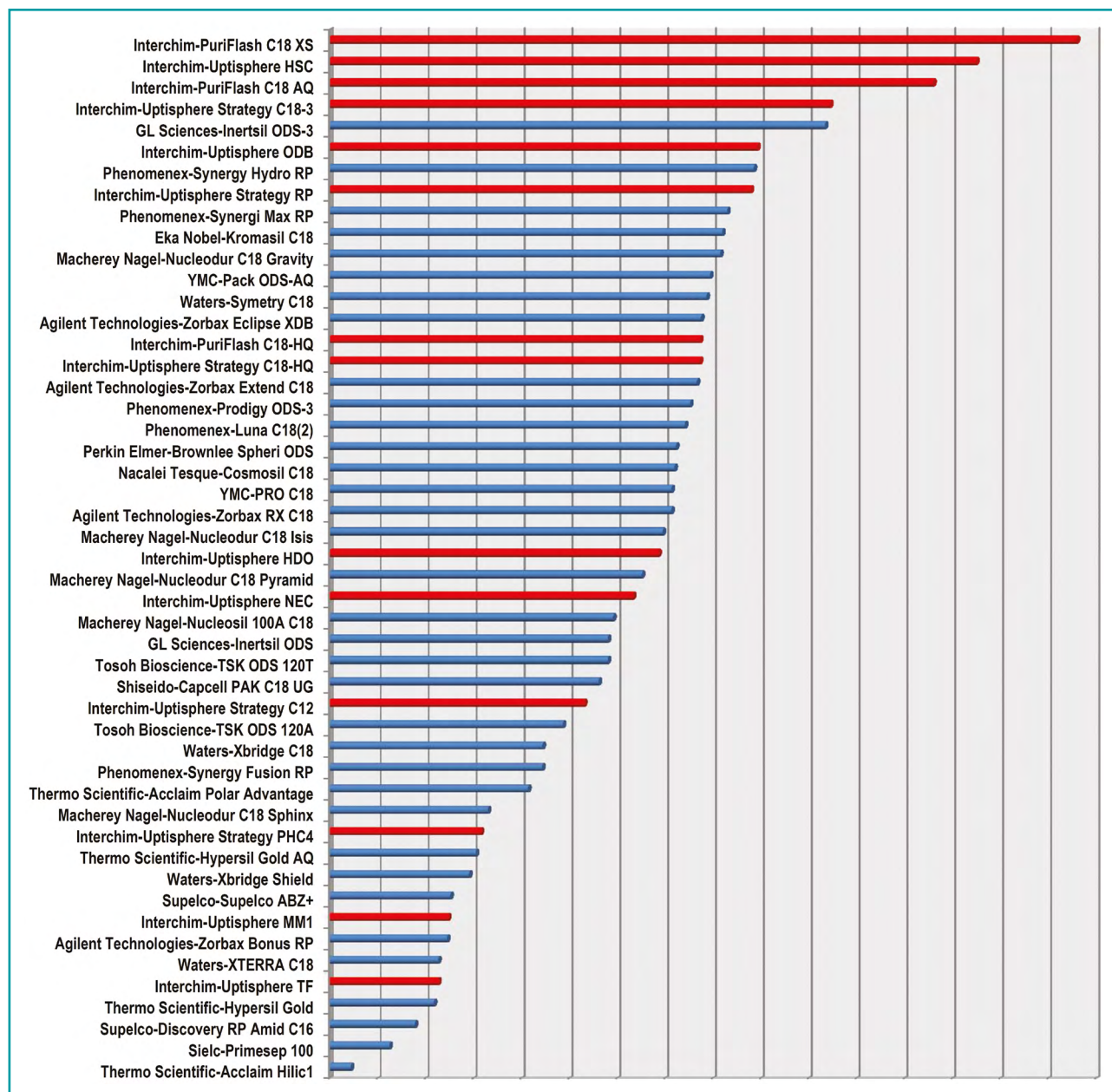
| | | | | | |
|----------------------|----------------------------------|----------------|------------------------------|-------------------|------------------------------|
| Ace | ACE 5 C18 | Interchim® | Uptisphere® Strategy™ C18-HQ | SGE | Wakosil C18-RS |
| Ace | ACE C18 AQ | Interchim® | Uptisphere® Strategy™ C18-3 | Shiseido | Capcell Pak C18 |
| Ace | ACE C18 HL | Interchim® | Uptisphere® Strategy™ RP | SMT | SMT C18 |
| Agilent Technologies | Zorbax 300 SB C18 | Interchim® | Uptisphere® Strategy™ NEC | Supelco | Acclaim Polar Advantage II |
| Agilent Technologies | Zorbax Bonus-RP | Interchim® | Uptisphere® Strategy™ PHC4 | Supelco | Ascentis C18 |
| Agilent Technologies | Zorbax Eclipse Plus | Interchim® | Uptisphere® Strategy™ C12 | Supelco | Ascentis Express C18 - 2,7µm |
| Agilent Technologies | Zorbax Eclipse Plus C18 | Interchim® | Uptisphere® ODB | Supelco | Ascentis RP Amide |
| Agilent Technologies | Zorbax Eclipse Plus PAH | Interchim® | Uptisphere® HDO | Supelco | Discovery C18 |
| Agilent Technologies | Zorbax Eclipse Plus Phenyl hexyl | Interchim® | Uptisphere® HSC | Supelco | Discovery HS C18 |
| Agilent Technologies | Zorbax Eclipse XDB C18 | Interchim® | Uptisphere® NEC | Supelco | Discovery RP amide C16 |
| Agilent Technologies | Zorbax Extend C18 | Interchim® | Uptisphere® TF | Supelco | Supelcosil ABZ |
| Agilent Technologies | Zorbax ODS | Interchim® | Uptisphere® MM1 | Supelco | Supelcosil ABZ+ |
| Agilent Technologies | Zorbax RX C18 | Interchim® | Uptisphere® BioP I | Supelco | Supelcosil LC 18-DB |
| Agilent Technologies | Zorbax SB C18 | Interchim® | Uptisphere® BioP II | Supelco | Supelcosil LC-18 |
| Agilent-Varian | Pursuit Diphenyl | Interchim® | Uptisphere® WOD | Supelco | Supelcosil LC-18S |
| Agilent-Varian | Pursuit XRs C18 | Interchim® | Uptisphere® WRP | Supelco | Supelcosil LC-18T |
| AMT | Halo C18 - 2,7µm | Interchim® | PuriFlash® C18-HQ 5µm | Supelco | Suplex PKB |
| Baker | Baker C18-NP | Interchim® | PuriFlash® C18-AQ 5µm | Tessek | Separon C18 |
| Baker | Baker C18-WP | Interchim® | PuriFlash® C18-XS 5µm | Tessek | Separon C18 ec |
| Beckmann | Ultrasphere ODS | Macherey Nagel | Nautilus C18 | Thermo separation | Aquasil C18 |
| Beckmann | Ultrasphere XL ODS | Macherey Nagel | Nucleodur 100 C18ec | Thermo separation | Betabasic C18 |
| Biotage | Nisisphere C18 | Macherey Nagel | Nucleodur Gravity C18 | Thermo separation | Hypersil 100 C18 |
| Cluzeau | Satisfaction RP 18-AB | Macherey Nagel | Nucleodur Isis | Thermo separation | Hypersil BDS C18 |
| Cluzeau | Stability BS C23e | Macherey Nagel | Nucleodur Pyramid | Thermo separation | Hypersil Elite C18 |
| Cluzeau | Stability BS C23ne | Macherey Nagel | Nucleodur Sphinx | Thermo separation | Hypersil Gold |
| Cluzeau | Stability ODS2 | Macherey Nagel | Nucleosil 100 C18 | Thermo separation | Hypersil Green-PAH |
| Cogent | C18 bidentate | Macherey Nagel | Nucleosil 100 C18-HD | Thermo separation | Hypersil ODS |
| Colochrom | Colosphere C18 | Macherey Nagel | Nucleosil 100 C18-PAH | Thermo separation | Hypersil PAH |
| Colochrom | Excelsphere 120 C18-H | Macherey Nagel | Nucleosil 300 C18 | Thermo separation | HyPurity Aquastar |
| Colochrom | Excelsphere 120 ODS2 | Macherey Nagel | Nucleosil 500 C18 | Thermo separation | HyPurity C18 |
| Colochrom | Normasphere ODS2 | Macherey Nagel | Nucleosil 50 C18ec | Thermo separation | HyPurity C8 Advance |
| Dionex | Acclaim C18 | Macherey Nagel | Nucleosil C18-AB | Tosoh Biosciences | TSK OD 80-TM |
| Dionex | Acclaim Polar Advantage | Macherey Nagel | Nucleosil C18-AQ | Tosoh Biosciences | TSK ODS-120A |
| Eichrom | Synchropak C18 | Macherey Nagel | Nucleosil Protect C8 | Tosoh Biosciences | TSK ODS-120T |
| Eka Nobel | Kromasil C18 | Merck | Chromolith C18 | Tosoh Biosciences | TSK ODS-80TS |
| ES Industries | Chromegabond C22 | Merck | Lichrosorb RP18 | Varian | Omnisphere C18 |
| ES Industries | Gamma-bond C18 | Merck | Lichrospher 100 RP18 | Varian | Polaris A C18 |
| GL sciences | Inertsil ODS-2 | Merck | Lichrospher 100 RP18e | Varian | Polaris amide C18 |
| GL sciences | Inertsil ODS-3 | Merck | Lichrospher PAH | Varian | Polaris B C18 |
| Grace - Alltech | Adsorbosil C18 | Merck | Purospher 100 RP18 | Varian | Polaris ether C18 |
| Grace - Alltech | Adsorbosphere HS C18 | Merck | Purospher 100 RP18e | Varian | Pursuit C18 |
| Grace - Alltech | Adsorbosphere XL C18 | Merck | Purospher star RP18e | Varian | ResElut C18 |
| Grace - Alltech | Alltima C18 | Merck | Superspher 100 RP18 | Waters | Atlantis dcC18 |
| Grace - Alltech | Alltima HP C18 | Merck | Superspher 100 RP18e | Waters | Delta-Pak C18 |
| Grace - Alltech | Alltima HP C18 amide | Nacalai Tesque | Cosmosil C18-AR II | Waters | microBondapak C18 |
| Grace - Alltech | Alltima HP C18 HL | Nacalai Tesque | Cosmosil C18-MS II | Waters | Nova-Pak C18 |
| Grace - Alltech | Alphabond C18 | Nacalai Tesque | Cosmosil C18-PAQ | Waters | Resolve C18 |
| Grace - Alltech | Brava BDS C18 | Nacalai Tesque | Cosmosil Cholesterol | Waters | Spherisorb ODB |
| Grace - Alltech | Econosil C18 | Nacalai Tesque | Cosmosil Pi naphyl | Waters | Spherisorb ODS1 |
| Grace - Alltech | Econosphere C18 | Nomura | Develosil C18 | Waters | Spherisorb ODS2 |
| Grace - Alltech | Platinum EPS C18 | Perkin Elmer | PE CR C18 | Waters | Symmetry C18 |
| Grace - Alltech | Platinum C18 | Perkin Elmer | Spheri-5 ODS | Waters | Symmetry Shield RP18 |
| Grace - Alltech | Prevail amide C18 | Phenomenex | Gemini C18 | Waters | X Bridge |
| Grace - Alltech | Prevail C18 | Phenomenex | Gemini NX | Waters | XTerra MS C18 |
| Grace - Alltech | Prosphere 300 C18 | Phenomenex | Gemini Phenyl hexyl | Waters | XTerra RP 18 |
| Grace - Jones | Apex C18 | Phenomenex | Luna C18 (1) | Whatman | Partisil ODS1 |
| Grace - Jones | Genesis C18 | Phenomenex | Luna C18-2 | Whatman | Partisil ODS2 |
| Grace - Vydac | Vydac 201HS | Phenomenex | Luna Phenyl hexyl | Whatman | Partisil ODS3 |
| Grace - Vydac | Vydac 201TP | Phenomenex | Prodigy ODS 2 | YMC | Hydrosphere C18 |
| Grace - Vydac | Vydac 202TP | Phenomenex | Prodigy ODS 3 | YMC | J'Sphere 80H |
| Grace - Vydac | Vydac 218MR | Phenomenex | Synergy Fusion RP | YMC | J'Sphere 80L |
| Grace - Vydac | Vydac 218TP | Phenomenex | Synergy Hydro RP | YMC | J'Sphere 80M |
| Grace - Vydac | Vydac 238TP | Restek | Allure C18 | YMC | ODS A 120 A |
| Higgins | Clipeus C18 | Restek | Ultra C18 | YMC | ProC18 RS |
| Higgins | HAIsil C18 | SFCC | Bondasorb C18 | YMC | YMC Pack ODS-AQ |
| Higgins | HAIsil C18-HL | SGE | Exsil ODS | YMC | YMC Pack ProC18 |
| Higgins | Targa C18 | SGE | SGE-250 GL4 P-C18 | | |



HPLC stationary phases classification model

2. Tanaka Test: Pentylbenzene retention factor

Pentylbenzene retention factor is a hydrophobicity marker.

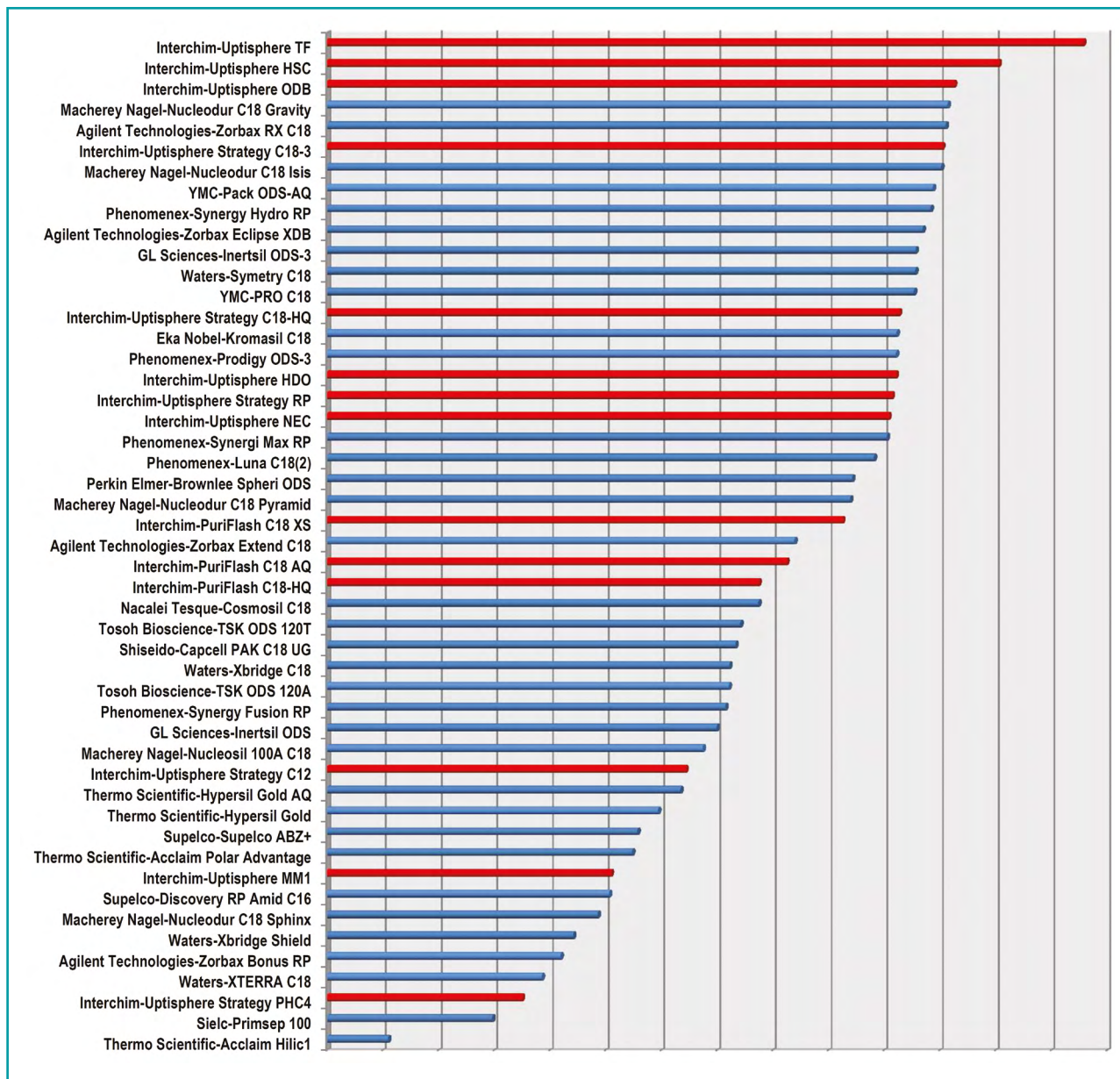


Studies developed in partnership with LETIAM, IUT Orsay, France, Dr. Sylvie Héron & Pr. Alain Tchaplà.



3. Tanaka Test: Methylene selectivity

Amylbenzene / Butylbenzene selectivity is a hydrophobicity marker.



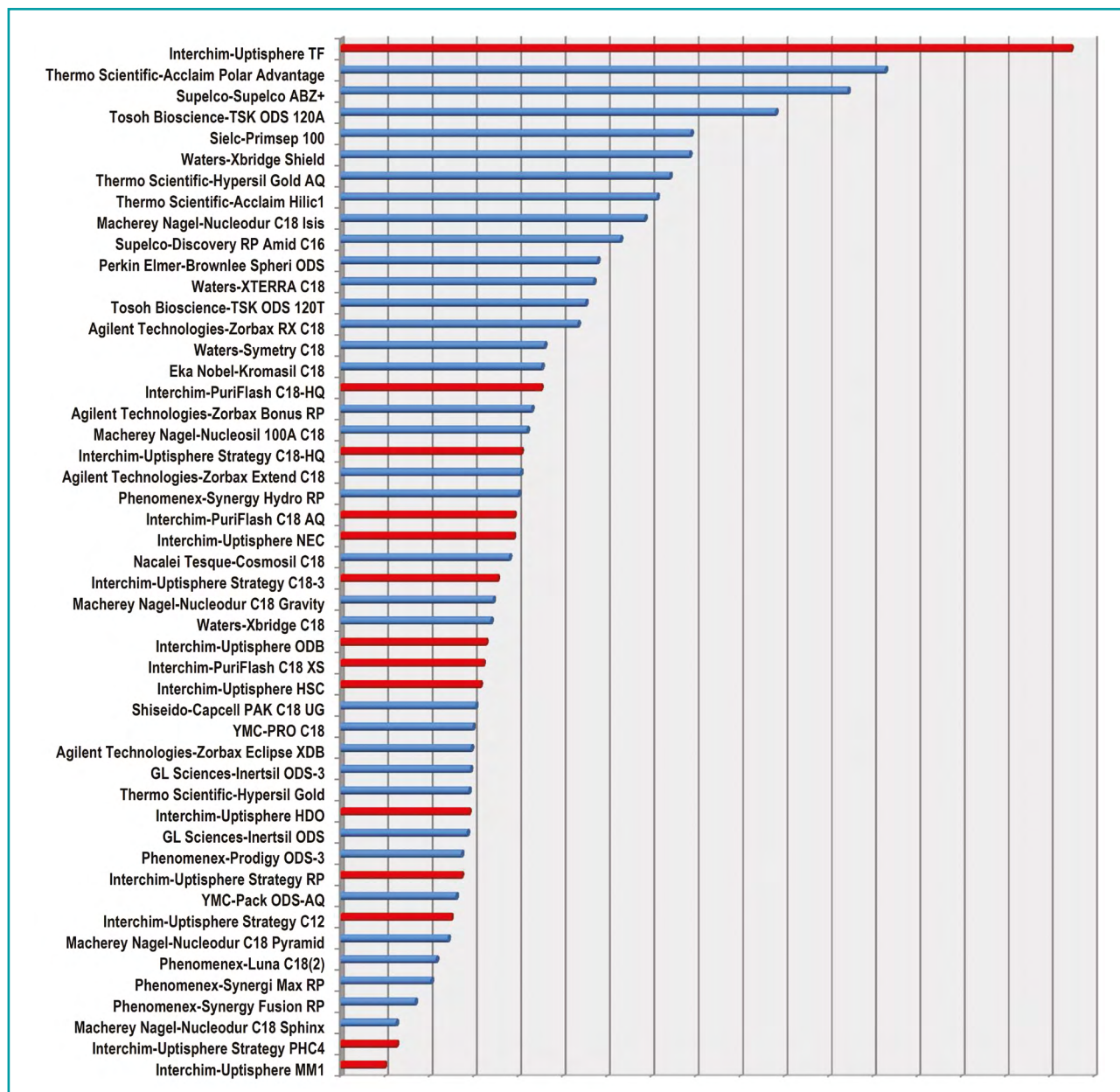
Studies developed in partnership with LETIAM, IUT Orsay, France, Dr. Sylvie Héron & Pr. Alain Tchaplà.



HPLC stationary phases classification model

4. Tanaka Test: Steric selectivity

Triphenylene / O-ter-Phenyl selectivity is a steric resistance marker and a form recognition marker.

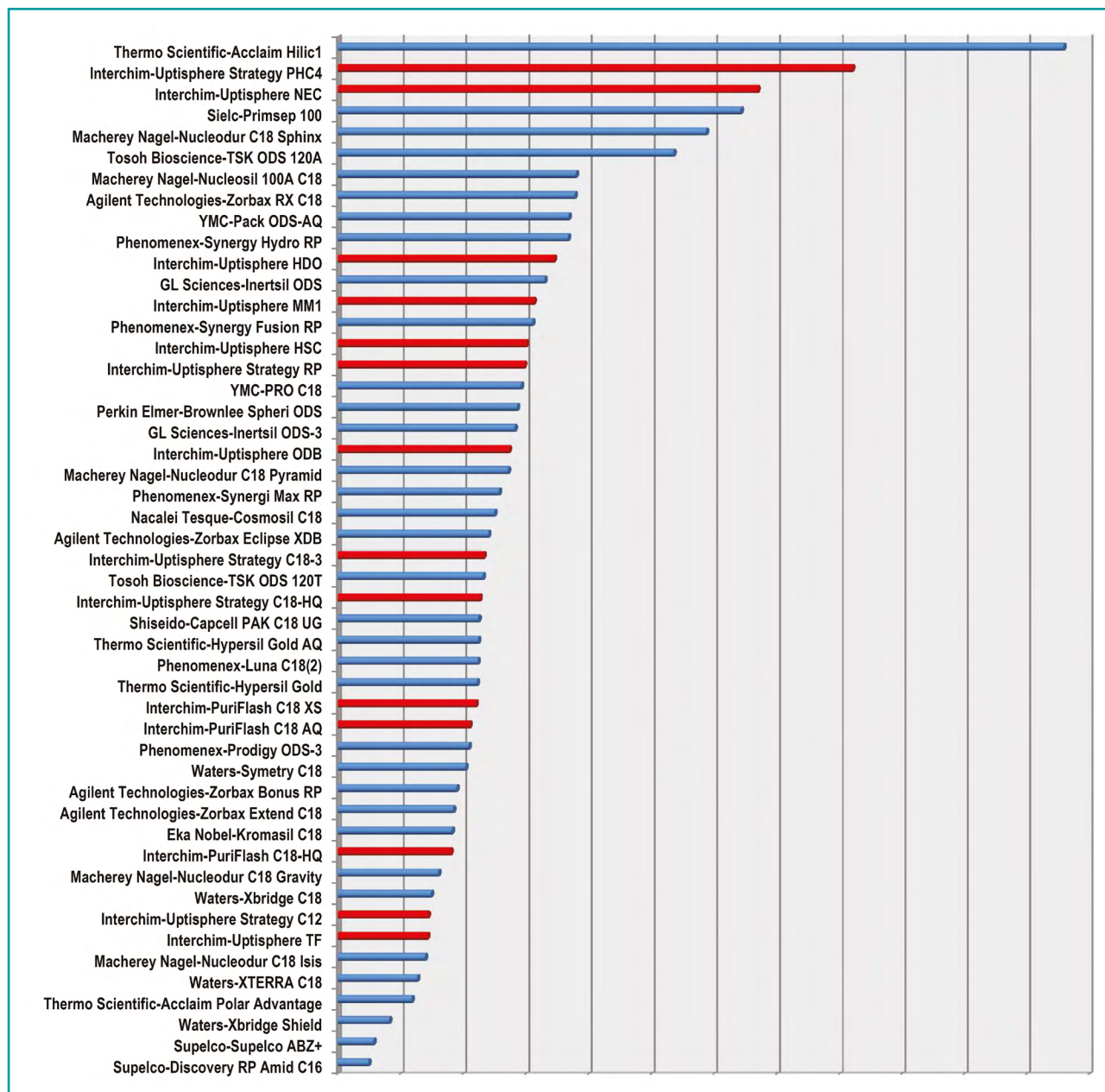


Studies developed in partnership with LETIAM, IUT Orsay, France, Dr. Sylvie Héron & Pr. Alain Tchaplal.



5. Tanaka Test: Neutral

Caffeine / Phenol selectivity is a polar selectivity marker. (Study performed under neutral conditions.)



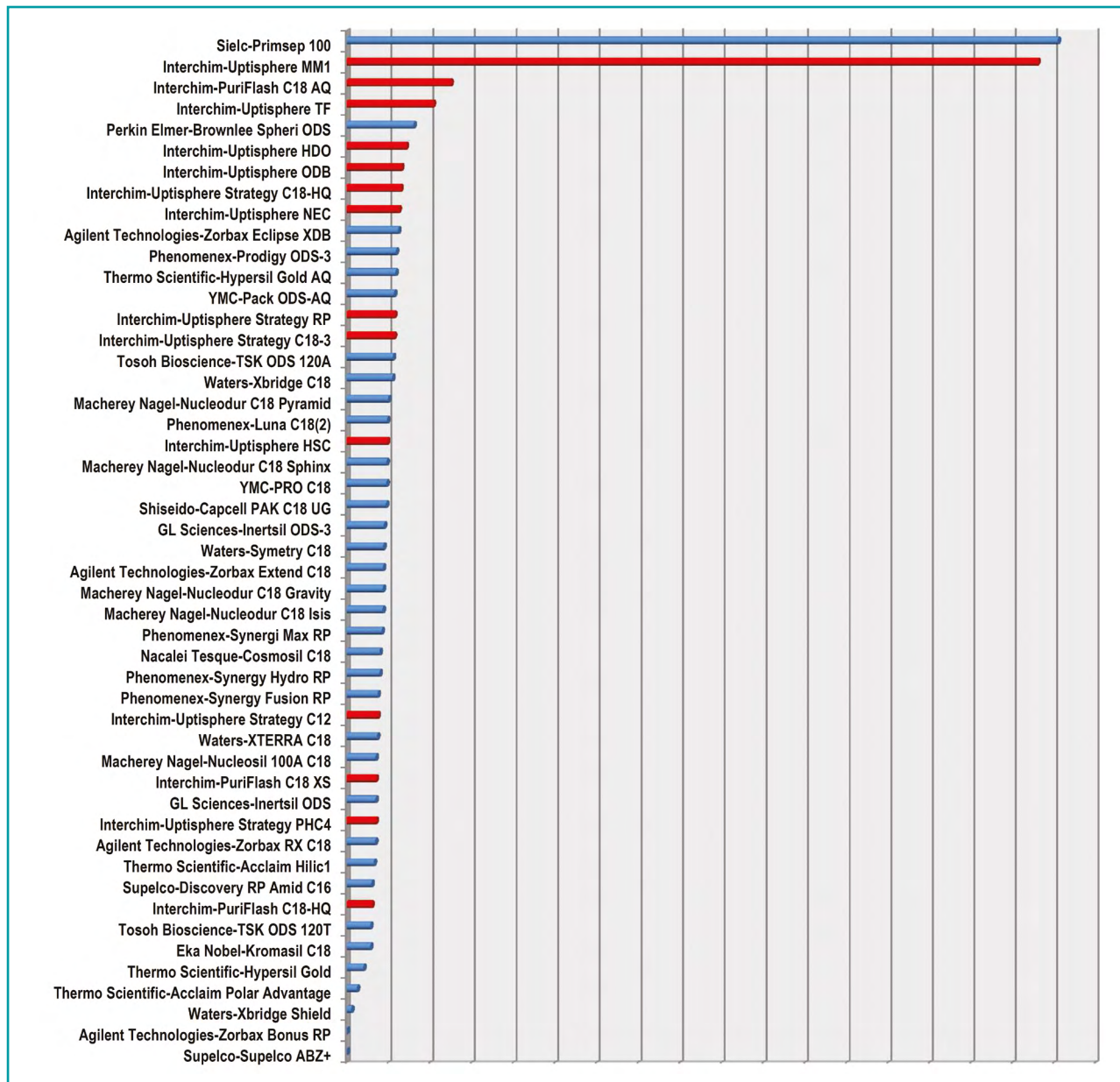
Studies developed in partnership with LETIAM, IUT Orsay, France, Dr. Sylvie Héron & Pr. Alain Tchaplà.



HPLC stationary phases classification model

6. Tanaka Test: Acid

Benzylamine / Phenol selectivity is a polar selectivity marker. (Study performed under acidic conditions.)

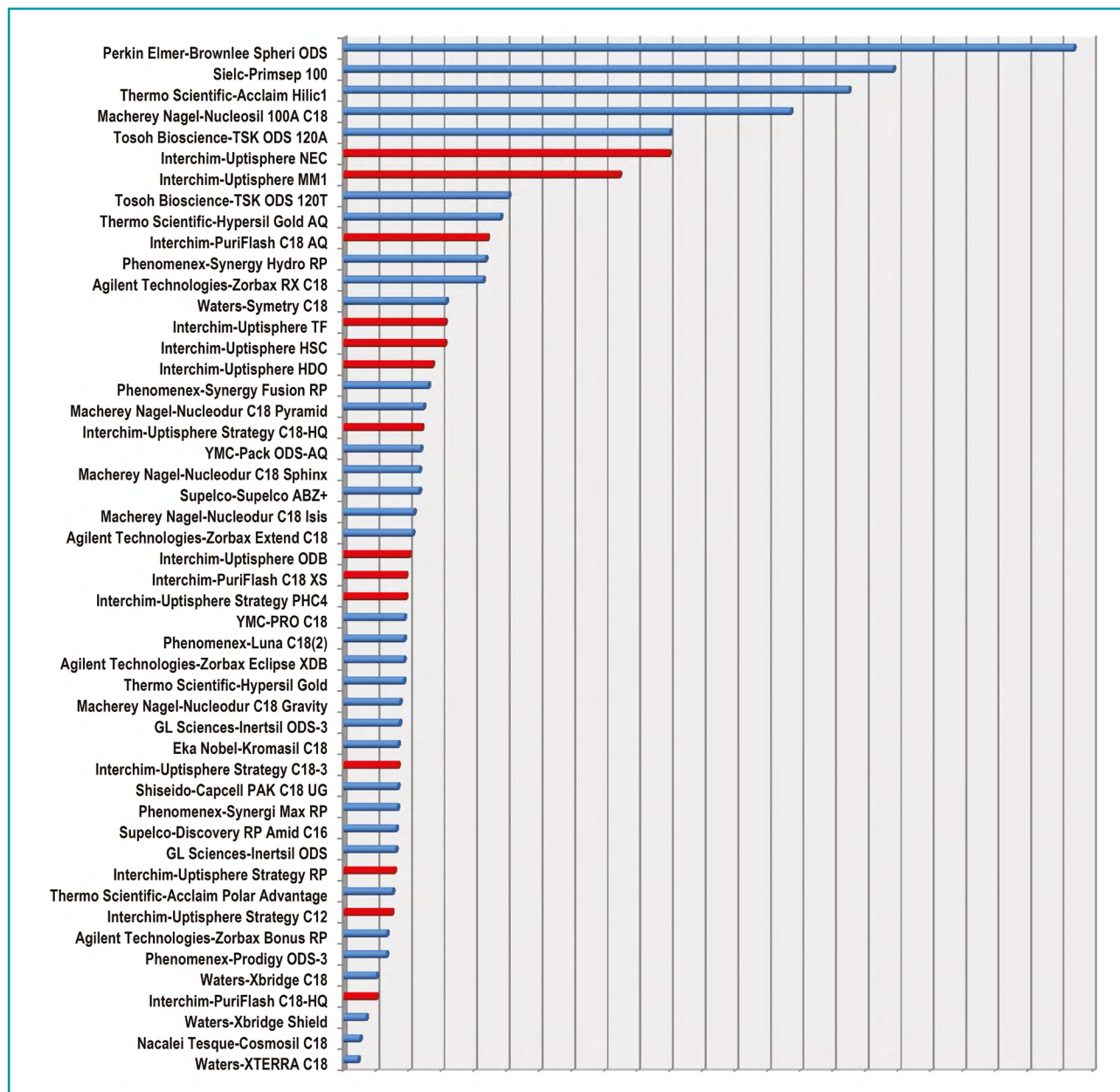


Studies developed in partnership with LETIAM, IUT Orsay, France, Dr. Sylvie Héron & Pr. Alain Tchaplà.



7. Tanaka Test: Basic

Benzylamine / Phenol selectivity is a polar selectivity marker. (Study performed under basic conditions.)



Studies developed in partnership with LETIAM, IUT Orsay, France, Dr. Sylvie Héron & Pr. Alain Tchaplà.



HPLC stationary phases classification model

8. LPAC Test from Geneva

Since 1993, the LPAC (Laboratory of Pharmaceutical Analytical Chemistry) in Geneva has developed and proposed the chromatographic tests that classify the columns for basic compounds separation.

The tests developed at LPAC, with a mixture of 7 basic compounds with different and complementary properties, determine under real conditions (hydro-organic mixtures buffered to pH 3 and 7) the behavior of stationary phases.

The chemometric tools such as the Principal Component Analysis (PCA) and the Hierarchical Cluster Analysis (HCA) were used in order to visualize the performance of columns and rank them by similarity.

The results achieved classify the columns based on their hydrophobic retention capacities and their residual interactions with basic compounds.

More information is available on the LPAC website (<https://ispso.unige.ch/labs/fanal/:en>)

Example with an Uptisphere® Strategy™ C18-RP stationary phase

| Test pH 3 | | | Test pH 7 | | |
|-----------------|----------|---------------------------|-----------------|----------|---------------------------|
| Molecules used* | pka | Values of asymmetry peaks | Molecules used* | pka | Values of asymmetry peaks |
| Quinine | 5.4 & 10 | 1.17 | Carvedilol | 7.99 | 1.03 |
| Nicotine | 8.5 | 1.52 | Quinine | 5.4 & 10 | 1.3 |
| Chlorprocaine | 8.7 | 1.07 | Nicotine | 8.5 | 2.89 |
| Pyridine | 5.23 | 0.79 | Penbutolol | 9.3 | 1.53 |
| Procainamide | 9.23 | 0.8 | Chlorprocaine | 8.7 | 1.07 |
| | | | Pyridine | 5.23 | 1.18 |
| | | | Procainamide | 9.23 | 1.33 |

*Modified Veuthey test

9. Additional General Tests

The stationary phases were evaluated following other general tests, such as:

*"Sander and Wise" to measure the Benzo- α -pyrène / Tetrabenzonaphthalene selectivity, marker of steric resistance and form recognition.

*"Engelhardt" to measure the butyl paraben / Dipropylphthalate selectivity, marker polar selectivity.

10. Application testing

Application testing was performed on a selection of compounds families, like Alkaloids, Beta Blockers, Sun Filters, Pesticides, fat-soluble vitamins, digitalis, catecholamines, PAH, steroids, phenols ...

This comparative study of selective reverse phase stationary phases, provides informations on the correlation between the general tests and the application testing.

11. Our unique stationary phases classification model

Advion Interchim Scientific and our scientific partners have worked to solve the essential question of all people doing liquid chromatography: the column selection.

Considering that:

- more than 800 RPLC columns are available on the market.
- 2 similar silica chemistries can lead to different chromatographic results.
- 2 different silica chemistries can lead to similar chromatographic result.

To quickly reach an objective set in liquid chromatography, it is very difficult to independently select the appropriate stationary phase by application without having knowledge of the behavior of the stationary phases.

Our unique stationary phase classification model is a valuable tool for all the people working in liquid chromatography.

a) Stationary phases enclosed in our classification

- + 300 RPLC representative stationary phases of the current market
- Porous silica or Core Shell
- Particles sizes from 1.7 to 15 μ m



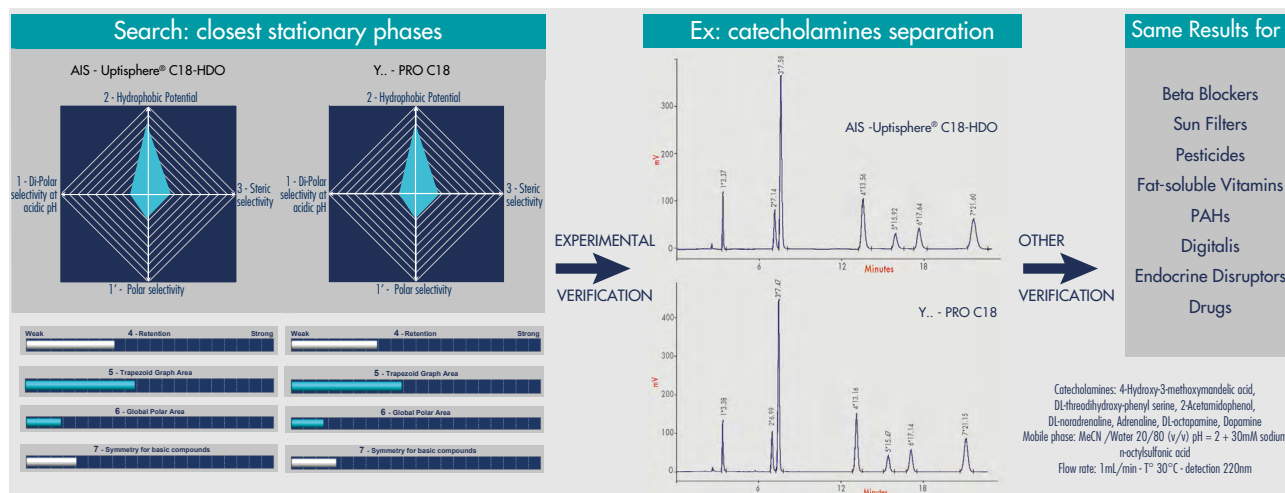
b) Model development for stationary phases classification

From all chromatographic tests above, our scientists:

- Identified the main criteria that define the behavior of each stationary phase by a statistical correlation.
- Created a statistical model that ranks stationary phases by "similarity" and "orthogonality."
- The stationary phases which are close by ranking are then compared one to each other thanks to their visual representation which characterizes their selectivity.

c) Experimental verification of our statistical model

Experimental verifications confirm the accuracy of the ranking method for various analyte families.



d) Stationary phase visual representation

1 - Di-polar selectivity at acidic pH

A low selectivity value indicates a low silanol activity on the silica surface. The higher the value is, the higher the silanol activity will be.

=> By dipole interactions for ketone, ether, halogen, amide, congested alcohol functions,...

1' - Polar selectivity

The higher the value is, the higher the polar selectivity will be.

=> By hydrogen interactions.

5 - Trapezoid Graph Area

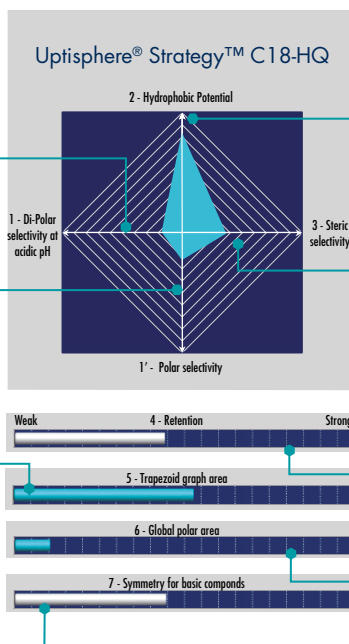
Represents 4 major markers which characterize the stationary phase behavior.

=> Similar phases in selectivity have similar trapezoids forms.

=> The more different the trapezoid forms are, the more orthogonal in selectivity the stationary phases are & the more different the separation potential of the stationary phases is.

7 - Symmetry for basic compounds

=> A low value leads to a higher probability in getting a symmetric basic compounds peak shape.



2 - Hydrophobic Potential

The higher the hydrophobic potential is, the higher the resolution of homologous compounds will be.

=> A high hydrophobic potential is required for the separation of molecules with low carbon content.

=> A lower hydrophobic potential is required for the separation of molecules with high carbon content.

3 - Steric selectivity

From a certain value, this marker allows the selectivity of rigid isomers.

=> Molecules with the same carbon load (identical hydro- carbon volume) but different spatial conformations.

=> Isomers Z & E, steroids α & β , planar & non-planar aromatic hydrocarbons.

4 - Retention

Marker of the stationary phases hydrophobicity.

=> A high retention is required for the separation of molecules with high carbon content.

=> A lower retention is required for the separation of molecules with high carbon content.

6 - Global Polar Area

Indicator of the stationary phase 1 & 1' polar selectivities.

=> The more different the polar area is, the more different the polar selectivity will be.



HPLC stationary phases classification model

Conclusion

For 30 years, Interchim has been working with numerous university research teams, especially with the laboratory of Analytical Chemistry of Paris-South. Our common goal, beyond a detailed knowledge of the behavior of stationary phases for liquid chromatography, is to offer to analysts the tools that allow a relevant selection of columns.

We have tested more 300 stationary phases for reverse phase liquid chromatography between the totally porous silicas from 1.7 to 15 microns and the superficially porous silicas.

Building our stationary phase classification model has allowed us to develop various tools that make our customers analytical development and their daily work easier by:

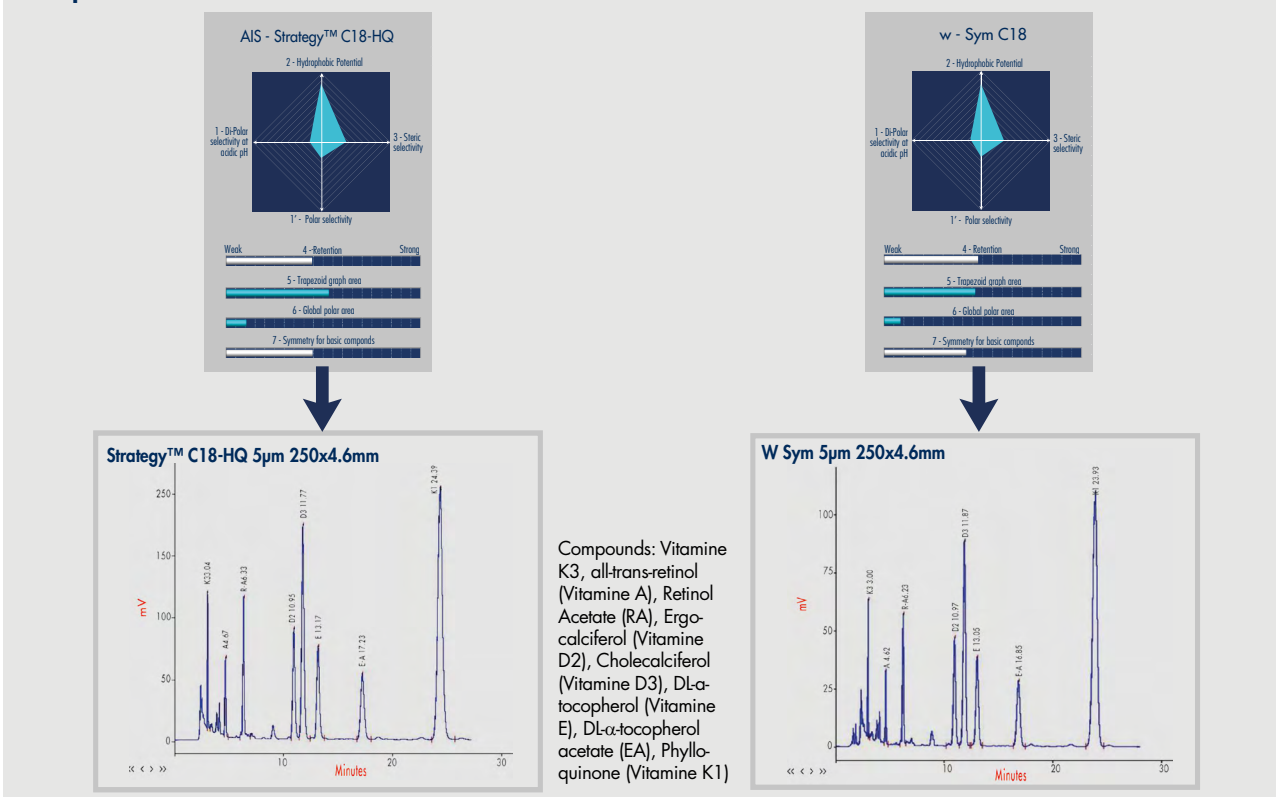
1. Proposing alternatives to their current columns
 - transfer from HPLC to UHPLC
 - transfer from HPLC to purification
 - in case of a separation problem
2. Proposing orthogonal alternatives
 - when current columns don't succeed in the new development
 - to optimize existing methods
 - to improve separation of a critical pair

Advion Interchim Scientific's Uptisphere® CS Evolution™, Uptisphere® Strategy™, Uptisphere® 120 Å, puriflash®, puriflash® BIO, Uptisphere® BIO column ranges provide effective solutions to today's analytical methods.

12. Using Advion Interchim Scientific classification model to obtain alternative stationary phases

Our model shows that stationary phases with similar visual representations are similar in terms of selectivity while chemistries & silica bases are different.

Example with Vitamins



HPLC stationary phases classification model



Xrefs Tools

Tool that facilitates the transposition of a manufacturer's reference into an Advion Interchim Scientific product reference while ensuring the closest possible selectivity.

More than 18,500 manufacturer references / 25 suppliers are currently referenced

Extract from our full database:

| Manufacturer | Mfg P/N | Column descriptions | AIS P/N | AIS Column descriptions |
|---------------------|--------------|--|--------------------|--|
| Agilent Tech. | A0520150X021 | Metasil AQ C18 3µm 150x2.1mm HPLC Column | UP3HDO-150/021 | Uptisphere C18-HDO 3µm 150x2.1mm HPLC Column |
| Agilent Tech. | A0530150X046 | Metasil AQ C18 5µm 150x4.6mm HPLC Column | UP5HDO-150/046 | Uptisphere C18-HDO 5µm 150x4.6mm HPLC Column |
| Agilent Tech. | 79925PE-564 | Purospher RP18 EC 5µm 125x4.0mm HPLC Cartridge | US5C18HQ-125/040 | Uptisphere Strategy C18-HQ 5µm 125x4.0mm HPLC Column |
| Agilent Tech. | 79925PE-584 | Purospher RP18 EC 5µm 250x4.0mm HPLC Cartridge | US5C18HQ-250/040 | Uptisphere Strategy C18-HQ 5µm 250x4.0mm HPLC Column |
| Agilent Tech. | A6001100C020 | Pursuit XRS C18 3µm 100x2.0mm HPLC Column | US3C183-100/021 | Uptisphere Strategy C18-3 3µm 100x2.1mm HPLC Column |
| Agilent Tech. | A6000250C046 | Pursuit XRS C18 5µm 250x4.6mm HPLC Column | US5C183-250/046 | Uptisphere Strategy C18-3 5µm 250x4.6mm HPLC Column |
| Agilent Tech. | 959764-902 | Zorbax Eclipse Plus C18 1.8µm 100x2.1mm RR HPLC Column, 600bar | US1.7C18HQ-100/021 | Uptisphere Strategy C18-HQ 1.7µm 100x2.1mm HPLC Column |
| Agilent Tech. | 959963-902 | Zorbax Eclipse Plus C18 3.5µm 150x4.6mm RR HPLC Column | US3C18HQ-150/046 | Uptisphere Strategy C18-HQ 3µm 150x4.6mm HPLC Column |
| Agilent Tech. | 959990-902 | Zorbax Eclipse Plus C18 5µm 250x4.6mm HPLC Column | US5C18HQ-250/046 | Uptisphere Strategy C18-HQ 5µm 250x4.6mm HPLC Column |
| Agilent Tech. | 990967-902 | Zorbax Eclipse XDB C18 5µm 250x4.6mm HPLC Column | US5C18HQ-250/046 | Uptisphere Strategy C18-HQ 5µm 250x4.6mm HPLC Column |
| Beckman | 235329 | Ultrasphere C18 5µm 250x4.6mm HPLC Column | UP5ODB-250/046 | Uptisphere C18-ODB 5µm 250x4.6mm HPLC Column |
| Eka Nobel - Nouryon | MF1CLC10 | Kromasil C18 1.8µm 100x3.0mm 100Å HPLC Column | US1.7C18HQ-100/030 | Uptisphere Strategy C18-HQ 1.7µm 100x3.0mm HPLC Column |
| Eka Nobel - Nouryon | MH2CLC10 | Kromasil C18 2.5µm 100x3.0mm 100Å HPLC Column | US2.2C18HQ-100/030 | Uptisphere Strategy C18-HQ 2.2µm 100x3.0mm HPLC Column |
| Eka Nobel - Nouryon | MH3CLA10 | Kromasil C18 3.5µm 100x4.6mm 100Å HPLC Column | US3C18HQ-100/046 | Strategy C18-HQ 3µm 100x4.6mm HPLC Column |
| Eka Nobel - Nouryon | M05CLA25 | Kromasil C18 5µm 250x4.6mm 100Å HPLC Column | US5C18HQ-250/046 | Strategy C18-HQ 5µm 250x4.6mm HPLC Column |
| GL Sciences | 5020-01128 | Inertsil ODS-2 5µm 250x4.6mm HPLC Column | US5C18HQ-250/046 | Uptisphere Strategy C18-Hq 5µm 250x4.6mm HPLC Column |
| GL Sciences | 5020-01772 | Inertsil ODS-3 3µm 250x4.6mm HPLC Column | US3RP-250/046 | Uptisphere Strategy C18-RP 3µm 250x4.6mm HPLC Column |
| GL Sciences | 5020-01702 | Inertsil SI3µm 250x4.6mm 100Å HPLC Column | US3SI-250/046 | Uptisphere Strategy SI 3µm 250x4.6mm HPLC Column |
| Macherey Nagel | 760076.20 | Nucleodur Gravity C18 1.8µm 100x2.0mm HPLC Column | US1.7C18HQ-100/021 | Uptisphere Strategy C18-HQ 1.7µm 100x2.1mm HPLC Column |
| Macherey Nagel | 760083.46 | Nucleodur Gravity C18 3µm 150x4.6mm HPLC Column | US3C18HQ-150/046 | Uptisphere Strategy C18-HQ 3µm 150x4.6mm HPLC Column |
| Macherey Nagel | 760103.30 | Nucleodur Gravity C18 5µm 150x3.0mm HPLC Column | US5C18HQ-150/030 | Uptisphere Strategy C18-HQ 5µm 150x3.0mm HPLC Column |
| Merck-Millipore | 1.50168.0001 | Purospher RP18 EC 5µm 125x4.0mm HPLC Cartridge | US5C18HQ-125/040 | Uptisphere Strategy C18-HQ 5µm 125x4.0mm HPLC Column |
| Merck-Millipore | 1.50036.0001 | Purospher Star RP18 EC 5µm 125x4.0mm HPLC Column | US5C18HQ-125/040 | Uptisphere Strategy C18-HQ 5µm 125x4.0mm HPLC Column |
| Phenomenex-Danaher | 00F-4263-E0 | Jupiter C18 3µm 150x4.6mm HPLC Column | UP3WOD-150/046 | Uptisphere 300Å WOD 3µm 150x4.6mm HPLC Column |
| Phenomenex-Danaher | 00G-4053-B0 | Jupiter C18 5µm 250x2.1mm HPLC Column | UP5WOD-250/021 | Uptisphere 300Å WOD 5µm 250x2.1mm HPLC Column |
| Phenomenex-Danaher | 00C-4251-E0 | Luna C18(2) 3µm 75x4.6mm HPLC Column | US3C18HQ-075/046 | Uptisphere Strategy C18-HQ 3µm 75x4.6mm HPLC Column |
| Phenomenex-Danaher | 00G-4252-E0 | Luna C18(2) 5µm 250x4.6mm HPLC Column | US5C18HQ-250/046 | Uptisphere Strategy C18-HQ 5µm 250x4.6mm HPLC Column |



HPLC stationary phases classification model

| Manufacturer | Mfg P/N | Column descriptions | AIS P/N | AIS Column descriptions |
|--------------------|----------------|---|--------------------|--|
| Phenomenex-Danaher | 00G-3300-E0 | Prodigy ODS-2 5µm 250x4.6mm HPLC Column | US5C18HQ-250/046 | Uptisphere Strategy C18-HQ 5µm 250x4.6mm HPLC Column |
| Phenomenex-Danaher | 00F-4097-E0 | Prodigy ODS-3 5µm 150x4.6mm HPLC Column | US5RP-150/046 | Uptisphere Strategy C18-RP 5µm 150x4.6mm HPLC Column |
| Restek | 9164515 | Allure C18 5µm 100x4.6mm HPLC Column | US5C183-100/046 | Uptisphere Strategy C18-3 5µm 100x4.6mm HPLC Column |
| Shiseido | 92475 | Capcell Pak MGII C18 3µm 100x3.0mm 100Å HPLC Column | US3C183-100/030 | Uptisphere Strategy C18-3 3µm 100x3.0mm HPLC Column |
| Shiseido | 92529 | Capcell Pak Mgii C18 5µm 50x4.6mm 100Å HPLC Column | US5C183-050/046 | Uptisphere Strategy C18-3 5µm 50x4.6mm HPLC Column |
| Thermo Scientific | 059132 | Acclaim C18 3µm 100x4.6mm 120Å HPLC Column | UP3ODB-100/046 | Uptisphere C18-ODB 3µm 100x4.6mm HPLC Column |
| Thermo Scientific | 059149 | Acclaim C18 5µm 250x4.6mm 120Å HPLC Column | UP5ODB-250/046 | Uptisphere C18-ODB 5µm 250x4.6mm HPLC Column |
| Thermo Scientific | 97305-254630 | Synchronis C18 AQ 5µm 250x4.6mm HPLC Column | UP5HDO-250/046 | Uptisphere C18-HDO 5µm 250x4.6mm HPLC Column |
| Tosoh Bioscience | 21462 | Tsk-Gel ODS-100Z 5µm 250x4.6mm HPLC Column | US5C183-250/046 | Uptisphere Strategy C18-3 5µm 250x4.6mm HPLC Column |
| Waters | 186003534 | Acquity UPLC HSS C18 1.8µm 2.1x150mm HPLC Column | US1.7C18HQ-150/021 | Uptisphere Strategy C18-HQ 1.7µm 150x2.1mm HPLC Column |
| Waters | 176001820 | Acquity UPLC HSS C18 1.8µm 3.0x150mm HPLC Column | US1.7C18HQ-150/030 | Uptisphere Strategy C18-HQ 1.7µm 150x3.0mm HPLC Column |
| Waters | 186001309 | Atlantis DC18 5µm 3.0x150mm HPLC Column | UP5HDO-150/030 | Uptisphere C18-HDO 5µm 150x3.0mm HPLC Column |
| Waters | 186001346 | Atlantis DC18 5µm 4.6x250mm HPLC Column | UP5HDO-250/046 | Uptisphere C18-HDO 5µm 250x4.6mm HPLC Column |
| Waters | 186004773 | HSS C18 5µm 4.6x150mm HPLC Column | US5C18HQ-150/046 | Uptisphere Strategy C18-HQ 5µm 150x4.6mm HPLC Column |
| Waters | 186002535 | Sunfire C18 3.5µm 2.1x150mm HPLC Column | US3C18HQ-150/021 | Uptisphere Strategy C18-HQ 3µm 150x2.1mm HPLC Column |
| Waters | 186002559 | Sunfire C18 5µm 4.6x150mm HPLC Column | US5C18HQ-150/046 | Uptisphere Strategy C18-HQ 5µm 150x4.6mm HPLC Column |
| Waters | WAT058965 | Symmetry C18 3.5µm 2.1x100mm HPLC Column | US3C18HQ-100/021 | Uptisphere Strategy C18-HQ 3µm 100x2.1mm HPLC Column |
| Waters | WAT054210 | Symmetry C18 5µm 4.6x150mm HPLC Column | US5C18HQ-150/046 | Uptisphere Strategy C18-HQ 5µm 150x4.6mm HPLC Column |
| Waters | 186000196 | Symmetry C18 300Å 3.5µm 2.1x150mm HPLC Cartridge | UP3WOD-150/021 | Uptisphere 300Å WOD 3µm 150x2.1mm HPLC Column |
| YMC Europe | AA30S05-25Q1QT | YMC ODS-A 300Å 5µm 250x2.1mm HPLC Column | UP5WOD-250/021 | Uptisphere 300Å WOD 5µm 250x2.1mm HPLC Column |
| YMC Europe | AQ12S03-10Q1QT | YMC ODS-AQ 3µm 100x2.1mm 120Å HPLC Column | UP3HDO-100/021 | Uptisphere C18-HDO 3µm 100x2.1mm HPLC Column |
| YMC Europe | AQ12S05-2546WT | YMC ODS-AQ 5µm 250x4.6mm 120Å HPLC Column (Waters Type) | UP5HDO-250/046 | Uptisphere C18-HDO 5µm 250x4.6mm HPLC Column |

HPLC stationary phases classification model



Advion Interchim Scientific's alternatives to the leading HPLC brands

The selection of AIS HPLC columns to competitors brand is an issue from a scientific perspective. The statistical Euclidean model that we have developed enables an accurate ranking. It gives you a quick and easy solution to provide our customers with a secured proposal of HPLC columns.

| Suppliers | Brands | Particle size | AIS alternative in selectivity | Proximity | Particle size of the available AIS columns | | | | | | |
|---------------------|-------------------------|--------------------------|--------------------------------|-----------|--|-------|-------|-----|-----|------|------|
| | | | | | 1.7µm | 2.2µm | 2.6µm | 3µm | 5µm | 10µm | 15µm |
| ACE | C18 | 3, 5µm | Uptisphere Strategy C18-HQ | >95% | x | x | | x | x | x | x |
| ACE | C18 Generix | 3, 5µm | Uptisphere Strategy C18-HQ | >95% | x | x | | x | x | x | x |
| ACE | 300 C18 | 3, 5µm | Uptisphere BIO 300A WOD | >95% | | | | x | x | | |
| Agilent Tech. | Metasil AQ C18 | 3, 5µm | Uptisphere C18-HDO | >95% | | x | | x | x | | |
| Agilent Tech. | Poroshell 120 EC-C18 | 2.7µm | Uptisphere CS Evolution C18 | >95% | | | x | | | | |
| Agilent Tech. | Pursuit XRS C18 | 3, 5µm | Uptisphere Strategy C18-3 | >97% | | | | x | x | x | x |
| Agilent Tech. | Zorbax Eclipse Plus C18 | 1.8, 3.5, 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x |
| Agilent Tech. | Zorbax Eclipse XDB C18 | 1.8, 3.5, 5µm | Uptisphere C18-ODB | >97% | | x | | x | x | x | |
| Agilent Tech. | Zorbax Stable Bond C18 | 1.8, 3.5, 5µm | Uptisphere C18-ODB | >97% | | x | | x | x | x | |
| Agilent Tech. | Zorbax ODS | 5µm | puriflash C18-HP | >95% | | | | x | x | x | x |
| Beckman | Ultrasphere C18 | 3, 5 µm | Uptisphere C18-ODB | >97% | | x | | x | x | x | |
| Beckman | Ultrasphere C8 | 3, 5 µm | Uptisphere C8 | >95% | | | | | x | | |
| Beckman | Ultrasphere CN | 3, 5 µm | Uptisphere CN | >93% | | | | x | x | | |
| Beckman | Ultrasphere SI | 3, 5 µm | Uptisphere Strategy SI | >93% | | x | | x | x | x | x |
| Bischoff | Prontosil 120 C18-AQ | 3, 5 µm | Uptisphere C18-HDO | >95% | | x | | x | x | | |
| Bonna Agela | Venusil AQ | 3, 5 µm | Uptisphere C18-HDO | >95% | | x | | x | x | | |
| Eka nobel - Nouryon | Kromasil 100A C18 | 1.8, 2.5, 3, 5, 10, 15µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x |
| Eka nobel - Nouryon | Kromasil 100A C8 | 3, 5µm | Uptisphere C8 | >97% | | | | | x | | |
| Eka nobel - Nouryon | Kromasil 100A NH2 | 3, 5µm | Uptisphere NH2 | >93% | | | | x | x | | |
| Eka nobel - Nouryon | Kromasil 100A PH | 3, 5µm | Uptisphere Strategy PH/C4 | >95% | | x | | x | x | x | x |
| Eka nobel - Nouryon | Kromasil 100A SI | 3, 5µm | Uptisphere Strategy SI | >93% | | x | | x | x | x | x |
| Eka nobel - Nouryon | Kromasil 300A C18 | 5µm | Uptisphere BIO 300A WOD | >95% | | | | x | x | | |
| Fortis | C18 | 1.7, 3, 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x |
| Fortis | H2O | 1.7, 3, 5µm | Uptisphere Strategy C18-RP | >97% | | x | x | x | x | x | x |
| Gl Sciences | Inertsil OD2 | 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x |
| Gl Sciences | Inertsil ODS-3 | 3, 5 µm | Uptisphere Strategy C18-RP | >97% | | x | x | x | x | x | x |
| Gl Sciences | Inertsil PH-3 | 2, 3, 5µm | Uptisphere Strategy PH/C4 | >95% | | x | | x | x | x | x |
| Gl Sciences | Inertsil SI | 3, 5 µm | Uptisphere Strategy SI | >93% | | x | | x | x | x | x |
| Halo | C18 | 2,7µm | Uptisphere CS Evolution C18 | >95% | | | x | | | | |
| Grace - Jones | Genesis C18 | 3, 5 µm | Uptisphere C18-ODB | >95% | | x | | x | x | x | |
| Grace - Jones | Genesis AQ | 3, 5 µm | Uptisphere Strategy C18-RP | >97% | | x | x | x | x | x | x |
| Grace | Alltima C18 | 3, 5 µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x |
| Macherey Nagel | Nucleodur Gravity C18 | 3, 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x |
| Macherey Nagel | Nucleodur Pyramid C18 | 1.8, 3, 5µm | Uptisphere C18-HDO | >97% | | x | | x | x | | |
| Macherey Nagel | Nucleoshell C18 | 2.7µm | Uptisphere CS Evolution C18-RP | >95% | | x | x | x | x | x | x |
| Macherey Nagel | Nucleosil 100 C18 | 3, 5µm | Uptisphere C18-ODB | >97% | | x | | x | x | x | |
| Macherey Nagel | Nucleosil 100 C18 HD | 3, 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x |
| Macherey Nagel | Nucleosil 100 SI | 5µm | Uptisphere Strategy SI | >93% | | x | | x | x | x | x |
| Macherey Nagel | Nucleosil C18 EC | 3, 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x |



HPLC stationary phases classification model

| Suppliers | Brands | Particle size | AIS alternative in selectivity | Proximity | Particle size of the available AIS columns | | | | | | | |
|--------------------|----------------------|---------------|--------------------------------|-----------|--|-------|-------|-----|-----|------|------|--|
| | | | | | 1.7µm | 2.2µm | 2,6µm | 3µm | 5µm | 10µm | 15µm | |
| Merck-Millipore | Lichrospher CN | 5µm | Uptisphere CN | >93% | | | | x | x | | | |
| Merck-Millipore | Lichrospher NH2 | 5µm | Uptisphere NH2 | >93% | | | | x | x | | | |
| Merck-Millipore | Purospher 100 RP18E | 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x | |
| Merck-Millipore | Purospher Star RP18E | 2, 3, 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x | |
| Phenomenex-Danaher | Gemini C18 | 3, 5 µm | Uptisphere Strategy C18-RP | >97% | | x | x | x | x | x | x | |
| Phenomenex-Danaher | Jupiter 300 C18 | 3, 5 µm | Uptisphere BIO 300A WOD | >97% | | | | x | x | | | |
| Phenomenex-Danaher | Jupiter 300 C4 | 3, 5 µm | Uptisphere BIO 300A WC4 | >93% | | | | x | x | | | |
| Phenomenex-Danaher | Kinetex C18 | 2,6,5µm | Uptisphere CS Evolution C18 | >95% | | | x | | | | | |
| Phenomenex-Danaher | Luna C18(2) | 2.5, 3.5, 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x | |
| Phenomenex-Danaher | Prodigy ODS-2 | 5µm | Uptisphere Strategy C18-HQ | >97% | | | | x | | | | |
| Phenomenex-Danaher | Prodigy ODS-3 | 3, 5 µm | Uptisphere Strategy C18-RP | >97% | | x | x | x | x | x | x | |
| Phenomenex-Danaher | Synergi Fusion RP | 2.5, 4µm | Uptisphere Strategy C18-RP | >95% | | | | | | | | |
| Phenomenex-Danaher | Synergi Hydro RP | 2.5, 4µm | Uptisphere C18-HDO | >95% | | x | | x | x | | | |
| Phenomenex-Danaher | Synergi Max RP | 2.5, 4µm | Uptisphere Strategy C12 | >97% | | x | | | x | | | |
| Restek | Allure C18 | 3, 5 µm | Uptisphere Strategy C18-3 | >95% | | | | x | x | x | x | |
| Restek | Ultra C18 | 3, 5 µm | Uptisphere Strategy C18-3 | >95% | | | | x | x | x | x | |
| Supelco | Ascentis C18 | 3, 5 µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x | |
| Supelco | Ascentis Express C18 | 2,7µm | Uptisphere CS Evolution C18 | >95% | | | x | | | | | |
| Supelco | Supelcosil LC18-DB | 3, 5 µm | Uptisphere C18-HDO | >95% | | x | | x | x | | | |
| Shiseido | Capcell pak C18 MGII | 3, 5 µm | Uptisphere C18-ODB | >95% | | x | | x | x | x | | |
| Thermo Scientific | Acclaim 300A C18 | 3µm | Uptisphere BIO 300A WOD | >95% | | | | x | x | | | |
| Thermo Scientific | Acclaim C18 | 2.2, 3, 5µm | Uptisphere C18-ODB | >97% | | x | | x | x | x | | |
| Thermo Scientific | Accucore C18 | 4, 2.6µm | Uptisphere CS Evolution C18 | >95% | | | x | | | | | |
| Thermo Scientific | Betabsic C18 | 3, 5µm | Uptisphere Strategy C18-HQ | >95% | x | x | | x | x | x | x | |
| Thermo Scientific | Hypersil Gold AQ | 1.9µm | Uptisphere C18-HDO | >95% | | x | | x | x | | | |
| Thermo Scientific | Hypersil Gold C18 | 1.9, 3, 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x | |
| Thermo Scientific | Hypersil NH2 APS2 | 3, 5µm | Uptisphere NH2 | >93% | | | | x | x | | | |
| Thermo Scientific | Synchronis AQ | 1.7, 5µm | Uptisphere C18-HDO | >95% | | x | | x | x | | | |
| Thermo Scientific | Synchronis C18 | 1.7, 5µm | Uptisphere C18-ODB | >95% | | x | | x | x | x | | |
| Tosoh Bioscience | TSK-GEL ODS-100Z | 3, 5 µm | Uptisphere Strategy C18-3 | >95% | | | | x | x | x | x | |
| Tosoh Bioscience | TSK-GEL ODS-80TM | 5 µm | Uptisphere C18-NEC | >95% | | x | | x | x | | | |
| Tosoh Bioscience | TSK-GEL ODS-80TS | 5 µm | Uptisphere C18-HDO | >95% | | x | | x | x | | | |
| Waters | Atlantis dC18 | 3, 5µm | Uptisphere C18-HDO | >97% | | x | | x | x | | | |
| Waters | Atlantis T3 | 3, 5µm | Uptisphere Strategy C18-RP | >95% | | x | x | x | x | x | x | |
| Waters | HSS C18 | 1.8µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x | |
| Waters | Sunfire C18 | 2.5, 3.5, 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x | |
| Waters | Symmetry C18 | 3.5, 5µm | Uptisphere Strategy C18-HQ | >97% | x | x | | x | x | x | x | |
| Waters | Symmetry 300 C18 | 3, 5µm | Uptisphere BIO 300A WOD | >95% | | | | x | x | | | |
| Waters | Symmetry 300 C4 | 3, 5µm | Uptisphere BIO 300A WC4 | >93% | | | | x | x | | | |
| Waters | XSelect HSS C18 | 3, 5µm | Uptisphere Strategy C18-HQ | >95% | x | x | | x | x | x | x | |
| Waters | XSelect HSS T3 | 3, 5µm | Uptisphere C18-HDO | >95% | | x | | x | x | | | |

HPLC stationary phases classification model

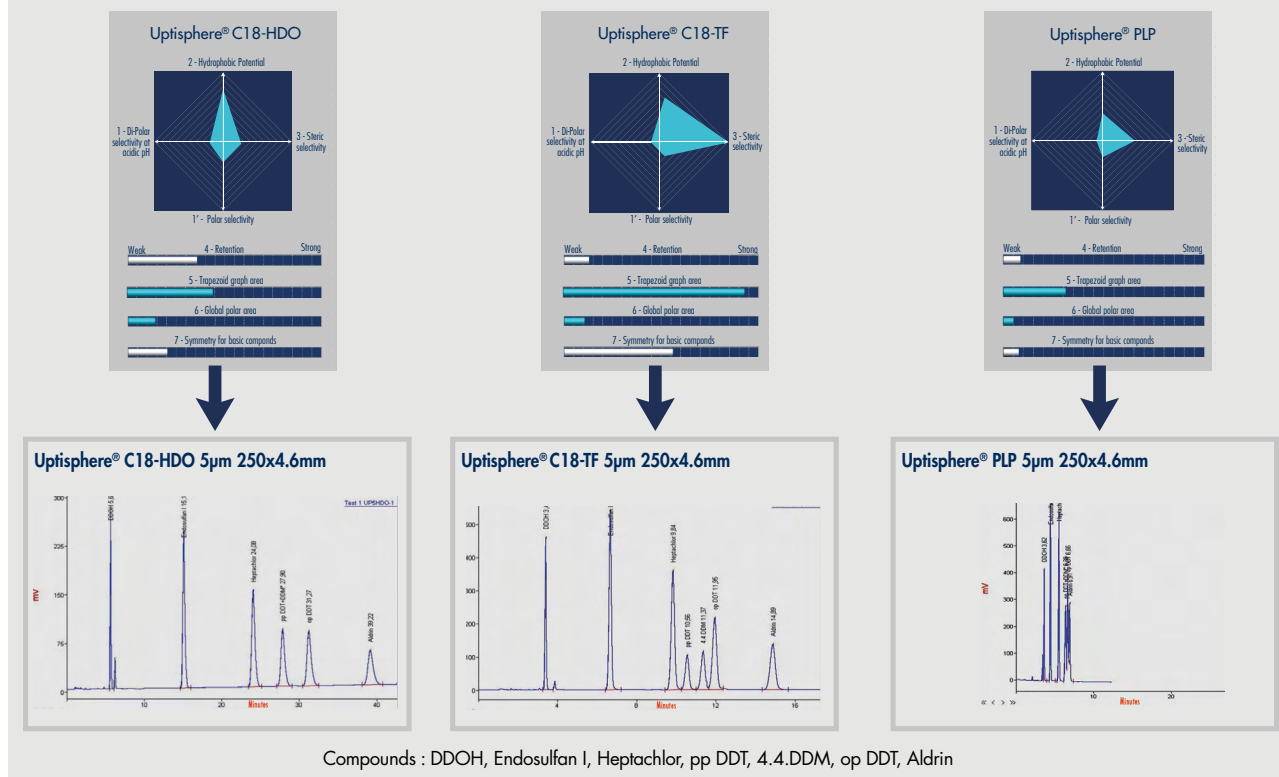


| Suppliers | Brands | Particle size | AIS alternative in selectivity | Proximity | Particle size of the available AIS columns | | | | | | | |
|------------|------------------|---------------|--------------------------------|-----------|--|-------|-------|-----|-----|------|------|--|
| | | | | | 1.7µm | 2.2µm | 2,6µm | 3µm | 5µm | 10µm | 15µm | |
| YMC Europe | J'Sphere ODS-H80 | 3, 5µm | Uptisphere C18-HSC | >95% | | | | x | x | | | |
| YMC Europe | Meteoric | 2.7µm | Uptisphere CS Evolution C18-RP | >97% | | x | x | x | x | x | x | |
| YMC Europe | ODS-A 120A | 3, 5µm | Uptisphere C18-ODB | >97% | | x | | x | x | x | | |
| YMC Europe | ODS-A 300A | 5µm | Uptisphere BIO 300A WOD | >97% | | | | x | x | | | |
| YMC Europe | ODS-AQ 120A | 3, 5µm | Uptisphere C18-HDO | >97% | | x | | x | x | | | |
| YMC Europe | Pack C4 300A | 5µm | Uptisphere BIO 300A WC4 | >93% | | | | x | x | | | |
| YMC Europe | Pack C8 120A | 3, 5µm | Uptisphere C8 | >95% | | | | | | x | | |
| YMC Europe | Pack CN 120A | 3, 5µm | Uptisphere CN | >93% | | | | x | x | | | |
| YMC Europe | Pack NH2 120A | 3, 5µm | Uptisphere NH2 | >93% | | | | x | x | | | |
| YMC Europe | Pack SIL 120A | 3, 5µm | Uptisphere Strategy SI | >93% | | x | | x | x | x | x | |
| YMC Europe | Pro C18 | 2, 3, 5µm | Uptisphere C18-HDO | >97% | | x | | x | x | | | |

13. Using Advion Interchim Scientific classification model to find orthogonal stationary phases

Our model shows that stationary phases with different visual representations are different in selectivity.

Example with Pesticides



HPLC stationary phases classification model

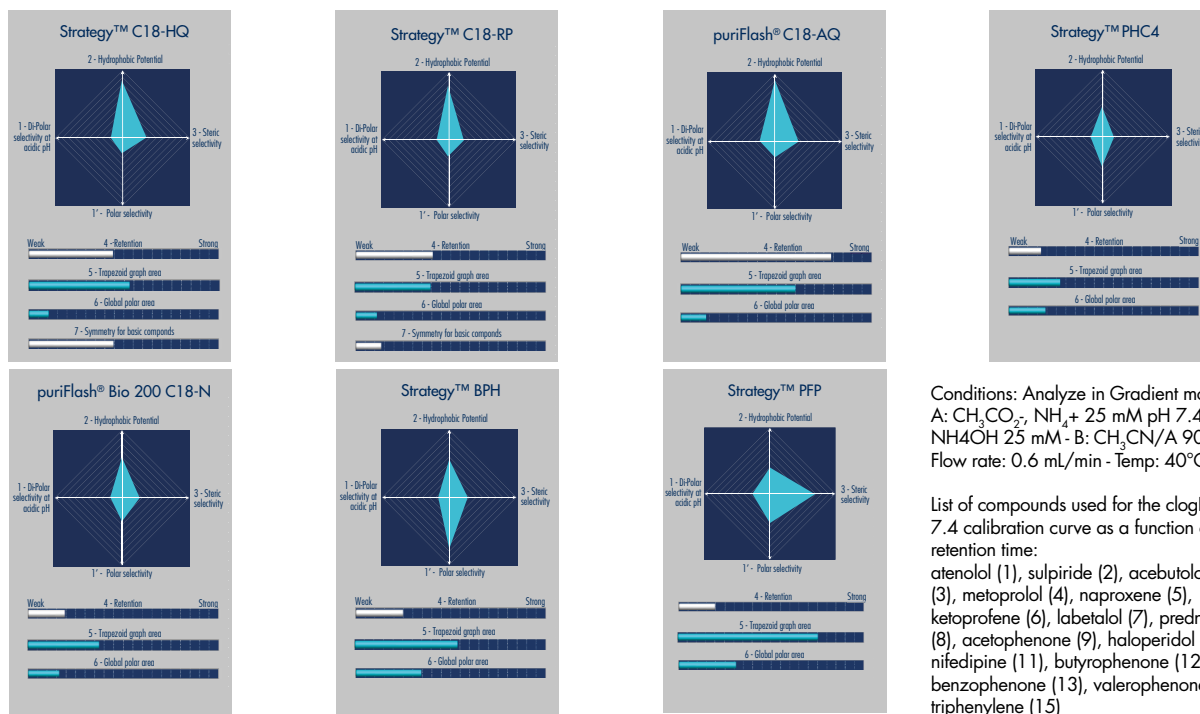
Comparative study of Advion Interchim Scientific stationary phases selectivity in pharma

Customer's goal:

- clogD pH 7.4 extrapolation of pharmaceutical compounds from chromatographic data.
- Screening of the behavior of 7 stationary phases

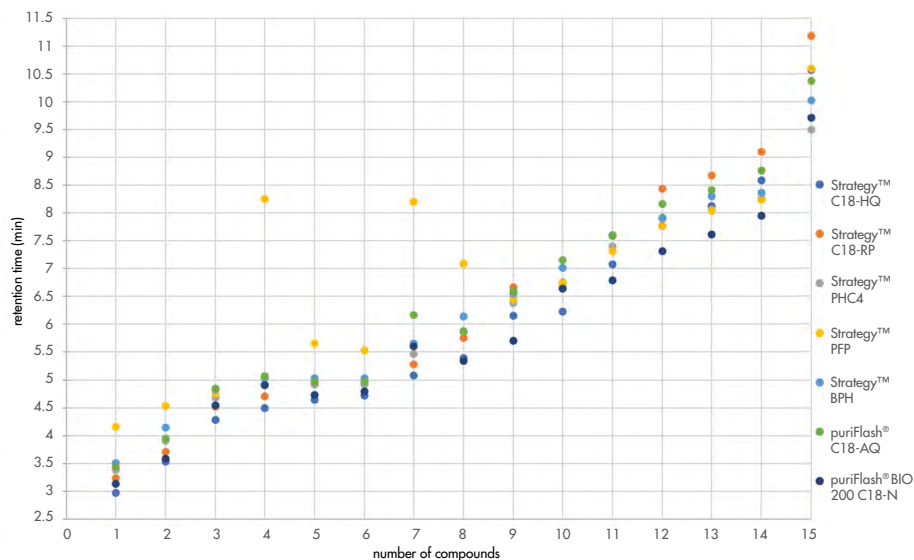
HPLC column size: 5µm 150x3.0mm

7 stationary phases tested:



Results:

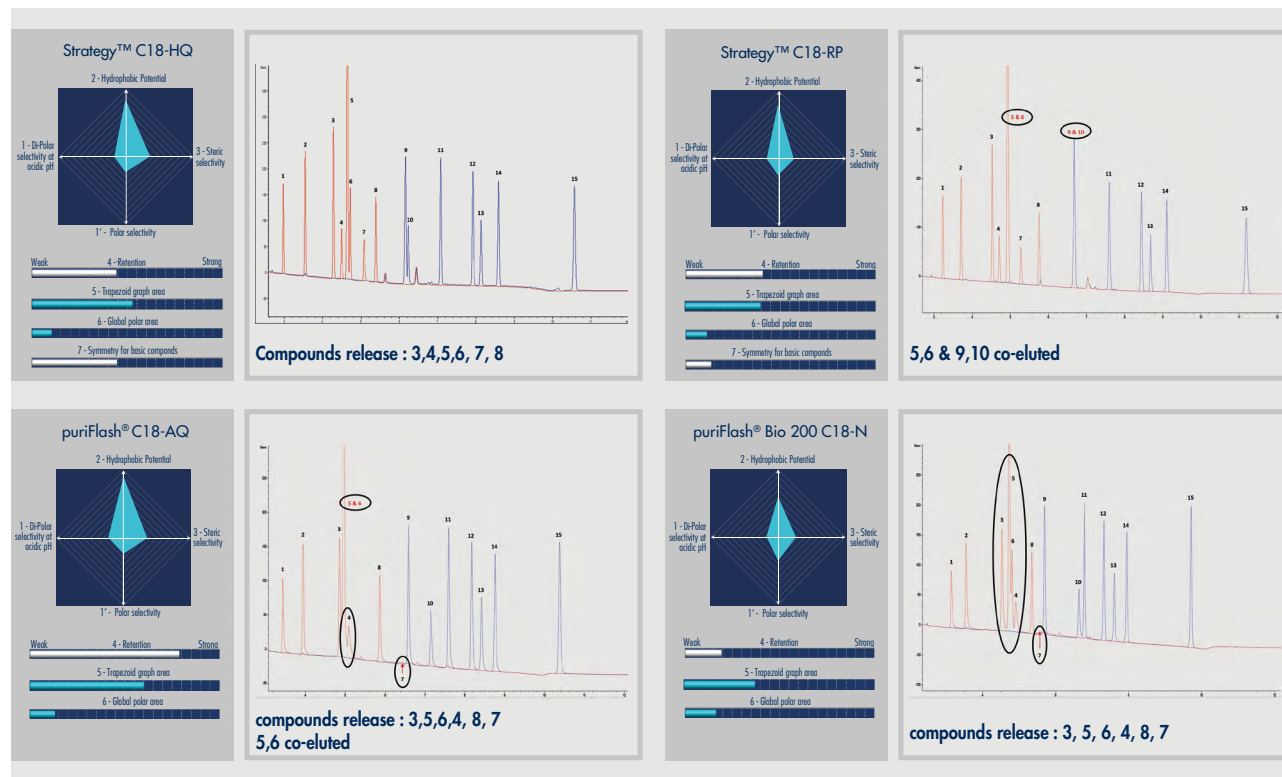
Difference in selectivity for each compound under the same analytical conditions





Our Advion Interchim Scientific stationary phases provide different selectivities for the HPLC method development. PHC4, BPH, PFP stationary phases provide orthogonal selectivities and confirm our model. The more different the trapezoid forms are, the more orthogonal in selectivity the stationary phases are & the more different the separation potential of the stationary phases are.

Comparative selectivity on 4 stationary phases bonded C18bonded



The C18-HQ, C18-RP, C18-AQ, C18-N stationary phases provide different selectivities. Our prediction model is confirmed: a small difference in the trapezoid forms induces a difference in selectivity. Nevertheless, these stationary phases, similar in appearance, show different separation potential.

Conclusion:

This example of application involving pharmaceutical compounds shows that these 7 phases can be used for the development of HPLC methods.

The visual representation of each stationary phase of our model finds stationary phases of different selectivities for the method development, for the optimization of an existing method, or for the improvement of the separation of a critical pair.

NB: Achieved with the cooperation of a pharmaceutical laboratory

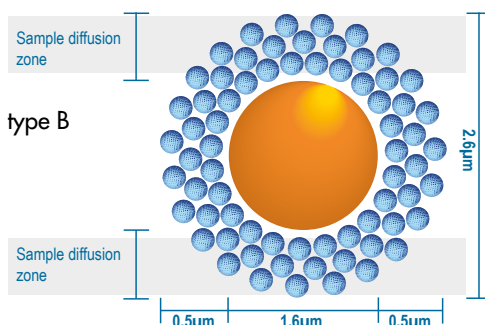


Advion Interchim Scientific Core Shell columns for small organic molecules

Uptisphere® CS Evolution™

Core Shell columns for fast & highly efficient identification & quantification of small molecules.

Ultra pure spherical silica, type B
Pore Size: 85Å
Surface Area: 130m²/g



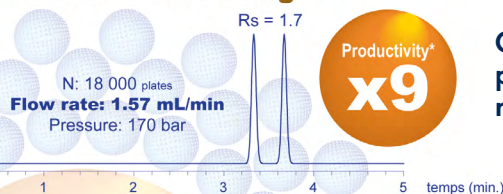
These particles are formed from a solid core of 1.6 μm diameter and, welded to their surface, a totally porous silica layer of 0,50μm thickness.

Advantages of Core Shell silicas

- Core-shell silicas allow faster mass transfer and, therefore, faster exchanges with the sample. The result, compared to fully porous silica, is a high performance, rapid and ultra-resolutive analysis for small molecules.
- As denser material, core-shells guarantee high efficiencies and highly reproducible columns.

Uptisphere® CS Evolution™ advantages

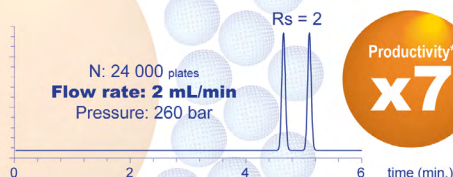

75 x 4.6 mm
2.6 μm



Productivity*
x9

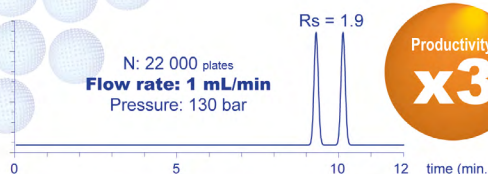
Core-Shell technology boosts productivity without compromising resolution.


100 x 4.6 mm
2.6 μm




Productivity*
x7

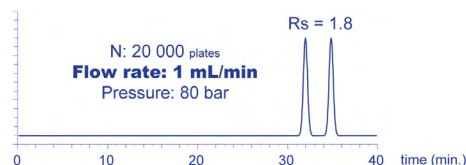

100 x 4.6 mm
2.6 μm



Productivity*
x3

Fully porous silica


250 x 4.6 mm
5 μm



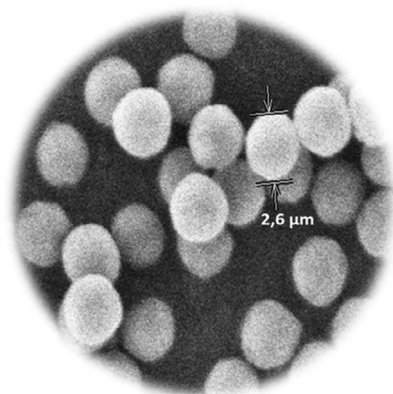
Advion Interchim Scientific Core Shell columns for small organic molecules



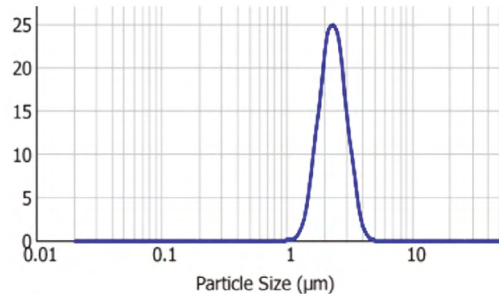
Quality controls of Uptisphere® CS Evolution™ silicas

Advion Interchim Scientific implements a set of modern characterization techniques to develop and control its Uptisphere® CS Evolution™ core shell phases

SCANNING ELECTRON MICROSCOPY (SEM)

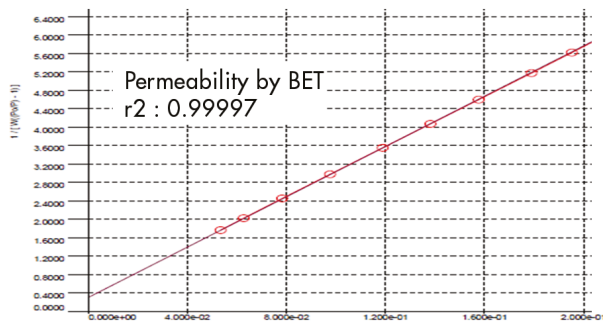


CORRELATION OF 3 DIFFERENT BATCHES

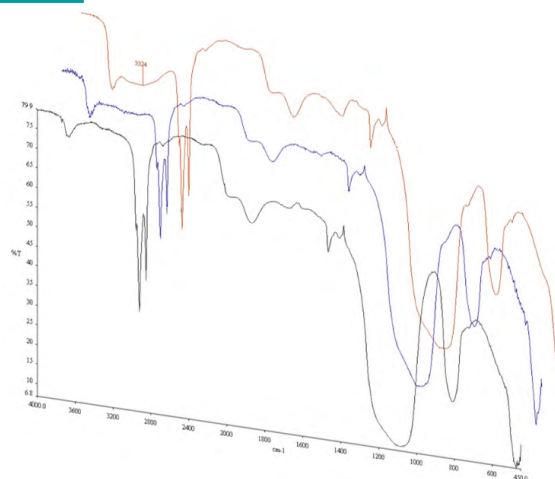


Very homogeneous distribution
Perfect batch-to-batch reproducibility

CONTROL OF THE SPECIFIC SURFACE BEFORE TREATMENTS, MODIFICATIONS & BONDING



INFRARED CONTROL OF THE SURFACE OF C18 BONDED SILICAS



Advion Interchim Scientific column packing performance vs. competitors

| | Uptisphere® CS Evolution™ | Column P | Column W-C | Column W-A | Column A |
|--------------------|---------------------------|------------|------------|---------------|---------------|
| Silica | Core Shell | Core Shell | Core Shell | 100 % poreuse | 100 % poreuse |
| Particle Size | 2.6 µm | 1.3 µm | 1.6 µm | 1.7 µm | 1.8 µm |
| h - (Reduced HETP) | 2.2 | 3.2 | 2.5 | 2.4 | 3.1 |

Tests performed in Hilic mode

Kinetic studies show that tests on Uptisphere® CS Evolution™ columns give lower h (reduced equivalent height) values than any other similar columns on the market. This confirms the excellent quality and performance of Advion Interchim Scientific packing.



Advion Interchim Scientific Core Shell columns for small organic molecules

"Maximum Operational Surface Technology" - "MOST"

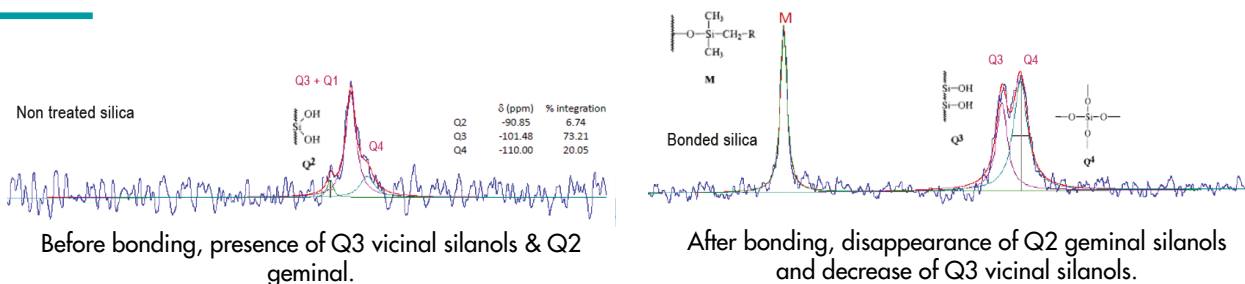
Silica is made up of different silanols as Q1 types (isolated), Q2 types (geminal), types Q3 (vicinal); Q4 types represent the siloxanes of the silica structure.

"MOST" (Maximum Operational Surface Technology) is an Advion Interchim Scientific innovative & proprietary technology, extremely differentiating from other Core-Shell silicas.

Prior to bonding, Core Shell Uptisphere® CS Evolution™ particles undergo a proprietary treatment, similar to a recondensation of the porous silica layer, which maximizes the operational surface density.

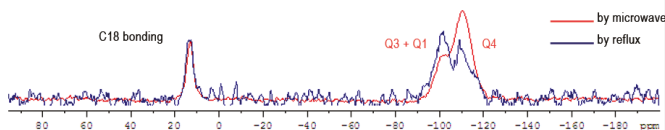
Study of the surface of the original silica before & after bonding in classical mode

COMPARISON BEFORE/AFTER GRAFTING OF A "MOST" PRETREATED SILICA



"MOST" Technology

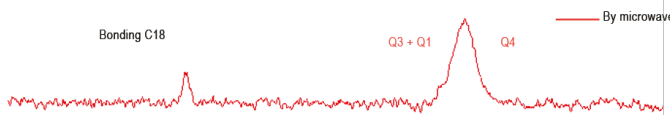
COMPARATIVE MICROWAVE SYNTHESIS VS REFLUX SYNTHESIS OF A C18 BONDING - "MOST" TYPE I



The ratio of Q3/Q4 silanols shows that a microwave C18 grafting synthesis is preferable compared to a reflux synthesis.

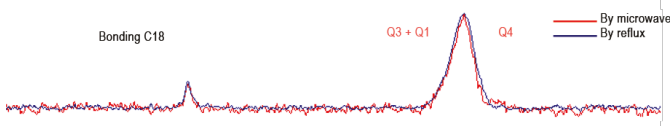
Influence of "MOST" treatments on a C18 bonded silica

Type I & C18 bonding



A "MOST" type I treatment eliminates a large part of the of the Q2 geminal silanols.

Type II & C18 bonding



A "MOST" type II treatment completely eliminates the Q2 geminal silanols & a large part of the Q3 vicinal. The surface is very hydrophobic.



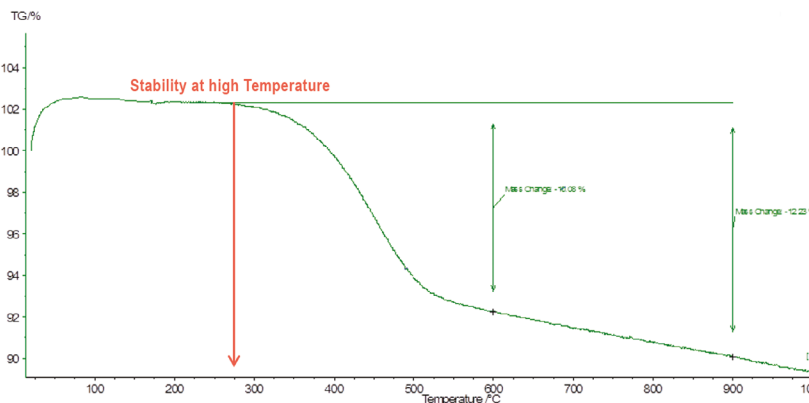
Elemental analysis & chromatographic impacts of "MOST" treatments

| Treatments | % C | Bonding rate (μmol/m ²) | Treatments | Amount of Alkyl chain | Hydrophobicity | Hydrogene bonding capacity | Ion exchange capacity at pH 2.7 | Ion exchange capacity at pH 7.6 | Steric recognition |
|--------------|------|-------------------------------------|--------------|-----------------------|----------------|----------------------------|---------------------------------|---------------------------------|--------------------|
| standard | 9.54 | 3.60 | standard | 5.24 | 1.51 | 0.43 | 0.06 | 0.30 | 1.50 |
| MOST type I | 9.06 | 3.39 | MOST type I | 4.53 | 1.53 | 0.37 | 0.05 | 0.30 | 1.74 |
| MOST type II | 7.68 | 2.82 | MOST type II | 5.34 | 1.51 | 0.52 | 0.05 | 0.68 | 1.55 |

The "MOST" Type II treatment has overall high hydrophobicity, although, the amount of bonded silanols is lower. Chromatographic tests confirm that the quality of the original silica surface has a major impact on the chromatographic exchanges. Our "MOST" technology allows the selection of a particular surface condition that brings into play the desired interactions for a given stationary phase.

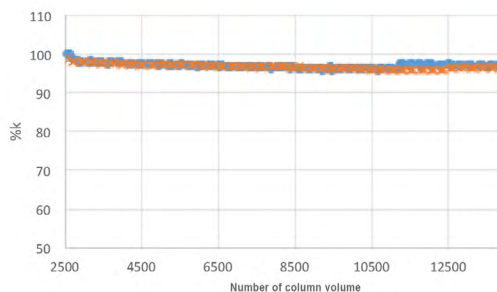
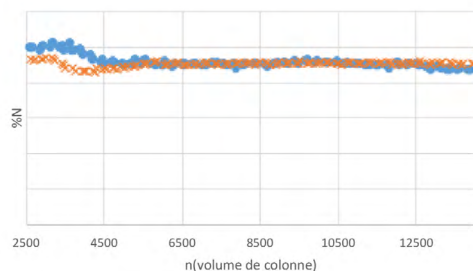
THERMOGRAVIMETRIC STUDY AFTER "MOST" TREATMENTS

Thermogravimetric analysis shows that Uptisphere® CS Evolution™ stationary phases, MOST treated & grafted, are stable for high temperature analysis



EXCELLENT STABILITY AFTER "MOST" TREATMENTS IN DIFFICULT CONDITIONS

Temperature: 70°C - Flow rate greater than 3 times the optimum flow rate



Efficiency and retention after 15,000 column volumes

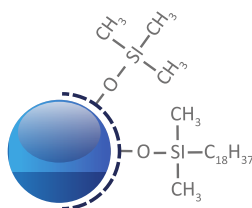
50 x 2.1 mm columns packed with "MOST" type 1 treatment (blue) and "MOST" type 2 treatment (orange)
Compound: Cytosine - Mobile phase: 95/5 - ACN / 20 mM ammonium acetate pH 6 - Temp: 70°C - Flow rate: 1 mL/min - UV: 254 nm

MOST™ technology benefits

- The "MOST" treatments developed by Advion Interchim Scientific allow a precise control of the silica surface state, especially about the hydrophobicity / hydrophilicity balance by increasing the exchange density, which results in unique selectivities for the C18-HB, C18 and HILIC products.
- Stability of the bonded phases at high temperature.



Advion Interchim Scientific Core Shell columns for small organic molecules



Uptisphere® CS Evolution™ C18-HB

C18 - Octadecyl

USP code: L1

Particle size: 2.6 µm

Ø pores: 85 Å

Surface area: 130 m²/g

Pre-treatment: MOST

Functionalization: Mono-functional

% Carbon: 8 %

End-Capping : One-step

PH Stability: 1.5 - 8

Mode: Reverse

Usable at high temperature

Maximum pressure: 600 bar

Uptisphere® CS Evolution™ C18-HB

Suitable for non polar compounds separation.

Exhibits a very hydrophobic surface. C18-HB phase shows excellent stability under high temperature.

| Dimensions | Uptisphere® CS Evolution™ C18-HB |
|--------------|----------------------------------|
| 25 x 2.1 mm | UE2.6HB-025/021 |
| 50 x 2.1 mm | UE2.6HB-050/021 |
| 75 x 2.1 mm | UE2.6HB-075/021 |
| 100 x 2.1 mm | UE2.6HB-100/021 |
| 125 x 2.1 mm | UE2.6HB-125/021 |
| 150 x 2.1 mm | UE2.6HB-150/021 |
| 25 x 3.0 mm | UE2.6HB-025/030 |
| 50 x 3.0 mm | UE2.6HB-050/030 |
| 75 x 3.0 mm | UE2.6HB-075/030 |
| 100 x 3.0 mm | UE2.6HB-100/030 |
| 125 x 3.0 mm | UE2.6HB-125/030 |
| 150 x 3.0 mm | UE2.6HB-150/030 |
| 25 x 4.6 mm | UE2.6HB-025/046 |
| 50 x 4.6 mm | UE2.6HB-050/046 |
| 75 x 4.6 mm | UE2.6HB-075/046 |
| 100 x 4.6 mm | UE2.6HB-100/046 |
| 125 x 4.6 mm | UE2.6HB-125/046 |
| 150 x 4.6 mm | UE2.6HB-150/046 |

Field of application

| | |
|---------|---|
| UHPLC | ● |
| HPLC | ● |
| Prep-LC | ○ |
| Flash | ○ |

RELATED PRODUCTS

Columns Protection

Find our Guard Cartridges & Holder on page G.66

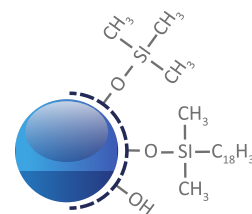


Advion Interchim Scientific Core Shell columns for small organic molecules



Uptisphere® CS Evolution™ C18

Serves a broad-spectrum of analytical & prep LC requirements for separating non polar compounds.



| Dimensions | Uptisphere® CS Evolution™ C18 |
|--------------|-------------------------------|
| 25 x 2.1 mm | UE2.6C18-025/021 |
| 50 x 2.1 mm | UE2.6C18-050/021 |
| 75 x 2.1 mm | UE2.6C18-075/021 |
| 100 x 2.1 mm | UE2.6C18-100/021 |
| 125 x 2.1 mm | UE2.6C18-125/021 |
| 150 x 2.1 mm | UE2.6C18-150/021 |
| 25 x 3.0 mm | UE2.6C18-025/030 |
| 50 x 3.0 mm | UE2.6C18-050/030 |
| 75 x 3.0 mm | UE2.6C18-075/030 |
| 100 x 3.0 mm | UE2.6C18-100/030 |
| 125 x 3.0 mm | UE2.6C18-125/030 |
| 150 x 3.0 mm | UE2.6C18-150/030 |
| 25 x 4.6 mm | UE2.6C18-025/046 |
| 50 x 4.6 mm | UE2.6C18-050/046 |
| 75 x 4.6 mm | UE2.6C18-075/046 |
| 100 x 4.6 mm | UE2.6C18-100/046 |
| 125 x 4.6 mm | UE2.6C18-125/046 |
| 150 x 4.6 mm | UE2.6C18-150/046 |

Uptisphere® CS Evolution™ C18

C18 - Octadecyl

USP code : L1

Particle size: 2.6 µm

Pores size: 85 Å

Surface area: 130 m²/g

Pre-treatment: MOST

Functionalization: Mono-functional

% Carbon: 9 %

End-Capping: One-step

ph Stability: 1.5 - 7.5

Mode: Reverse

Maximum pressure: 600 bar

Field of application

| | |
|---------|---|
| UHPLC | ● |
| HPLC | ● |
| Prep-LC | ○ |
| Flash | ○ |

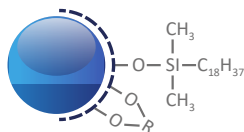
RELATED PRODUCTS

Columns Protection

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& Holder on page G.66



Advion Interchim Scientific Core Shell columns for small organic molecules



Uptisphere® CS Evolution™ C18-RP
 C18 - Octadecyl
 USP Code: L1
 Particle size: 2.6 µm
 Pore size: 85 Å
 Surface area: 130 m²/g
 Pre-treatment: MOST
 Functionalization: Mono-functional
 % Carbon: 6 %
 End-capping : Mixte
 pH Stability: 1.5 - 8
 Mode: Reverse
 Maximum Pressure: 600 bar

Uptisphere® CS Evolution™ C18-RP

Suitable for mid & non polar compounds separation. C18-RP shows excellent mechanical stability that makes it an excellent tool for analysis under acidic or basic conditions.

| Dimensions | Uptisphere® CS Evolution™ C18-RP |
|--------------|----------------------------------|
| 25 x 2.1 mm | UE2.6RP-025/021 |
| 50 x 2.1 mm | UE2.6RP-050/021 |
| 75 x 2.1 mm | UE2.6RP-075/021 |
| 100 x 2.1 mm | UE2.6RP-100/021 |
| 125 x 2.1 mm | UE2.6RP-125/021 |
| 150 x 2.1 mm | UE2.6RP-150/021 |
| 25 x 3.0 mm | UE2.6RP-025/030 |
| 50 x 3.0 mm | UE2.6RP-050/030 |
| 75 x 3.0 mm | UE2.6RP-075/030 |
| 100 x 3.0 mm | UE2.6RP-100/030 |
| 125 x 3.0 mm | UE2.6RP-125/030 |
| 150 x 3.0 mm | UE2.6RP-150/030 |
| 25 x 4.6 mm | UE2.6RP-025/046 |
| 50 x 4.6 mm | UE2.6RP-050/046 |
| 75 x 4.6 mm | UE2.6RP-075/046 |
| 100 x 4.6 mm | UE2.6RP-100/046 |
| 125 x 4.6 mm | UE2.6RP-125/046 |
| 150 x 4.6 mm | UE2.6RP-150/046 |

Field of application

UHPLC
 HPLC
 Prep-LC
 Flash

RELATED PRODUCTS

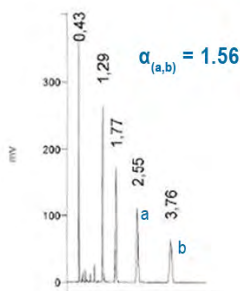
Columns Protection
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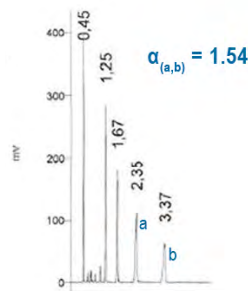


Uptisphere® CS Evolution™ C18-RP vs. competitor columns

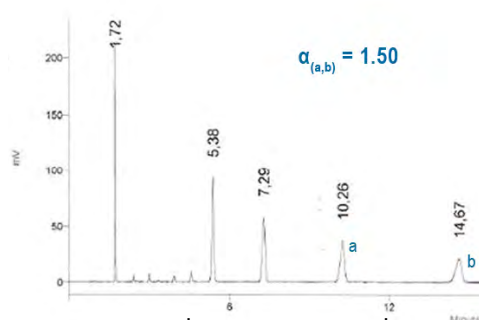
SIMILAR SELECTIVITY FOR HYDROPHOBIC COMPOUNDS



Core Shell competitor column
2.7 µm C18 50 x 4.6 mm



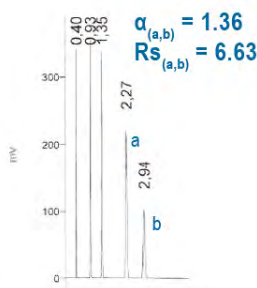
Uptisphere® CS Evolution™ column
2.6 µm C18-RP - 50 x 4.6 mm



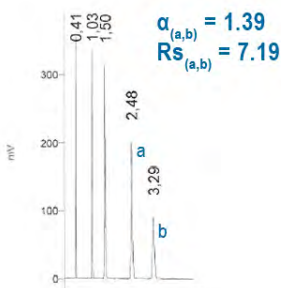
Uptisphere® Strategy™ column
3 µm C18-RP - 150 x 4.6 mm

Compounds : 1) Uracile, 2) Ethylbenzene, 3) n-propylbenzene, 4) n-butylbenzene, 5) n-pentylbenzene
Mobile Phase : MeOH:H₂O ; Flow rate : 1 ml/min, UV 254nm

BETTER POLAR SELECTIVITY & BETTER RESOLUTION



Core Shell competitor column
2.7 µm C18 50 x 4.6 mm

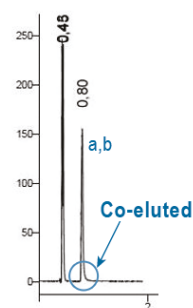


Uptisphere® CS Evolution™ column
2.6 µm C18-RP - 50 x 4.6 mm

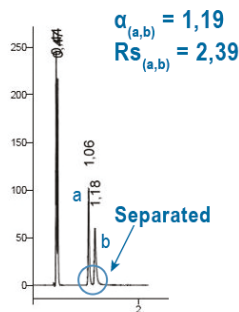
Compounds:
1) Uracile,
2) benzoic acid,
3) 4-methylbenzoic acid,
4) p-ethylbenzoic acid,
5) methyl benzoate

Mobile Phase: ACN:H₂O buffer pH 2.8
Flow rate: 1mL/min, UV 254 nm

GOOD RESOLUTION & SYMMETRIC PEAK FOR BASIC COMPOUNDS



Core Shell competitor column
2.7 µm C18 50 x 4.6 mm



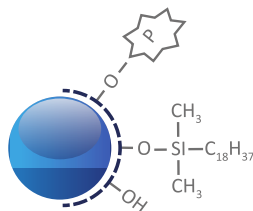
Uptisphere® CS Evolution™ column
2.6 µm C18-RP - 50 x 4.6 mm

Compounds:
1) Uracile,
2) p-hydroxybenzoic acid,
3) pyridine,
4) dimethylpyridine

Mobile Phase: ACN:H₂O acetate buffer
pH 5.7
Flow rate: 1mL/min, UV 254nm



Advion Interchim Scientific Core Shell columns for small organic molecules



Uptisphere® CS Evolution™ C18-AQ
 C18 - Octadecyl
 USP code: L1
 Particle size: 2.6µm
 Pore size: 85 Å
 Surface area: 130 m²/g
 Pre-treatment: MOST
 Functionalization: Mono-functional
 % Carbon: 6.5 %
 End-Capping: Mixte
 pH Stability: 1.5 - 7
 Mode: Inverse
 Maximum pressure: 600 bar

Uptisphere® CS Evolution™ C18-AQ

Suitable for mid & non polar compound separation.

Shows excellent stability under 100% aqueous mobile phase condition.

| Dimensions | Uptisphere® CS Evolution™ C18-AQ |
|--------------|----------------------------------|
| 25 x 2.1 mm | UE2.6AQ-025/021 |
| 50 x 2.1 mm | UE2.6AQ-050/021 |
| 75 x 2.1 mm | UE2.6AQ-075/021 |
| 100 x 2.1 mm | UE2.6AQ-100/021 |
| 125 x 2.1 mm | UE2.6AQ-125/021 |
| 150 x 2.1 mm | UE2.6AQ-150/021 |
| 25 x 3.0 mm | UE2.6AQ-025/030 |
| 50 x 3.0 mm | UE2.6AQ-050/030 |
| 75 x 3.0 mm | UE2.6AQ-075/030 |
| 100 x 3.0 mm | UE2.6AQ-100/030 |
| 125 x 3.0 mm | UE2.6AQ-125/030 |
| 150 x 3.0 mm | UE2.6AQ-150/030 |
| 25 x 4.6 mm | UE2.6AQ-025/046 |
| 50 x 4.6 mm | UE2.6AQ-050/046 |
| 75 x 4.6 mm | UE2.6AQ-075/046 |
| 100 x 4.6 mm | UE2.6AQ-100/046 |
| 125 x 4.6 mm | UE2.6AQ-125/046 |
| 150 x 4.6 mm | UE2.6AQ-150/046 |

Field of application

UHPLC ●
 HPLC ●
 Prep-LC ○
 Flash ○

RELATED PRODUCTS

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Advion Interchim Scientific Core Shell columns for small organic molecules

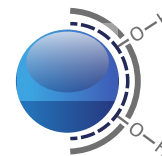


Uptisphere® CS Evolution™ Hilic-HIT

Aqueous normal phase separation (ANP) of water-soluble compounds.

Typical mobile phase: water / ACN (> 70%).

ANP is an excellent alternative to RP purification for highly polar compounds.



| Dimensions | Uptisphere CS Evolution Hilic-HIT |
|--------------|-----------------------------------|
| 25 x 2.1 mm | UE2.6HIT-025/021 |
| 50 x 2.1 mm | UE2.6HIT-050/021 |
| 75 x 2.1 mm | UE2.6HIT-075/021 |
| 100 x 2.1 mm | UE2.6HIT-100/021 |
| 125 x 2.1 mm | UE2.6HIT-125/021 |
| 150 x 2.1 mm | UE2.6HIT-150/021 |
| 25 x 3.0 mm | UE2.6HIT-025/030 |
| 50 x 3.0 mm | UE2.6HIT-050/030 |
| 75 x 3.0 mm | UE2.6HIT-075/030 |
| 100 x 3.0 mm | UE2.6HIT-100/030 |
| 125 x 3.0 mm | UE2.6HIT-125/030 |
| 150 x 3.0 mm | UE2.6HIT-150/030 |
| 25 x 4.6 mm | UE2.6HIT-025/046 |
| 50 x 4.6 mm | UE2.6HIT-050/046 |
| 75 x 4.6 mm | UE2.6HIT-075/046 |
| 100 x 4.6 mm | UE2.6HIT-100/046 |
| 125 x 4.6 mm | UE2.6HIT-125/046 |
| 150 x 4.6 mm | UE2.6HIT-150/046 |

Uptisphere® CS Evolution™ Hilic-HIT

Hilic-HIT

USP Code: L3

Particle size: 2.6 µm

Pore size: 85 Å

Surface area: 130 m²/g

Pre-treatment: MOST

Functionalization: Proprietary

% Carbon: n.a.

End-Capping: Proprietary

pH Stability: 1.5 - 7

Mode: Hilic

Maximum Pressure: 600 bar

Field of application

- UHPLC
- HPLC
- Prep-LC
- Flash

RELATED PRODUCTS

Columns Protection

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& Holder on page G.66

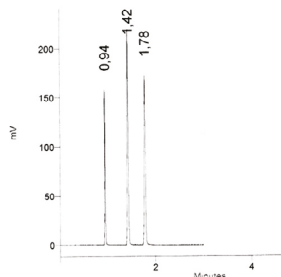


Advion Interchim Scientific Core Shell columns for small organic molecules

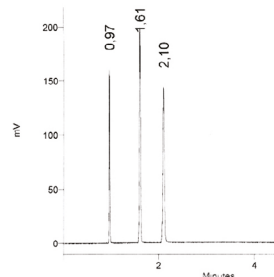
SELECTIVITY, EFFICIENCY, RESOLUTION

| # | Peak Name | Rt. | Tailing | Plates (USP) | Resolution (USP) | # | Peak Name | Rt. | Tailing | Plates (USP) | Resolution (USP) |
|---|-----------------------|------|---------|--------------|------------------|---|-----------------------|------|---------|--------------|------------------|
| 1 | Tri-tert-butylbenzene | 0.94 | 1.19 | 21285.62 | 0.00 | 1 | Tri-tert-butylbenzene | 0.97 | 1.03 | 22714.51 | 0.00 |
| 2 | Diethylphthalate | 1.43 | 1.02 | 21584.83 | 14.96 | 2 | Diethylphthalate | 1.61 | 1.05 | 22918.27 | 18.75 |
| 3 | Dimethylphthalate | 1.78 | 1.02 | 20426.69 | 8.01 | 3 | Dimethylphthalate | 2.10 | 1.13 | 20861.99 | 9.79 |

SUM CS competitor 2.7µm Hilic - 50 x 4.6mm

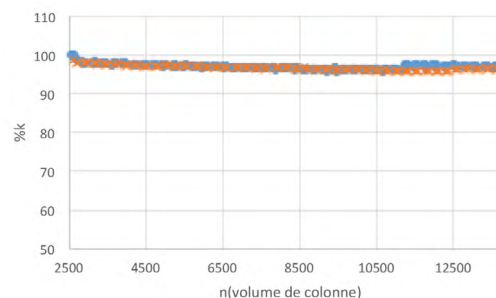
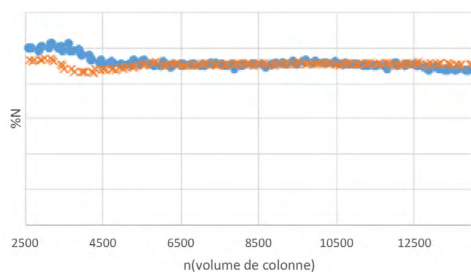


SUM Uptisphere CS Evolution 2.6µm HIT - 50 x 4.6mm



SYMMETRY FOR BASIC COMPOUNDS

Temperature 70°C - Flow rate greater than 3 times the optimum flow rate



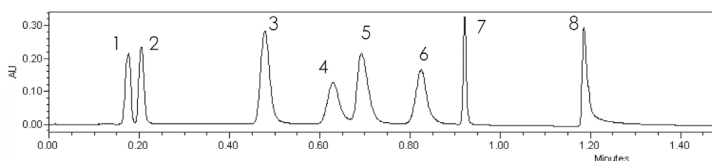
Efficiency and retention after 15.000 column volumes

Column 50 x 2.1 mm columns packed with "MOST" type 1 treatment (blue) and "MOST" type 2 treatment (orange)

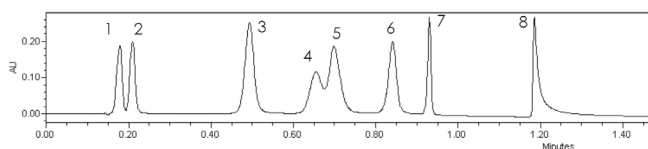
Compound: Cytosine - Mobile phase: 95/5 - ACN / 20 mM ammonium acetate pH 6 - Temp: 70°C - Flow rate: 1 mL/min - UV: 254 nm

NUCLEOBASES APPLICATIONS, NUCLEOSIDES & NUCLEOTIDES APPLICATIONS

| | pKa _{acid} | pKa _{basic} | logP |
|-------------------------|---------------------|----------------------|-------|
| Uracil | 9.80-13.80 | - | -0.86 |
| Uridine | 9.70-12.60 | - | -2.42 |
| Adenine | 9.90 | 5.20 | -0.53 |
| Adenosine | 12.45 | 4.99 | -2.09 |
| Adenosine monophosphate | - | - | -5.19 |
| Cytosine | 9.98 | 2.35 | -1.24 |
| Cytidine | 12.80-13.60 | - | -2.80 |
| Guanosine | 10.20 | 1.8 | -2.71 |

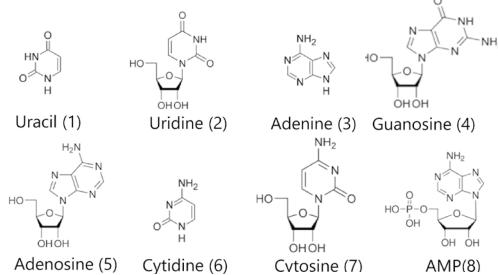


Uptisphere® CS Evolution™ 2.6 µm HIT 50 x 2.1 mm column



Competitor's column

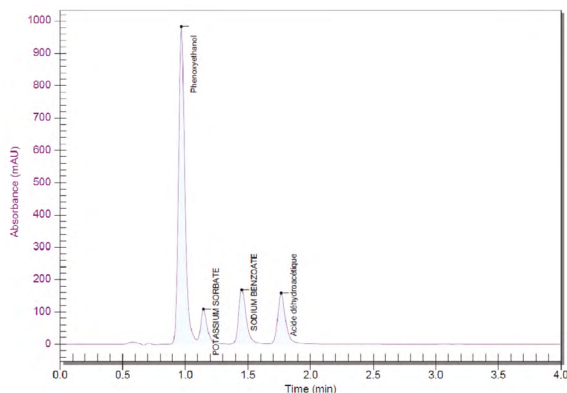
Gradient: ACN / 20mM ammonium formate pH 3 - Flow rate: 1 mL/min, Temp: 30°C, UV 254 nm



Advion Interchim Scientific Core Shell columns for small organic molecules

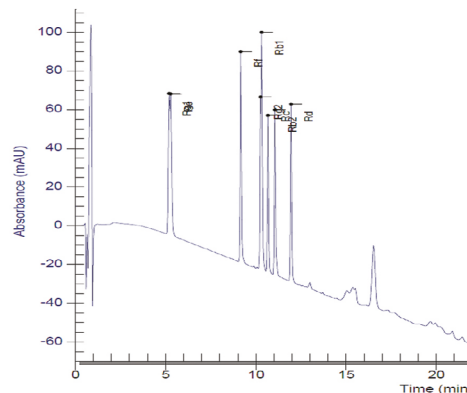


CONSERVATIVES IN REMOVING LOTIONS



Uptisphere® CS Evolution™ 2.6 µm C18-RP 100 x 3.0 mm column
 Sample: Phenoxyethanol, Potassium sorbate, Sodium Benzoate, Dehydroacetic acid
 Mobile phase: Sodium acetate buffer / ACN
 Flow rate: 0.7 mL/min, Temp.: 40°C, UV 230 nm

SEPARATION OF 8 GINSENOSES

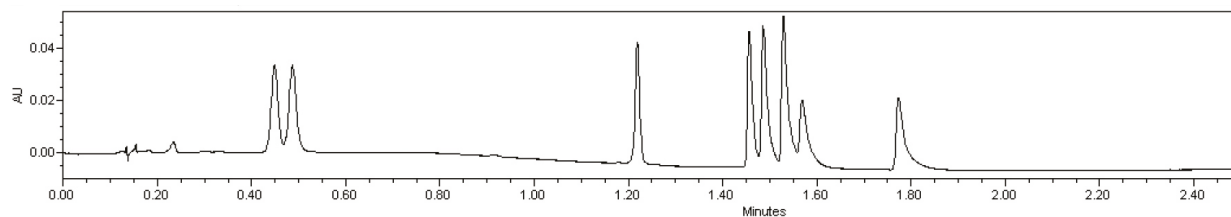
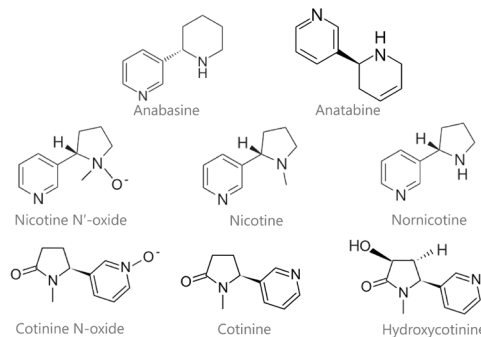


Uptisphere® CS Evolution™ 2.6 µm C18-RP 100 x 3.0 mm column
 Sample: 8 ginsenosides
 Mobile phase: gradient H₂O / ACN
 Flow rate: 0.6 mL/min, Temp.: 40°C, UV 203 nm

Applications carried out by Mr. Cedric Reyes, R&D Shadeline dermo cosmetics, drugstore laboratory

ULTRA FAST ANALYSIS OF DERIVATIVES NICOTINE IN HILIC MODE

| | pKa _{acid} | pKa _{basic} | logP |
|-----------------|---------------------|----------------------|-------|
| Nicotine | - | 2.70-8.86 | 1.16 |
| Nornicotine | - | 3.10-10.21 | 0.78 |
| Cotinine | - | 4.79 | 0.21 |
| Cotinine oxide | - | 0.80 | -1.05 |
| Nicotine oxide | - | 0.41-8.12 | -0.85 |
| Anabasine | - | 3.13-9.29 | 1.22 |
| Anatabine | - | 3.12-8.81 | 1.02 |
| Hydroxycotinine | 13.11 | 4.79 | -0.73 |



Uptisphere® CS Evolution™ 2.6 µm HIT 50 x 2.1 mm column
 Gradient: ACN / 20mM ammonium formate buffer pH 3, Flow rate: 1 mL/min, Temp: 30°C, UV 254 nm
 Elution order of sample : hydroxycotinine, cotinine, cotinine oxide, anatabine, anabasine, nornicotine, nicotine, nicotine oxide

Carried out by the University of Normandy, Laboratory of Science and Separative Methods, IRCOF, Mont Saint-Aignan, France



Advion Interchim Scientific columns for small organic molecules

Uptisphere® Strategy™ C18-HQ

This stationary phase has a special place within the Uptisphere® family. It is indeed the only phase on the market available from 1.7 μm to 15 μm showing exactly the same bonding chemistry. A single phase, to cover all analytical and preparative needs.

Its chemistry gives it high pH stability - from 1 to 10 - and temperature stability up to 100°C.

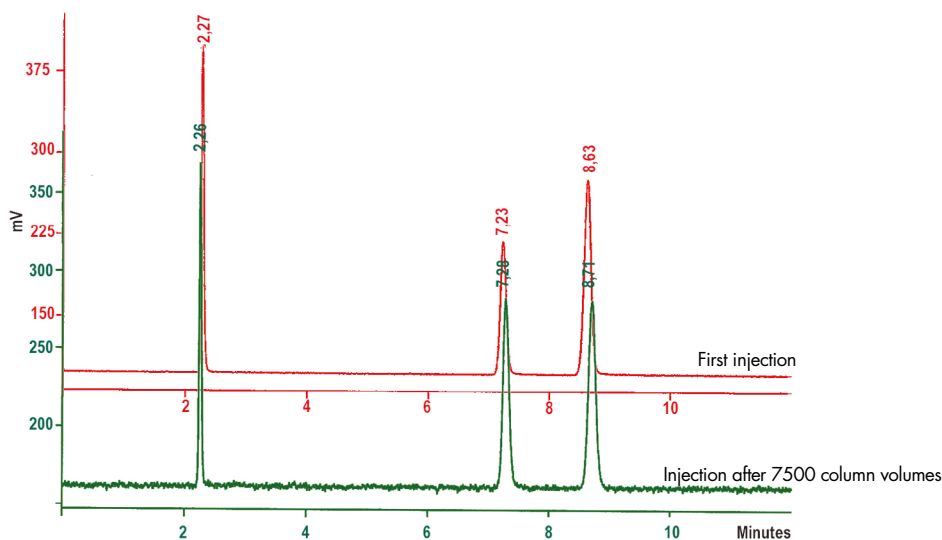
It is extremely efficient and productive, reaching efficiencies of ~ 200,000 plates/m for 2.2 μm .

Its loading capacity is almost 4 times higher than Uptisphere® C18-ODB, so it can be used naturally as a preparative column and as a flash chromatography column, perfectly meeting the requirements of Ultra Performance Flash Purification.

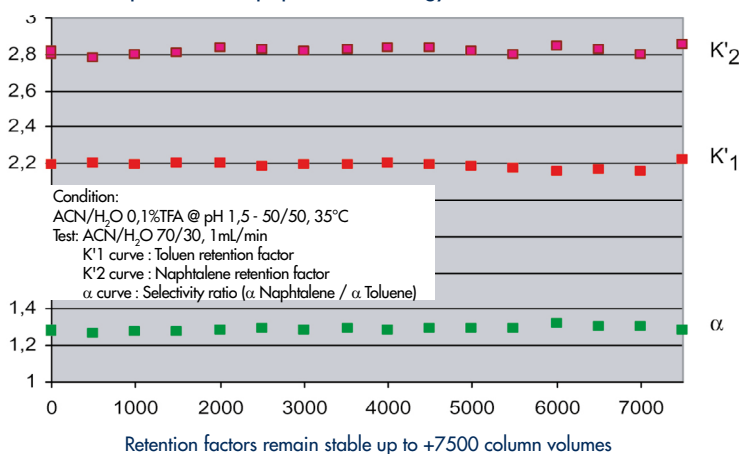
Stability

1. Stability under acidic conditions

Uptisphere® Strategy™ C18-HQ 5 μm 250 x 4.6 mm column



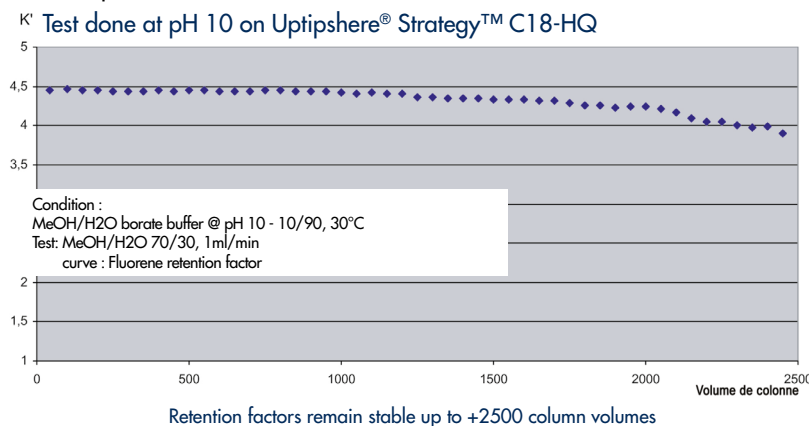
Test done at pH 1,5 on Uptisphere® Strategy™ C18-HQ





2. Stability under basic conditions

Uptisphere® Strategy™ C18-HQ 5 µm 250 x4.6 mm column.



3. Stability in Temperature

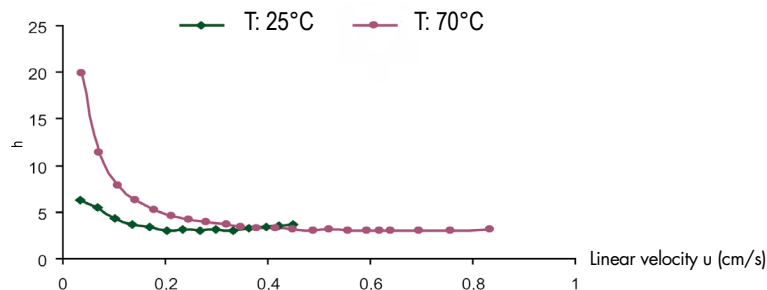
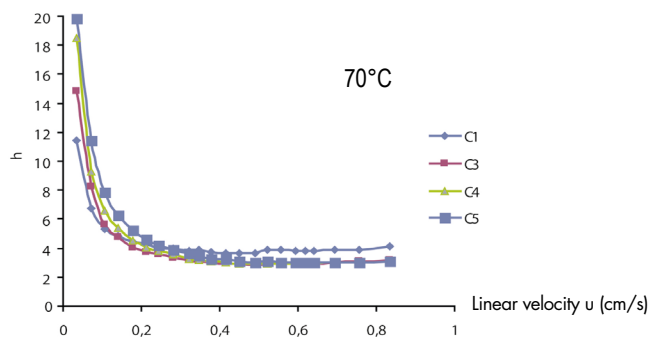
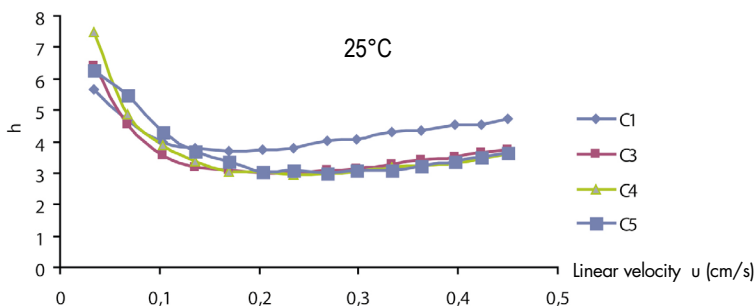
The mobile phase is a mixture of MeOH/water. 0.3 µL of sample comprising alkyl benzenes (C1, C3, C4, and C5) is injected. The most retained alkyl benzene (C5) is used for the temperature comparison.

Comparison of h as a function of linear velocity at 25°C and 70°C

With a low linear velocity, h is better at 25°C. With an increase of the linear velocity, the curves 25°C and 70°C cross and h is better at 70°C.

A higher temperature allows to work at higher flow rates and therefore to reduce the analysis time. The smaller the value of h is, the higher the efficiency of the chromatographic system is.

Strategy C18-HQ is stable up to more than 100°C.

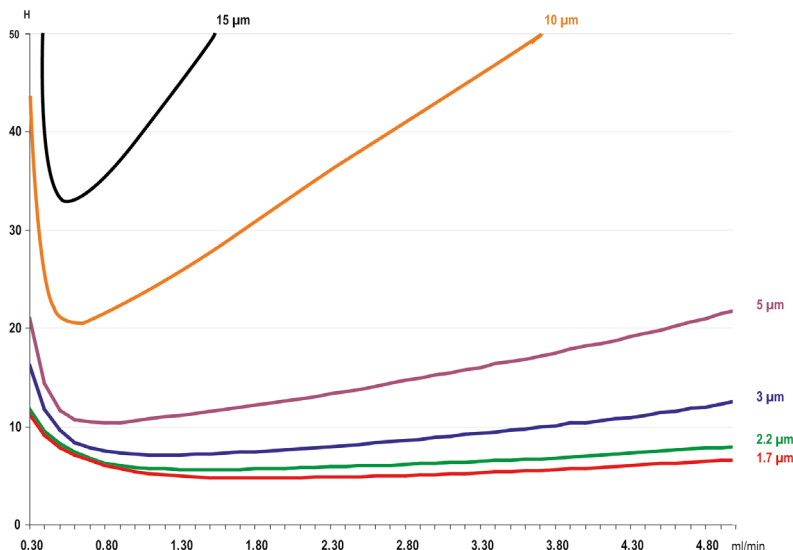


Advion Interchim Scientific columns for small organic molecules

Performance & Productivity

1. Typical values of separation optima

$$H_{(\text{Height equivalent to a theoretical plate})} = \frac{L}{N} = \frac{\text{Column length}}{\text{Theoretical plate number}}$$



The data obtained results from the use of a 4.6mm diameter column and depends on the dead volume of the chromatographic system, the hardware of the column, the injector, the temperature and retention factors of the analytes.

2. H : Height equivalent to a theoretical plate

| | Efficiente p/m | Optimum flow rate mL/min | H | h |
|--------|-------------------|-----------------------------|-------|------|
| 1,7 μm | 216 500 | 1.8 | 4.61 | 2.71 |
| 2,2 μm | 186 700 | 1.4 | 5.35 | 2.43 |
| 3 μm | 141 000 | 1.2 | 7.09 | 2.36 |
| 5 μm | 96 200 | 0.8 | 10.4 | 2.08 |
| 10 μm | 49 000 | 0.6 | 20.41 | 2.04 |
| 15 μm | 30 100 | 0.5 | 33.22 | 2.21 |

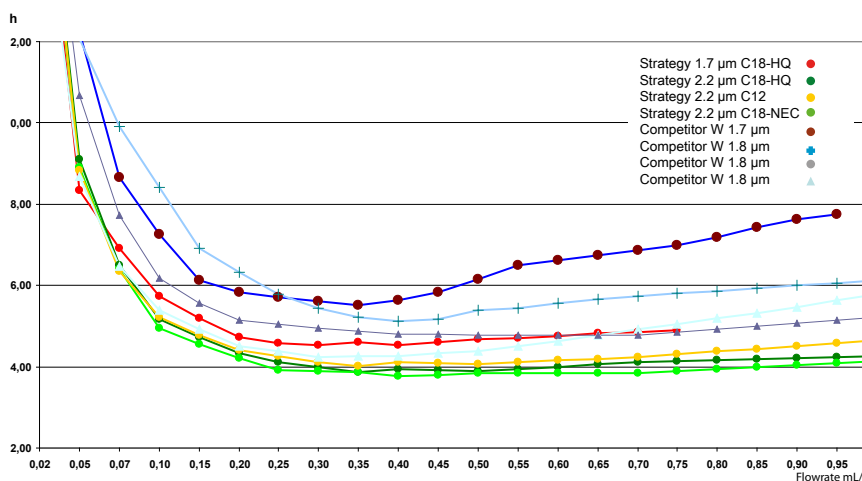
$$h_{(\text{reduced plate height})} = \frac{H}{d_p} = \frac{\text{Height equivalent to a theoretical plate}}{\text{Particle diameter}}$$

He is used to measure the performance of a chromatographic system as well as the quality of column packing.

For (U)HPLC analysis, the theoretical values of h for a given column are between 2 and 3.

The Advion Interchim Scientific packing technologies combined with the physical characteristics of the Uptisphere® Strategy™ stationary phase guarantee perfectly packed, efficient and durable columns.

Thanks to their high efficiency, the Uptisphere® Strategy™ 1.7 μm & 2.2 μm C18-HQ columns push the limits of ultra-fast analysis while providing lower back pressure due to their permeability.



$$h = H/d_p = \text{reduced plate height}$$



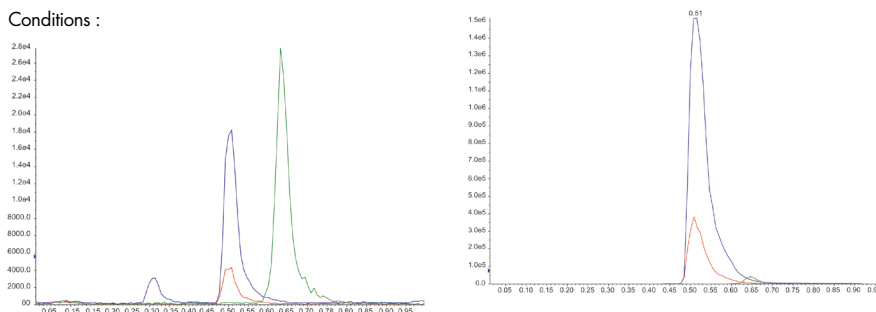
3. Application

Characterization of Furosemide in rat plasma & bronchoalveolar washing Uptisphere® Strategy™ 1.7 µm C18-HQ, 50 x 2.1 mm

Agilent 1200 RRLC + Qtrap 4 000
Solvent A: 0,1 % CH₃COOH
Solvent B: ACN + 0,1 % CH₃COOH
Isocratic (50/50)
Flow rate: 600 µL/min @ 500 bar (7 000 psi)
LD: 2.14 µg/L
Injection: 10 µL
MS: 329 a 285

Run time: 1.0 min

Conditions :



Analytical transposition: 5 µm up to 1.7 µm - with resolution preservation

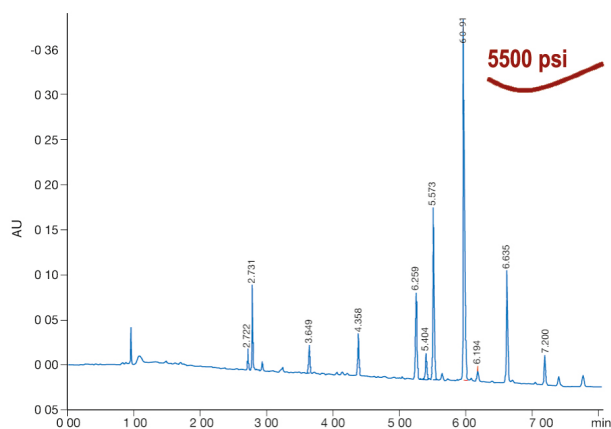
| Particle size | Dimension | N/col. | Flow rate | Time | Resolution |
|---------------|--------------|--------|------------|----------|------------|
| 5 µm | 250 x 4.6 mm | 20 000 | 1.0 mL/min | 20 min | 2.00 |
| 3 µm | 150 x 4.6 mm | 18 500 | 1.0 mL/min | 12.6 min | 1.90 |
| 2.2 µm | 100 x 4.6 mm | 15 500 | 1.0 mL/min | 8 min | 1.75 |
| 2.2 µm | 100 x 4.6 mm | 16 500 | 2.0 mL/min | 4 min | 1.80 |
| 1.7 µm | 100 x 4.6 mm | 18 500 | 1.0 mL/min | 8 min | 1.90 |
| 1.7 µm | 100 x 4.6 mm | 20 000 | 2.5 mL/min | 3.2 min | 1.97 |
| 1.7 µm | 50 x 4.6 mm | 9 250 | 1.0 mL/min | 4 min | 1.35 |
| 1.7 µm | 50 x 4.6 mm | 10 000 | 2,5 mL/min | 1.6 min | 1.40 |

Tests condition: separation of two compounds with a resolution of 2.0 on a 5 µm, 250 x 4.6 mm column at a flow rate of 1.0 mL/min.

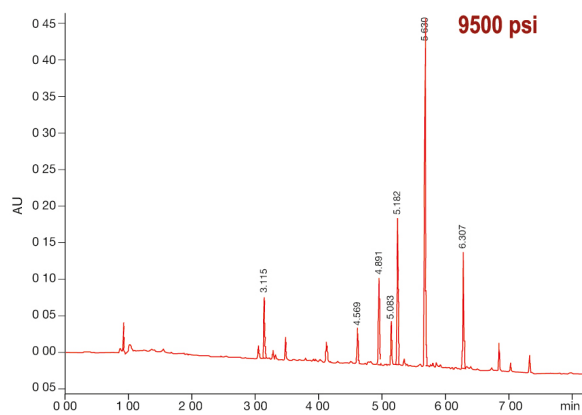
4. Permeability

The combination of permeability and efficiency is one of the major strength of the Strategy™ C18-HQ phase. This allows for more efficient analysis to be performed at lower pressure which ensures a longer lifetime of the column.

Compounds: KHN913
ACN/H₂O 20 % to 100 %: 6.10 min
Step: 1 min then 20 %
T°: 40°C
Flow rate: 0.4 mL/min



Strategy 2.2 µm C18 HQ, 150 x 2.0 mm



W 1.7 µm C18, 150 x 2.1 mm



Advion Interchim Scientific columns for small organic molecules

Capacity

Comparative purifications of [Dimethylphenol 3.4 / 2.6 Dimethylphenol] on Uptisphere® 120Å-5 µm C18-ODB 150 x 4.6 mm & Strategy™ C18 100Å-5 µm C18-HQ 150 x 4.6 mm

For higher concentrations, the isothermic adsorption is no longer linear. A higher concentration of solutes results in a deformation of the peaks and a modification of the retention time. The column is overloaded: it is the preparative mode. The loading capacity of a column is related to the number of active sites of the stationary phase. The Strategy™ column maintains satisfactory resolution at very high loading values.

The graph below shows the benefits of using Strategy silica for purification.

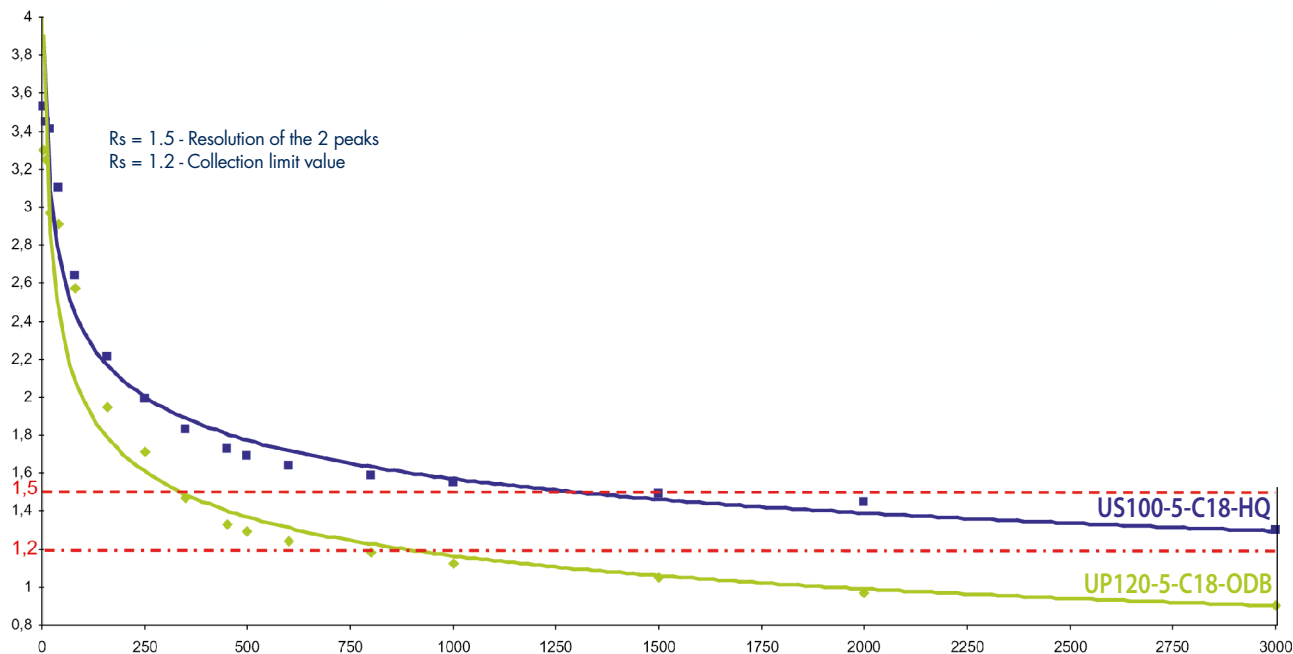
Standard capacity of Strategy™ C18 HQ on function of column's I.D.

| Ø ID. | L : 50 mm | L : 150 mm | L : 250 mm |
|---------|-------------|-------------|--------------|
| 4.6 mm | 0.25 - 1 mg | 0.5 - 12 mg | 1 - 20 mg |
| 10.0 mm | 4 - 25 mg | 15 - 65 mg | 25 - 110 mg |
| 21.2 mm | 10 - 50 mg | 30 - 150 mg | 50 - 250 mg |
| 28.0 mm | 25 - 150 mg | 90 - 420 mg | 150 - 700 mg |
| 50.0 mm | 80 - 400 mg | 240 - 1.2 g | 400 - 2 g |

The capacity depends on the resolution (R_s) (peak of interest/impurities) to be purified, on the internal diameter of the column and its length.

Resolution as a function of the loading (mg)

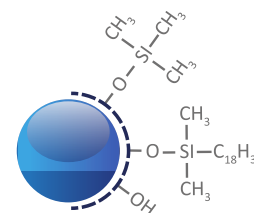
Comparison of 250 x 21.2 mm Strategy™ C18-HQ and Uptisphere® C18-ODB columns



Advion Interchim Scientific columns for small organic molecules

Uptisphere® Strategy™ C18-HQ

This utility phase serves many pharmaceutical applications. Its 425 m²/g surface area provides excellent loading capacity.



| Dimensions | 1.7 µm | 2.2 µm | 3 µm | 5 µm |
|--------------|--------------------|--------------------|------------------|------------------|
| 25 x 2.1 mm | US1.7C18HQ-025/021 | US2.2C18HQ-025/021 | US3C18HQ-025/021 | --- |
| 30 x 2.1 mm | US1.7C18HQ-030/021 | US2.2C18HQ-030/021 | US3C18HQ-030/021 | --- |
| 50 x 2.1 mm | US1.7C18HQ-050/021 | US2.2C18HQ-050/021 | US3C18HQ-050/021 | US5C18HQ-050/021 |
| 75 x 2.1 mm | US1.7C18HQ-075/021 | US2.2C18HQ-075/021 | US3C18HQ-075/021 | US5C18HQ-075/021 |
| 100 x 2.1 mm | US1.7C18HQ-100/021 | US2.2C18HQ-100/021 | US3C18HQ-100/021 | US5C18HQ-100/021 |
| 125 x 2.1 mm | US1.7C18HQ-125/021 | US2.2C18HQ-125/021 | US3C18HQ-125/021 | US5C18HQ-125/021 |
| 150 x 2.1 mm | US1.7C18HQ-150/021 | US2.2C18HQ-150/021 | US3C18HQ-150/021 | US5C18HQ-150/021 |
| 250 x 2.1 mm | --- | --- | --- | US5C18HQ-250/021 |
| 25 x 3.0 mm | US1.7C18HQ-025/030 | US2.2C18HQ-025/030 | US3C18HQ-025/030 | --- |
| 30 x 3.0 mm | US1.7C18HQ-030/030 | US2.2C18HQ-030/030 | US3C18HQ-030/030 | --- |
| 50 x 3.0 mm | US1.7C18HQ-050/030 | US2.2C18HQ-050/030 | US3C18HQ-050/030 | US5C18HQ-050/030 |
| 75 x 3.0 mm | US1.7C18HQ-075/030 | US2.2C18HQ-075/030 | US3C18HQ-075/030 | US5C18HQ-075/030 |
| 100 x 3.0 mm | US1.7C18HQ-100/030 | US2.2C18HQ-100/030 | US3C18HQ-100/030 | US5C18HQ-100/030 |
| 125 x 3.0 mm | US1.7C18HQ-125/030 | US2.2C18HQ-125/030 | US3C18HQ-125/030 | US5C18HQ-125/030 |
| 150 x 3.0 mm | US1.7C18HQ-150/030 | US2.2C18HQ-150/030 | US3C18HQ-150/030 | US5C18HQ-150/030 |
| 250 x 3.0 mm | --- | --- | --- | US5C18HQ-250/030 |
| 30 x 4.0 mm | --- | US2.2C18HQ-030/040 | --- | US5C18HQ-030/040 |
| 50 x 4.0 mm | --- | US2.2C18HQ-050/040 | --- | US5C18HQ-050/040 |
| 125 x 4.0 mm | --- | US2.2C18HQ-125/040 | US3C18HQ-125/040 | US5C18HQ-125/040 |
| 150 x 4.0 mm | --- | --- | --- | US5C18HQ-150/040 |
| 250 x 4.0 mm | --- | --- | --- | US5C18HQ-250/040 |
| 25 x 4.6 mm | US1.7C18HQ-025/046 | US2.2C18HQ-025/046 | US3C18HQ-025/046 | US5C18HQ-025/046 |
| 30 x 4.6 mm | US1.7C18HQ-030/046 | US2.2C18HQ-030/046 | US3C18HQ-030/046 | US5C18HQ-030/046 |
| 50 x 4.6 mm | US1.7C18HQ-050/046 | US2.2C18HQ-050/046 | US3C18HQ-050/046 | US5C18HQ-050/046 |
| 75 x 4.6 mm | US1.7C18HQ-075/046 | US2.2C18HQ-075/046 | US3C18HQ-075/046 | US5C18HQ-075/046 |
| 100 x 4.6 mm | US1.7C18HQ-100/046 | US2.2C18HQ-100/046 | US3C18HQ-100/046 | US5C18HQ-100/046 |
| 125 x 4.6 mm | US1.7C18HQ-125/046 | US2.2C18HQ-125/046 | US3C18HQ-125/046 | US5C18HQ-125/046 |
| 150 x 4.6 mm | US1.7C18HQ-150/046 | US2.2C18HQ-150/046 | US3C18HQ-150/046 | US5C18HQ-150/046 |
| 250 x 4.6 mm | --- | --- | --- | US5C18HQ-250/046 |

Uptisphere® Strategy™ C18-HQ

C18 - Octadecyl

USP code: L1

Pore size: 100 Å

Surface area: 425 m²/g

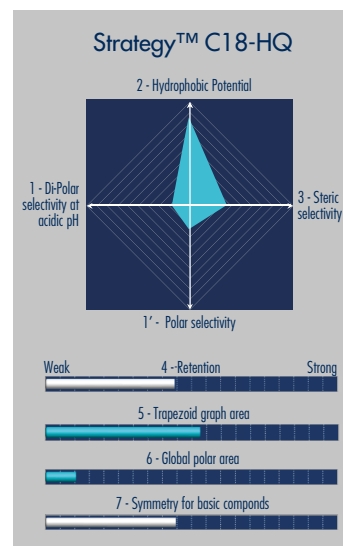
Functionalization : Mono-functional

% Carbon: 19 %

End-Capping: Multi-step

pH Stability: 1 - 10

Mode: Reverse



Field of application

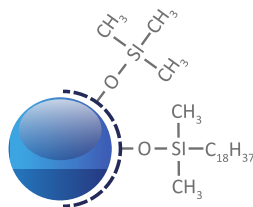
- UHPLC ●
- HPLC ●
- Prep-LC ●
- Flash ●

RELATED PRODUCTS

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Advion Interchim Scientific columns for small organic molecules



Uptisphere® Strategy™ C18-3

C18 - Octadecyl

USP code: L1

Pore size: 100 Å

Surface area: 425 m²/g

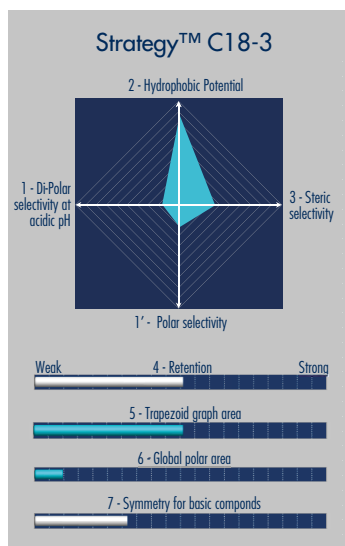
Functionalization: Mono-functional

% Carbon: 22 %

End-Capping: Multi-step

pH Stability: 1 - 12

Mode: Reverse



Field of application

UHPLC

HPLC

Prep-LC

Flash

Uptisphere® Strategy™ C18-3

The high bonding density of the C18-3 facilitates a high separation of non polar compounds. Multi step bonding technology guarantees a fully end-capped phase, stable under basic pH conditions. C18-3 is an excellent phase for the separation of basic drugs up to pH 12.

| Dimensions | 3 µm C18-3 | 5 µm C18-3 |
|--------------|-----------------|-----------------|
| 25 x 2.1 mm | US3C183-025/021 | --- |
| 30 x 2.1 mm | US3C183-030/021 | --- |
| 50 x 2.1 mm | US3C183-050/021 | US5C183-050/021 |
| 75 x 2.1 mm | US3C183-075/021 | US5C183-075/021 |
| 100 x 2.1 mm | US3C183-100/021 | US5C183-100/021 |
| 125 x 2.1 mm | US3C183-125/021 | US5C183-125/021 |
| 150 x 2.1 mm | US3C183-150/021 | US5C183-150/021 |
| 250 x 2.1 mm | --- | US5C183-250/021 |
| 25 x 3.0 mm | US3C183-025/030 | --- |
| 30 x 3.0 mm | US3C183-030/030 | --- |
| 50 x 3.0 mm | US3C183-050/030 | US5C183-050/030 |
| 75 x 3.0 mm | US3C183-075/030 | US5C183-075/030 |
| 100 x 3.0 mm | US3C183-100/030 | US5C183-100/030 |
| 125 x 3.0 mm | US3C183-125/030 | US5C183-125/030 |
| 150 x 3.0 mm | US3C183-150/030 | US5C183-150/030 |
| 250 x 3.0 mm | --- | US5C183-250/030 |
| 30 x 4.0 mm | --- | US5C183-030/040 |
| 50 x 4.0 mm | --- | US5C183-050/040 |
| 125 x 4.0 mm | US3C183-125/040 | US5C183-125/040 |
| 150 x 4.0 mm | --- | US5C183-150/040 |
| 250 x 4.0 mm | --- | US5C183-250/040 |
| 25 x 4.6 mm | US3C183-025/046 | US5C183-025/046 |
| 30 x 4.6 mm | US3C183-030/046 | US5C183-030/046 |
| 50 x 4.6 mm | US3C183-050/046 | US5C183-050/046 |
| 75 x 4.6 mm | US3C183-075/046 | US5C183-075/046 |
| 100 x 4.6 mm | US3C183-100/046 | US5C183-100/046 |
| 125 x 4.6 mm | US3C183-125/046 | US5C183-125/046 |
| 150 x 4.6 mm | US3C183-150/046 | US5C183-150/046 |
| 250 x 4.6 mm | --- | US5C183-250/046 |

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Dispenser box : Uptivials kit

A single reference for your vials , your caps and closures, an attractive price and a dispenser box
Available on stock
See chapter: Vials

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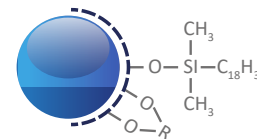


Advion Interchim Scientific columns for small organic molecules

Uptisphere® Strategy™ C18-RP

Suitable for mid & non polar compounds separation.

C18-RP shows excellent mechanical stability that makes it an excellent tool for purification under acidic or basic conditions.



| Dimensions | 2.2 µm | 3 µm | 5 µm |
|--------------|-----------------|---------------|---------------|
| 25 x 2.1 mm | US2.2RP-025/021 | US3RP-025/021 | US5RP-025/021 |
| 30 x 2.1 mm | US2.2RP-030/021 | US3RP-030/021 | US5RP-030/021 |
| 50 x 2.1 mm | US2.2RP-050/021 | US3RP-050/021 | US5RP-050/021 |
| 75 x 2.1 mm | US2.2RP-075/021 | US3RP-075/021 | US5RP-075/021 |
| 100 x 2.1 mm | US2.2RP-100/021 | US3RP-100/021 | US5RP-100/021 |
| 125 x 2.1 mm | US2.2RP-125/021 | US3RP-125/021 | US5RP-125/021 |
| 150 x 2.1 mm | US2.2RP-150/021 | US3RP-150/021 | US5RP-150/021 |
| 250 x 2.1 mm | --- | --- | US5RP-250/021 |
| 25 x 3.0 mm | US2.2RP-025/030 | US3RP-025/030 | --- |
| 30 x 3.0 mm | US2.2RP-030/030 | US3RP-030/030 | --- |
| 50 x 3.0 mm | US2.2RP-050/030 | US3RP-050/030 | US5RP-050/030 |
| 75 x 3.0 mm | US2.2RP-075/030 | US3RP-075/030 | US5RP-075/030 |
| 100 x 3.0 mm | US2.2RP-100/030 | US3RP-100/030 | US5RP-100/030 |
| 125 x 3.0 mm | US2.2RP-125/030 | US3RP-125/030 | US5RP-125/030 |
| 150 x 3.0 mm | US2.2RP-150/030 | US3RP-150/030 | US5RP-150/030 |
| 250 x 3.0 mm | --- | --- | US5RP-250/030 |
| 30 x 4.0 mm | US2.2RP-030/040 | --- | US5RP-030/040 |
| 50 x 4.0 mm | US2.2RP-050/040 | --- | US5RP-050/040 |
| 125 x 4.0 mm | US2.2RP-125/040 | US3RP-125/040 | US5RP-125/040 |
| 150 x 4.0 mm | --- | --- | US5RP-150/040 |
| 250 x 4.0 mm | --- | --- | US5RP-250/040 |
| 25 x 4.6 mm | US2.2RP-025/046 | US3RP-025/046 | US5RP-025/046 |
| 30 x 4.6 mm | US2.2RP-030/046 | US3RP-030/046 | US5RP-030/046 |
| 50 x 4.6 mm | US2.2RP-050/046 | US3RP-050/046 | US5RP-050/046 |
| 75 x 4.6 mm | US2.2RP-075/046 | US3RP-075/046 | US5RP-075/046 |
| 100 x 4.6 mm | US2.2RP-100/046 | US3RP-100/046 | US5RP-100/046 |
| 125 x 4.6 mm | US2.2RP-125/046 | US3RP-125/046 | US5RP-125/046 |
| 150 x 4.6 mm | US2.2RP-150/046 | US3RP-150/046 | US5RP-150/046 |
| 250 x 4.6 mm | --- | --- | US5RP-250/046 |

Uptisphere® Strategy™ C18-RP

C18 - Octadecyl

USP code: L1

Pore size: 100 Å

Surface area: 425 m²/g

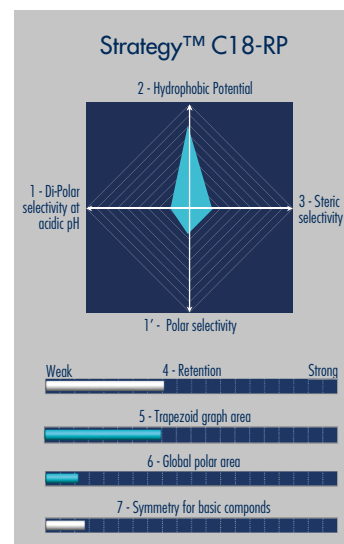
Functionalization : Mono-functional

% Carbon: 16 %

End-Capping: Mixte

pH Stability: 1.5 - 8

Mode: Reverse



Field of application

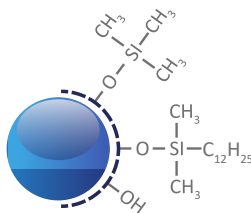
- UHPLC ●
- HPLC ●
- Prep-LC ●
- Flash ●

RELATED PRODUCTS

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& Holder on page G.66



Advion Interchim Scientific columns for small organic molecules



Uptisphere® Strategy™ C12

C12 - dodecyl

USP code: L87

Pore size: 100 Å

Surface area : 425 m²/g

Functionalization: Mono-functional

% Carbon: 16 %

End-Capping: One step

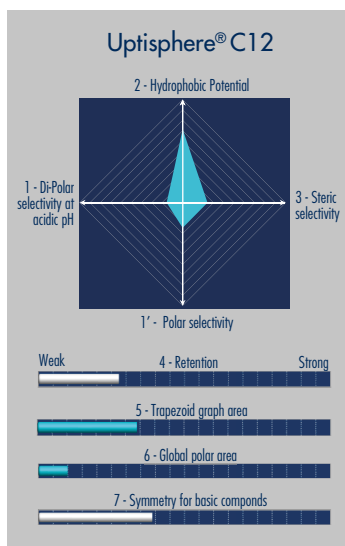
pH Stability: 1.5 - 8

Mode: Reverse

Uptisphere® Strategy™ C12

Non polar compounds. Less retentive than C18 with greater capacity.

| Dimensions | 2.2 µm | 5 µm |
|--------------|------------------|----------------|
| 25 x 2.1 mm | US2.2C12-025/021 | --- |
| 30 x 2.1 mm | US2.2C12-030/021 | --- |
| 50 x 2.1 mm | US2.2C12-050/021 | US5C12-050/021 |
| 75 x 2.1 mm | US2.2C12-075/021 | US5C12-075/021 |
| 100 x 2.1 mm | US2.2C12-100/021 | US5C12-100/021 |
| 125 x 2.1 mm | US2.2C12-125/021 | US5C12-125/021 |
| 150 x 2.1 mm | US2.2C12-150/021 | US5C12-150/021 |
| 250 x 2.1 mm | --- | US5C12-250/021 |
| 25 x 3.0 mm | US2.2C12-025/030 | --- |
| 30 x 3.0 mm | US2.2C12-030/030 | --- |
| 50 x 3.0 mm | US2.2C12-050/030 | US5C12-050/030 |
| 75 x 3.0 mm | US2.2C12-075/030 | US5C12-075/030 |
| 100 x 3.0 mm | US2.2C12-100/030 | US5C12-100/030 |
| 125 x 3.0 mm | US2.2C12-125/030 | US5C12-125/030 |
| 150 x 3.0 mm | US2.2C12-150/030 | US5C12-150/030 |
| 250 x 3.0 mm | --- | US5C12-250/030 |
| 30 x 4.0 mm | US2.2C12-030/040 | US5C12-030/040 |
| 50 x 4.0 mm | US2.2C12-050/040 | US5C12-050/040 |
| 125 x 4.0 mm | US2.2C12-125/040 | US5C12-125/040 |
| 150 x 4.0 mm | --- | US5C12-150/040 |
| 250 x 4.0 mm | --- | US5C12-250/040 |
| 300 x 4.0 mm | --- | --- |
| 25 x 4.6 mm | US2.2C12-025/046 | US5C12-025/046 |
| 30 x 4.6 mm | US2.2C12-030/046 | US5C12-030/046 |
| 50 x 4.6 mm | US2.2C12-050/046 | US5C12-050/046 |
| 75 x 4.6 mm | US2.2C12-075/046 | US5C12-075/046 |
| 100 x 4.6 mm | US2.2C12-100/046 | US5C12-100/046 |
| 125 x 4.6 mm | US2.2C12-125/046 | US5C12-125/046 |
| 150 x 4.6 mm | US2.2C12-150/046 | US5C12-150/046 |
| 250 x 4.6 mm | --- | US5C12-250/046 |



Field of application

UHPLC

HPIC

Prep-LC

Flash

RELATED PRODUCTS

Columns Protection

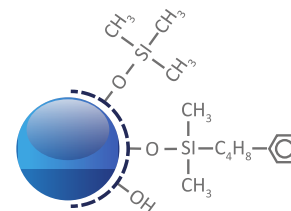
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Advion Interchim Scientific columns for small organic molecules

Uptisphere® Strategy™ PHC4

Very selective for compounds with aromatic cycles and mid-polar compounds.



| Dimensions | 2.2 µm | 3 µm | 5 µm |
|--------------|-------------------|-----------------|-----------------|
| 25 x 2.1 mm | US2.2PHC4-025/021 | US3PHC4-025/021 | --- |
| 30 x 2.1 mm | US2.2PHC4-030/021 | US3PHC4-030/021 | --- |
| 50 x 2.1 mm | US2.2PHC4-050/021 | US3PHC4-050/021 | US5PHC4-050/021 |
| 75 x 2.1 mm | US2.2PHC4-075/021 | US3PHC4-075/021 | US5PHC4-075/021 |
| 100 x 2.1 mm | US2.2PHC4-100/021 | US3PHC4-100/021 | US5PHC4-100/021 |
| 125 x 2.1 mm | US2.2PHC4-125/021 | US3PHC4-125/021 | US5PHC4-125/021 |
| 150 x 2.1 mm | US2.2PHC4-150/021 | US3PHC4-150/021 | US5PHC4-150/021 |
| 250 x 2.1 mm | --- | --- | US5PHC4-250/021 |
| 25 x 3.0 mm | US2.2PHC4-025/030 | US3PHC4-025/030 | --- |
| 30 x 3.0 mm | US2.2PHC4-030/030 | US3PHC4-030/030 | --- |
| 50 x 3.0 mm | US2.2PHC4-050/030 | US3PHC4-050/030 | US5PHC4-050/030 |
| 75 x 3.0 mm | US2.2PHC4-075/030 | US3PHC4-075/030 | US5PHC4-075/030 |
| 100 x 3.0 mm | US2.2PHC4-100/030 | US3PHC4-100/030 | US5PHC4-100/030 |
| 125 x 3.0 mm | US2.2PHC4-125/030 | US3PHC4-125/030 | US5PHC4-125/030 |
| 150 x 3.0 mm | US2.2PHC4-150/030 | US3PHC4-150/030 | US5PHC4-150/030 |
| 250 x 3.0 mm | --- | --- | US5PHC4-250/030 |
| 30 x 4.0 mm | US2.2PHC4-030/040 | --- | US5PHC4-030/040 |
| 50 x 4.0 mm | US2.2PHC4-050/040 | --- | US5PHC4-050/040 |
| 125 x 4.0 mm | US2.2PHC4-125/040 | US3PHC4-125/040 | US5PHC4-125/040 |
| 150 x 4.0 mm | --- | --- | US5PHC4-150/040 |
| 250 x 4.0 mm | --- | --- | US5PHC4-250/040 |
| 25 x 4.6 mm | US2.2PHC4-025/046 | US3PHC4-025/046 | US5PHC4-025/046 |
| 30 x 4.6 mm | US2.2PHC4-030/046 | US3PHC4-030/046 | US5PHC4-030/046 |
| 50 x 4.6 mm | US2.2PHC4-050/046 | US3PHC4-050/046 | US5PHC4-050/046 |
| 75 x 4.6 mm | US2.2PHC4-075/046 | US3PHC4-075/046 | US5PHC4-075/046 |
| 100 x 4.6 mm | US2.2PHC4-100/046 | US3PHC4-100/046 | US5PHC4-100/046 |
| 125 x 4.6 mm | US2.2PHC4-125/046 | US3PHC4-125/046 | US5PHC4-125/046 |
| 150 x 4.6 mm | US2.2PHC4-150/046 | US3PHC4-150/046 | US5PHC4-150/046 |
| 250 x 4.6 mm | --- | --- | US5PHC4-250/046 |

Uptisphere® Strategy™ PHC4

PHC4 - Butyl-Phenyl

USP code: L11

Pore size: 100 Å

Surface area: 425 m²/g

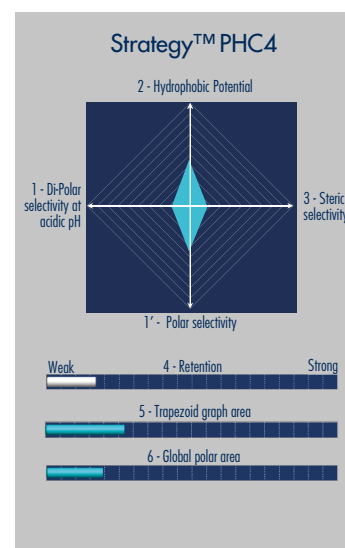
Functionalization: Mono-functional

% Carbon: 12 %

End-Capping: One step

pH Stability: 1.5 - 7.5

Mode: Reverse



Field of application

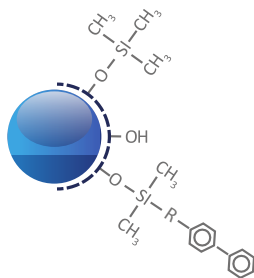
- UHPLC ●
- HPLC ●
- Prep-LC ●
- Flash ●

RELATED PRODUCTS

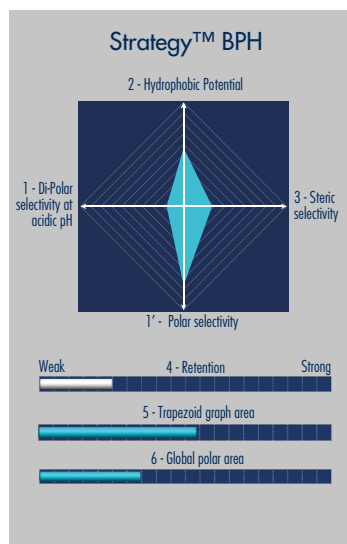
Columns Protection
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Advion Interchim Scientific columns for small organic molecules



Uptisphere® Strategy™ BPH
 BPH - Bi-Phenyl
 USP code: L11
 Pore size: 100 Å
 Surface area: 300 m²/g
 Functionalization : Mono-functional
 % Carbon: 12 %
 End-Capping: One step
 pH Stability: 1.5 - 7.5
 Mode: Reverse



Field of application

UHPLC
 HPLC
 Prep-LC
 Flash

Uptisphere Strategy™ BPH

Excellent discrimination of aromatic compounds, unsaturated compounds, ketones, alkenes, ...

| Dimensions | 3 μm | 5 μm |
|--------------|----------------|----------------|
| 25 x 2.1 mm | US3BPH-025/021 | --- |
| 30 x 2.1 mm | US3BPH-030/021 | --- |
| 50 x 2.1 mm | US3BPH-050/021 | US5BPH-050/021 |
| 75 x 2.1 mm | US3BPH-075/021 | US5BPH-075/021 |
| 100 x 2.1 mm | US3BPH-100/021 | US5BPH-100/021 |
| 125 x 2.1 mm | US3BPH-125/021 | US5BPH-125/021 |
| 150 x 2.1 mm | US3BPH-150/021 | US5BPH-150/021 |
| 250 x 2.1 mm | --- | US5BPH-250/021 |
| 25 x 3.0 mm | US3BPH-025/030 | --- |
| 30 x 3.0 mm | US3BPH-030/030 | --- |
| 50 x 3.0 mm | US3BPH-050/030 | US5BPH-050/030 |
| 75 x 3.0 mm | US3BPH-075/030 | US5BPH-075/030 |
| 100 x 3.0 mm | US3BPH-100/030 | US5BPH-100/030 |
| 125 x 3.0 mm | US3BPH-125/030 | US5BPH-125/030 |
| 150 x 3.0 mm | US3BPH-150/030 | US5BPH-150/030 |
| 250 x 3.0 mm | --- | US5BPH-250/030 |
| 30 x 4.0 mm | --- | US5BPH-030/040 |
| 50 x 4.0 mm | --- | US5BPH-050/040 |
| 125 x 4.0 mm | US3BPH-125/040 | US5BPH-125/040 |
| 150 x 4.0 mm | --- | US5BPH-150/040 |
| 250 x 4.0 mm | --- | US5BPH-250/040 |
| 25 x 4.6 mm | US3BPH-025/046 | US5BPH-025/046 |
| 30 x 4.6 mm | US3BPH-030/046 | US5BPH-030/046 |
| 50 x 4.6 mm | US3BPH-050/046 | US5BPH-050/046 |
| 75 x 4.6 mm | US3BPH-075/046 | US5BPH-075/046 |
| 100 x 4.6 mm | US3BPH-100/046 | US5BPH-100/046 |
| 125 x 4.6 mm | US3BPH-125/046 | US5BPH-125/046 |
| 150 x 4.6 mm | US3BPH-150/046 | US5BPH-150/046 |
| 250 x 4.6 mm | --- | US5BPH-250/046 |

APPLICATIONS ON HYDROXY AROMATIC DERIVATIVE

Column: Uptisphere Strategy™ BPH

5 μm 150 x 4.6mm

Conditions:

Isocratic A/B 35/65 V/V

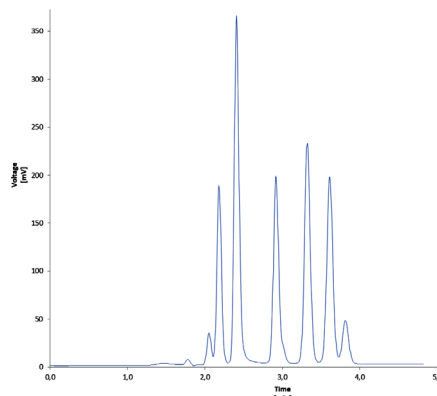
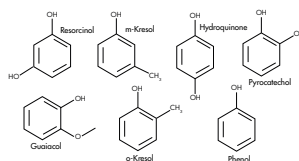
A: 100 mM ammonium acetate,

B: methanol

Flow rate: 1 mL/min

Temp.: 35°C, UV: 265 nm

Compounds: Hydroquinone,
 resorcinol, pyrocatechol, phenol,
 gualacon, m-kresol, o-kresol

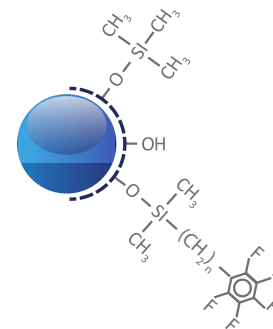


Advion Interchim Scientific columns for small organic molecules



Uptisphere® Strategy™ PFP

Complementary to C18, C8 to separate electron rich compounds.



| Dimensions | 3 µm | 5 µm |
|--------------|----------------|----------------|
| 25 x 2.1 mm | US3PFP-025/021 | --- |
| 30 x 2.1 mm | US3PFP-030/021 | --- |
| 50 x 2.1 mm | US3PFP-050/021 | US5PFP-050/021 |
| 75 x 2.1 mm | US3PFP-075/021 | US5PFP-075/021 |
| 100 x 2.1 mm | US3PFP-100/021 | US5PFP-100/021 |
| 125 x 2.1 mm | US3PFP-125/021 | US5PFP-125/021 |
| 150 x 2.1 mm | US3PFP-150/021 | US5PFP-150/021 |
| 250 x 2.1 mm | --- | US5PFP-250/021 |
| 25 x 3.0 mm | US3PFP-025/030 | --- |
| 30 x 3.0 mm | US3PFP-030/030 | --- |
| 50 x 3.0 mm | US3PFP-050/030 | US5PFP-050/030 |
| 75 x 3.0 mm | US3PFP-075/030 | US5PFP-075/030 |
| 100 x 3.0 mm | US3PFP-100/030 | US5PFP-100/030 |
| 125 x 3.0 mm | US3PFP-125/030 | US5PFP-125/030 |
| 150 x 3.0 mm | US3PFP-150/030 | US5PFP-150/030 |
| 250 x 3.0 mm | --- | US5PFP-250/030 |
| 30 x 4.0 mm | --- | US5PFP-030/040 |
| 50 x 4.0 mm | --- | US5PFP-050/040 |
| 125 x 4.0 mm | US3PFP-125/040 | US5PFP-125/040 |
| 150 x 4.0 mm | --- | US5PFP-150/040 |
| 250 x 4.0 mm | --- | US5PFP-250/040 |
| 25 x 4.6 mm | US3PFP-025/046 | US5PFP-025/046 |
| 30 x 4.6 mm | US3PFP-030/046 | US5PFP-030/046 |
| 50 x 4.6 mm | US3PFP-050/046 | US5PFP-050/046 |
| 75 x 4.6 mm | US3PFP-075/046 | US5PFP-075/046 |
| 100 x 4.6 mm | US3PFP-100/046 | US5PFP-100/046 |
| 125 x 4.6 mm | US3PFP-125/046 | US5PFP-125/046 |
| 150 x 4.6 mm | US3PFP-150/046 | US5PFP-150/046 |
| 250 x 4.6 mm | --- | US5PFP-250/046 |

Uptisphere® Strategy™ PFP

PFP - Penta Fluoro Phenyl

USP code: L43

Pore size: 100 Å

Surface area: 425 m²/g

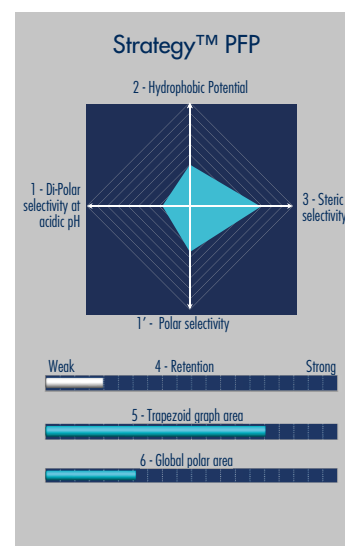
Functionalization: Mono-functional

% Carbon: 14.5 %

End-Capping: One step

pH Stability: 1.5 - 7.5

Mode: Reverse



Field of application

- UHPLC ○
- HPLC ●
- PrepLC ●
- Flash ○



Advion Interchim Scientific columns for small organic molecules



Uptisphere® Strategy™
Hilic-HIT
 USP code: L3
 Pore size: 100 Å
 Surface area: 425 m²/g
 Pre-treatment: MOST
 Functionalization: Proprietary
 % Carbon: n.a.
 End-Capping: Proprietary
 pH Stability: 1.5 - 7
 Mode: Hilic

Field of application

UHPLC ●
 HPLC ●
 Prep-LC ●
 Flash ○

Uptisphere® Strategy™ Hilic-HIT

Aqueous normal phase separation (ANP) of water-soluble compounds.

Typical mobile phase: water / ACN (> 70%).

ANP is an excellent alternative to RP purification for highly polar compounds.

| Dimensions | 2.2 µm HIT | 3 µm HIT | 5 µm HIT |
|--------------|------------------|----------------|----------------|
| 25 x 2.1 mm | US2.2HIT-025/021 | US3HIT-025/021 | US5HIT-050/021 |
| 30 x 2.1 mm | US2.2HIT-030/021 | US3HIT-030/021 | US5HIT-075/021 |
| 50 x 2.1 mm | US2.2HIT-050/021 | US3HIT-050/021 | US5HIT-100/021 |
| 75 x 2.1 mm | US2.2HIT-075/021 | US3HIT-075/021 | US5HIT-125/021 |
| 100 x 2.1 mm | US2.2HIT-100/021 | US3HIT-100/021 | US5HIT-150/021 |
| 125 x 2.1 mm | US2.2HIT-125/021 | US3HIT-125/021 | US5HIT-250/021 |
| 150 x 2.1 mm | US2.2HIT-150/021 | US3HIT-150/021 | --- |
| 25 x 3.0 mm | US2.2HIT-025/030 | US3HIT-025/030 | --- |
| 30 x 3.0 mm | US2.2HIT-030/030 | US3HIT-030/030 | --- |
| 50 x 3.0 mm | US2.2HIT-050/030 | US3HIT-050/030 | US5HIT-050/030 |
| 75 x 3.0 mm | US2.2HIT-075/030 | US3HIT-075/030 | US5HIT-075/030 |
| 100 x 3.0 mm | US2.2HIT-100/030 | US3HIT-100/030 | US5HIT-100/030 |
| 125 x 3.0 mm | US2.2HIT-125/030 | US3HIT-125/030 | US5HIT-125/030 |
| 150 x 3.0 mm | US2.2HIT-150/030 | US3HIT-150/030 | US5HIT-150/030 |
| 250 x 3.0 mm | --- | --- | US5HIT-250/030 |
| 30 x 4.0 mm | US2.2HIT-030/040 | --- | US5HIT-030/040 |
| 50 x 4.0 mm | US2.2HIT-050/040 | --- | US5HIT-050/040 |
| 125 x 4.0 mm | US2.2HIT-125/040 | US3HIT-125/040 | US5HIT-125/040 |
| 150 x 4.0 mm | --- | --- | US5HIT-150/040 |
| 250 x 4.0 mm | --- | --- | US5HIT-250/040 |
| 25 x 4.6 mm | US2.2HIT-025/046 | US3HIT-025/046 | US5HIT-025/046 |
| 30 x 4.6 mm | US2.2HIT-030/046 | US3HIT-030/046 | US5HIT-030/046 |
| 50 x 4.6 mm | US2.2HIT-050/046 | US3HIT-050/046 | US5HIT-050/046 |
| 75 x 4.6 mm | US2.2HIT-075/046 | US3HIT-075/046 | US5HIT-075/046 |
| 100 x 4.6 mm | US2.2HIT-100/046 | US3HIT-100/046 | US5HIT-100/046 |
| 125 x 4.6 mm | US2.2HIT-125/046 | US3HIT-125/046 | US5HIT-125/046 |
| 150 x 4.6 mm | US2.2HIT-150/046 | US3HIT-150/046 | US5HIT-150/046 |
| 250 x 4.6 mm | --- | --- | US5HIT-250/046 |

RELATED PRODUCTS

Columns Protection
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 & Holder on page G.66



Advion Interchim Scientific columns for small organic molecules

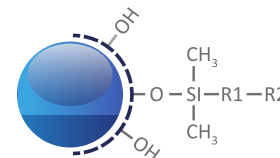


Uptisphere® Strategy™ Hilic-HIA

Aqueous normal phase separation (ANP) of water-soluble compounds.

Typical mobile phase: water / ACN (> 70%)

ANP is an excellent alternative to RP purification for highly polar compounds.



| Dimensions | 2.2 µm HIA | 3 µm HIA | 5 µm HIA |
|--------------|------------------|----------------|----------------|
| 25 x 2.1 mm | US2.2HIA-025/021 | US3HIA-025/021 | US5HIA-050/021 |
| 30 x 2.1 mm | US2.2HIA-030/021 | US3HIA-030/021 | US5HIA-075/021 |
| 50 x 2.1 mm | US2.2HIA-050/021 | US3HIA-050/021 | US5HIA-100/021 |
| 75 x 2.1 mm | US2.2HIA-075/021 | US3HIA-075/021 | US5HIA-125/021 |
| 100 x 2.1 mm | US2.2HIA-100/021 | US3HIA-100/021 | US5HIA-150/021 |
| 125 x 2.1 mm | US2.2HIA-125/021 | US3HIA-125/021 | US5HIA-250/021 |
| 150 x 2.1 mm | US2.2HIA-150/021 | US3HIA-150/021 | --- |
| 25 x 3.0 mm | US2.2HIA-025/030 | US3HIA-025/030 | --- |
| 30 x 3.0 mm | US2.2HIA-030/030 | US3HIA-030/030 | --- |
| 50 x 3.0 mm | US2.2HIA-050/030 | US3HIA-050/030 | US5HIA-050/030 |
| 75 x 3.0 mm | US2.2HIA-075/030 | US3HIA-075/030 | US5HIA-075/030 |
| 100 x 3.0 mm | US2.2HIA-100/030 | US3HIA-100/030 | US5HIA-100/030 |
| 125 x 3.0 mm | US2.2HIA-125/030 | US3HIA-125/030 | US5HIA-125/030 |
| 150 x 3.0 mm | US2.2HIA-150/030 | US3HIA-150/030 | US5HIA-150/030 |
| 250 x 3.0 mm | --- | --- | US5HIA-250/030 |
| 30 x 4.0 mm | US2.2HIA-030/040 | --- | US5HIA-030/040 |
| 50 x 4.0 mm | US2.2HIA-050/040 | --- | US5HIA-050/040 |
| 125 x 4.0 mm | US2.2HIA-125/040 | US3HIA-125/040 | US5HIA-125/040 |
| 150 x 4.0 mm | --- | --- | US5HIA-150/040 |
| 250 x 4.0 mm | --- | --- | US5HIA-250/040 |
| 25 x 4.6 mm | US2.2HIA-025/046 | US3HIA-025/046 | US5HIA-025/046 |
| 30 x 4.6 mm | US2.2HIA-030/046 | US3HIA-030/046 | US5HIA-030/046 |
| 50 x 4.6 mm | US2.2HIA-050/046 | US3HIA-050/046 | US5HIA-050/046 |
| 75 x 4.6 mm | US2.2HIA-075/046 | US3HIA-075/046 | US5HIA-075/046 |
| 100 x 4.6 mm | US2.2HIA-100/046 | US3HIA-100/046 | US5HIA-100/046 |
| 125 x 4.6 mm | US2.2HIA-125/046 | US3HIA-125/046 | US5HIA-125/046 |
| 150 x 4.6 mm | US2.2HIA-150/046 | US3HIA-150/046 | US5HIA-150/046 |
| 250 x 4.6 mm | --- | --- | US5HIA-250/046 |

Uptisphere® Strategy™ Hilic-HIA

USP code: n.a.

Pore size: 100 Å

Surface area: 300 m²/g

Functionalization: Proprietary

% Carbon: n.a.

End-Capping: Proprietary

pH Stability: 2 - 7

Mode: Hilic

Field of application

- UHPLC ●
- HPLC ●
- Prep-LC ●
- Flash ●

RELATED PRODUCTS

Advion Interchim Scientific offers a complete SPE products portfolio with several dozens of selectivities, find these products in the chapter: Sample preparation

RELATED PRODUCTS

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Advion Interchim Scientific columns for small organic molecules



Uptisphere® Strategy™ SI

Non-ionic, polar organic compounds.

Uptisphere® Strategy™ SI

USP code: L3

Pore size: 100 Å

Surface area : 425 m²/g

Functionalization: Proprietary

% Carbon: n.a.

End-Capping: None

pH Stability: 1.5 - 7

Mode: Normal

| Dimensions | 2.2 µm | 3 µm | 5 µm |
|--------------|-----------------|---------------|---------------|
| 25 x 2.1 mm | US2.2SI-025/021 | US3SI-025/021 | US5SI-050/021 |
| 30 x 2.1 mm | US2.2SI-030/021 | US3SI-030/021 | US5SI-075/021 |
| 50 x 2.1 mm | US2.2SI-050/021 | US3SI-050/021 | US5SI-100/021 |
| 75 x 2.1 mm | US2.2SI-075/021 | US3SI-075/021 | US5SI-125/021 |
| 100 x 2.1 mm | US2.2SI-100/021 | US3SI-100/021 | US5SI-150/021 |
| 125 x 2.1 mm | US2.2SI-125/021 | US3SI-125/021 | US5SI-250/021 |
| 150 x 2.1 mm | US2.2SI-150/021 | US3SI-150/021 | --- |
| 25 x 3.0 mm | US2.2SI-025/030 | US3SI-025/030 | --- |
| 30 x 3.0 mm | US2.2SI-030/030 | US3SI-030/030 | --- |
| 50 x 3.0 mm | US2.2SI-050/030 | US3SI-050/030 | US5SI-050/030 |
| 75 x 3.0 mm | US2.2SI-075/030 | US3SI-075/030 | US5SI-075/030 |
| 100 x 3.0 mm | US2.2SI-100/030 | US3SI-100/030 | US5SI-100/030 |
| 125 x 3.0 mm | US2.2SI-125/030 | US3SI-125/030 | US5SI-125/030 |
| 150 x 3.0 mm | US2.2SI-150/030 | US3SI-150/030 | US5SI-150/030 |
| 250 x 3.0 mm | --- | --- | US5SI-250/030 |
| 30 x 4.0 mm | US2.2SI-030/040 | --- | US5SI-030/040 |
| 50 x 4.0 mm | US2.2SI-050/040 | --- | US5SI-050/040 |
| 125 x 4.0 mm | US2.2SI-125/040 | US3SI-125/040 | US5SI-125/040 |
| 150 x 4.0 mm | --- | --- | US5SI-150/040 |
| 250 x 4.0 mm | --- | --- | US5SI-250/040 |
| 25 x 4.6 mm | US2.2SI-025/046 | US3SI-025/046 | US5SI-025/046 |
| 30 x 4.6 mm | US2.2SI-030/046 | US3SI-030/046 | US5SI-030/046 |
| 50 x 4.6 mm | US2.2SI-050/046 | US3SI-050/046 | US5SI-050/046 |
| 75 x 4.6 mm | US2.2SI-075/046 | US3SI-075/046 | US5SI-075/046 |
| 100 x 4.6 mm | US2.2SI-100/046 | US3SI-100/046 | US5SI-100/046 |
| 125 x 4.6 mm | US2.2SI-125/046 | US3SI-125/046 | US5SI-125/046 |
| 150 x 4.6 mm | US2.2SI-150/046 | US3SI-150/046 | US5SI-150/046 |
| 250 x 4.6 mm | --- | --- | US5SI-250/046 |

Field of application

| | |
|---------|---|
| UHPLC | ● |
| HPLC | ● |
| Prep-LC | ● |
| Flash | ○ |

RELATED PRODUCTS

Columns Protection

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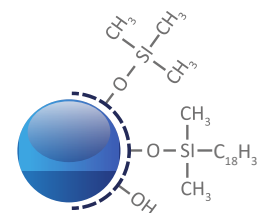


Advion Interchim Scientific columns for small organic molecules



Uptisphere® C18-HSC

Non-polar compounds.



| Dimensions | 3 µm | 5 µm |
|--------------|----------------|----------------|
| 25 x 2.1 mm | UP3HSC-025/021 | --- |
| 30 x 2.1 mm | UP3HSC-030/021 | --- |
| 50 x 2.1 mm | UP3HSC-050/021 | UP5HSC-050/021 |
| 75 x 2.1 mm | UP3HSC-075/021 | UP5HSC-075/021 |
| 100 x 2.1 mm | UP3HSC-100/021 | UP5HSC-100/021 |
| 125 x 2.1 mm | UP3HSC-125/021 | UP5HSC-125/021 |
| 150 x 2.1 mm | UP3HSC-150/021 | UP5HSC-150/021 |
| 250 x 2.1 mm | --- | UP5HSC-250/021 |
| 25 x 3.0 mm | UP3HSC-025/030 | --- |
| 30 x 3.0 mm | UP3HSC-030/030 | --- |
| 50 x 3.0 mm | UP3HSC-050/030 | UP5HSC-050/030 |
| 75 x 3.0 mm | UP3HSC-075/030 | UP5HSC-075/030 |
| 100 x 3.0 mm | UP3HSC-100/030 | UP5HSC-100/030 |
| 125 x 3.0 mm | UP3HSC-125/030 | UP5HSC-125/030 |
| 150 x 3.0 mm | UP3HSC-150/030 | UP5HSC-150/030 |
| 250 x 3.0 mm | --- | UP5HSC-250/030 |
| 30 x 4.0 mm | --- | UP5HSC-030/040 |
| 50 x 4.0 mm | --- | UP5HSC-050/040 |
| 125 x 4.0 mm | UP3HSC-125/040 | UP5HSC-125/040 |
| 150 x 4.0 mm | --- | UP5HSC-150/040 |
| 250 x 4.0 mm | --- | UP5HSC-250/040 |
| 25 x 4.6 mm | UP3HSC-025/046 | UP5HSC-025/046 |
| 30 x 4.6 mm | UP3HSC-030/046 | UP5HSC-030/046 |
| 50 x 4.6 mm | UP3HSC-050/046 | UP5HSC-050/046 |
| 75 x 4.6 mm | UP3HSC-075/046 | UP5HSC-075/046 |
| 100 x 4.6 mm | UP3HSC-100/046 | UP5HSC-100/046 |
| 125 x 4.6 mm | UP3HSC-125/046 | UP5HSC-125/046 |
| 150 x 4.6 mm | UP3HSC-150/046 | UP5HSC-150/046 |
| 250 x 4.6 mm | --- | UP5HSC-250/046 |

Uptisphere® C18-HSC

C18 - Octadecyl

USP code: L1

Pore size: n.a.

Surface area: n.a.

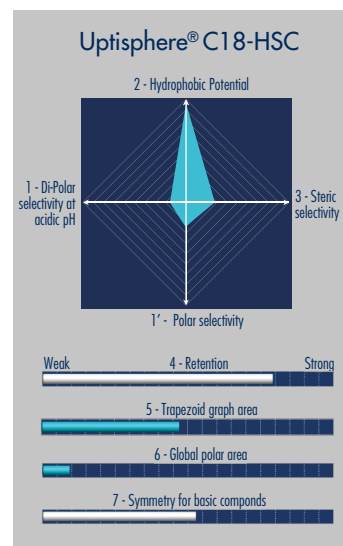
Functionalization: Mono-functional

% Carbon: 20 %

End-Capping: Multi step

pH Stability: 1.5 - 8

Mode: Reverse



Field of application

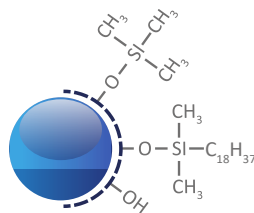
- UHPLC
- HPLC
- PrepLC
- Flash

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Advion Interchim Scientific columns for small organic molecules



Uptisphere® C18-ODB

C18 - Octadecyl

USP code: L1

Pore size: 120 Å

Surface area: 320 m²/g

Functionalization: Mono-functional

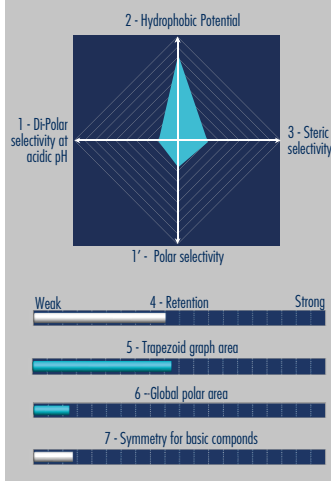
% Carbon: 18 %

End-Capping: One step

pH Stability: 1.5 - 7

Mode: Reverse

Uptisphere® C18-ODB



Field of application

| | |
|---------|---|
| UHPLC | ● |
| HPLC | ● |
| Prep-LC | ● |
| Flash | ○ |

Uptisphere® C18-ODB

Serves a broad-scope of analytical & prep LC requirements for separating non polar compounds.

| Dimensions | 2.2 µm | 3 µm | 5 µm | 10 µm |
|--------------|------------------|----------------|----------------|-----------------|
| 25 x 2.1 mm | UP2.2ODB-025/021 | UP3ODB-025/021 | --- | --- |
| 30 x 2.1 mm | UP2.2ODB-030/021 | UP3ODB-030/021 | --- | --- |
| 50 x 2.1 mm | UP2.2ODB-050/021 | UP3ODB-050/021 | UP5ODB-050/021 | --- |
| 75 x 2.1 mm | UP2.2ODB-075/021 | UP3ODB-075/021 | UP5ODB-075/021 | --- |
| 100 x 2.1 mm | UP2.2ODB-100/021 | UP3ODB-100/021 | UP5ODB-100/021 | --- |
| 125 x 2.1 mm | UP2.2ODB-125/021 | UP3ODB-125/021 | UP5ODB-125/021 | --- |
| 150 x 2.1 mm | UP2.2ODB-150/021 | UP3ODB-150/021 | UP5ODB-150/021 | --- |
| 250 x 2.1 mm | --- | --- | UP5ODB-250/021 | --- |
| 25 x 3.0 mm | UP2.2ODB-025/030 | UP3ODB-025/030 | --- | --- |
| 30 x 3.0 mm | UP2.2ODB-030/030 | UP3ODB-030/030 | --- | --- |
| 50 x 3.0 mm | UP2.2ODB-050/030 | UP3ODB-050/030 | UP5ODB-050/030 | --- |
| 75 x 3.0 mm | UP2.2ODB-075/030 | UP3ODB-075/030 | UP5ODB-075/030 | --- |
| 100 x 3.0 mm | UP2.2ODB-100/030 | UP3ODB-100/030 | UP5ODB-100/030 | --- |
| 125 x 3.0 mm | UP2.2ODB-125/030 | UP3ODB-125/030 | UP5ODB-125/030 | --- |
| 150 x 3.0 mm | UP2.2ODB-150/030 | UP3ODB-150/030 | UP5ODB-150/030 | UP10ODB-150/030 |
| 250 x 3.0 mm | --- | --- | UP5ODB-250/030 | UP10ODB-250/030 |
| 30 x 4.0 mm | UP2.2ODB-030/040 | --- | UP5ODB-030/040 | --- |
| 50 x 4.0 mm | UP2.2ODB-050/040 | --- | UP5ODB-050/040 | --- |
| 125 x 4.0 mm | UP2.2ODB-125/040 | UP3ODB-125/040 | UP5ODB-125/040 | UP10ODB-125/040 |
| 150 x 4.0 mm | --- | --- | UP5ODB-150/040 | --- |
| 250 x 4.0 mm | --- | --- | UP5ODB-250/040 | UP10ODB-250/040 |
| 300 x 4.0 mm | --- | --- | --- | UP10ODB-300/040 |
| 25 x 4.6 mm | UP2.2ODB-025/046 | UP3ODB-025/046 | UP5ODB-025/046 | --- |
| 30 x 4.6 mm | UP2.2ODB-030/046 | UP3ODB-030/046 | UP5ODB-030/046 | --- |
| 50 x 4.6 mm | UP2.2ODB-050/046 | UP3ODB-050/046 | UP5ODB-050/046 | --- |
| 75 x 4.6 mm | UP2.2ODB-075/046 | UP3ODB-075/046 | UP5ODB-075/046 | --- |
| 100 x 4.6 mm | UP2.2ODB-100/046 | UP3ODB-100/046 | UP5ODB-100/046 | --- |
| 125 x 4.6 mm | UP2.2ODB-125/046 | UP3ODB-125/046 | UP5ODB-125/046 | --- |
| 150 x 4.6 mm | UP2.2ODB-150/046 | UP3ODB-150/046 | UP5ODB-150/046 | UP10ODB-150/046 |
| 250 x 4.6 mm | --- | --- | UP5ODB-250/046 | UP10ODB-250/046 |

RELATED PRODUCTS

The efficiency of your SPE methods depends on the cleanliness of your samples. An upstream filtration step is often necessary. Our UptiDisc™ syringe filters ensure optimal sample processing. Find them in the Sample Preparation - Filtration - UptiDisc™ Syringe Filters chapter.

RELATED PRODUCTS

Columns Protection

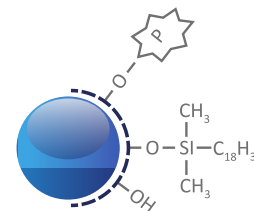
Find our Guard Cartridges & Holder on page G.66



Advion Interchim Scientific columns for small organic molecules

Uptisphere® C18-HDO

Suitable for mid & non polar compound separation. Shows excellent stability under 100% aqueous mobile phase conditions.



| Dimensions | 2.2 µm | 3 µm | 5 µm |
|--------------|------------------|----------------|----------------|
| 25 x 2.1 mm | UP2.2HDO-025/021 | UP3HDO-025/021 | --- |
| 30 x 2.1 mm | UP2.2HDO-030/021 | UP3HDO-030/021 | --- |
| 50 x 2.1 mm | UP2.2HDO-050/021 | UP3HDO-050/021 | UP5HDO-050/021 |
| 75 x 2.1 mm | UP2.2HDO-075/021 | UP3HDO-075/021 | UP5HDO-075/021 |
| 100 x 2.1 mm | UP2.2HDO-100/021 | UP3HDO-100/021 | UP5HDO-100/021 |
| 125 x 2.1 mm | UP2.2HDO-125/021 | UP3HDO-125/021 | UP5HDO-125/021 |
| 150 x 2.1 mm | UP2.2HDO-150/021 | UP3HDO-150/021 | UP5HDO-150/021 |
| 250 x 2.1 mm | --- | --- | UP5HDO-250/021 |
| 25 x 3.0 mm | UP2.2HDO-025/030 | UP3HDO-025/030 | --- |
| 30 x 3.0 mm | UP2.2HDO-030/030 | UP3HDO-030/030 | --- |
| 50 x 3.0 mm | UP2.2HDO-050/030 | UP3HDO-050/030 | UP5HDO-050/030 |
| 75 x 3.0 mm | UP2.2HDO-075/030 | UP3HDO-075/030 | UP5HDO-075/030 |
| 100 x 3.0 mm | UP2.2HDO-100/030 | UP3HDO-100/030 | UP5HDO-100/030 |
| 125 x 3.0 mm | UP2.2HDO-125/030 | UP3HDO-125/030 | UP5HDO-125/030 |
| 150 x 3.0 mm | UP2.2HDO-150/030 | UP3HDO-150/030 | UP5HDO-150/030 |
| 250 x 3.0 mm | --- | --- | UP5HDO-250/030 |
| 30 x 4.0 mm | UP2.2HDO-030/040 | --- | UP5HDO-030/040 |
| 50 x 4.0 mm | UP2.2HDO-050/040 | --- | UP5HDO-050/040 |
| 125 x 4.0 mm | UP2.2HDO-125/040 | UP3HDO-125/040 | UP5HDO-125/040 |
| 150 x 4.0 mm | --- | --- | UP5HDO-150/040 |
| 250 x 4.0 mm | --- | --- | UP5HDO-250/040 |
| 25 x 4.6 mm | UP2.2HDO-025/046 | UP3HDO-025/046 | UP5HDO-025/046 |
| 30 x 4.6 mm | UP2.2HDO-030/046 | UP3HDO-030/046 | UP5HDO-030/046 |
| 50 x 4.6 mm | UP2.2HDO-050/046 | UP3HDO-050/046 | UP5HDO-050/046 |
| 75 x 4.6 mm | UP2.2HDO-075/046 | UP3HDO-075/046 | UP5HDO-075/046 |
| 100 x 4.6 mm | UP2.2HDO-100/046 | UP3HDO-100/046 | UP5HDO-100/046 |
| 125 x 4.6 mm | UP2.2HDO-125/046 | UP3HDO-125/046 | UP5HDO-125/046 |
| 150 x 4.6 mm | UP2.2HDO-150/046 | UP3HDO-150/046 | UP5HDO-150/046 |
| 250 x 4.6 mm | --- | --- | UP5HDO-250/046 |

Uptisphere® C18-HDO

C18 - Octadecyl

USP code: L1

Pore size: 120 Å

Surface area: 320 m²/g

Functionalization: Mono-functional

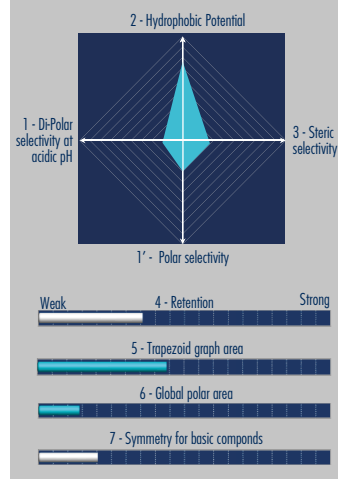
% Carbon: 17 %

End-Capping: Mixte

pH Stability: 1.5 - 7

Mode: Reverse

Uptisphere® C18-HDO



Field of application

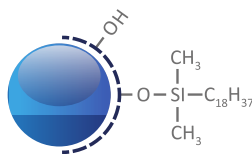
- UHPLC ●
- HPLC ●
- Prep-LC ●
- Flash ○

RELATED PRODUCTS

Columns Protection
Find our Guard Cartridges
& Holder on page G.66



Advion Interchim Scientific columns for small organic molecules



Uptisphere® C18-NEC

C18 - Octadecyl

USP code: L1

Pore size: 120 Å

Surface area: 320 m²/g

Functionalization: Mono-functional

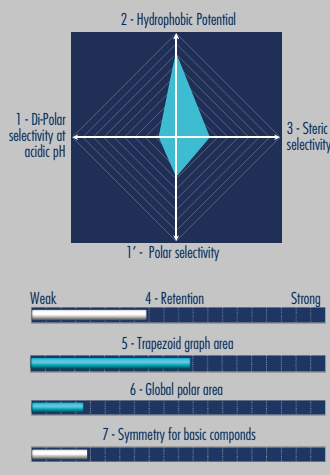
% Carbon: 16 %

End-Capping: None

pH Stability: 1.5 - 6.5

Mode: Reverse

Uptisphere® C18-NEC



Field of application

UHPLC ●
 HPLC ●
 Prep-LC ●
 Flash ●

Uptisphere® C18-NEC

C18-NEC strongly retains the polar and mid-polar compounds. It overcomes peak tailing with compounds that contains chains and /or carbon cycles combined with numerous polar groups and/or basic in character.

| | 2.2 µm | 3 µm | 5 µm |
|--------------|------------------|----------------|----------------|
| 25 x 2.1 mm | UP2.2NEC-025/021 | UP3NEC-025/021 | --- |
| 30 x 2.1 mm | UP2.2NEC-030/021 | UP3NEC-030/021 | --- |
| 50 x 2.1 mm | UP2.2NEC-050/021 | UP3NEC-050/021 | UP5NEC-050/021 |
| 75 x 2.1 mm | UP2.2NEC-075/021 | UP3NEC-075/021 | UP5NEC-075/021 |
| 100 x 2.1 mm | UP2.2NEC-100/021 | UP3NEC-100/021 | UP5NEC-100/021 |
| 125 x 2.1 mm | UP2.2NEC-125/021 | UP3NEC-125/021 | UP5NEC-125/021 |
| 150 x 2.1 mm | UP2.2NEC-150/021 | UP3NEC-150/021 | UP5NEC-150/021 |
| 250 x 2.1 mm | --- | --- | UP5NEC-250/021 |
| 25 x 3.0 mm | UP2.2NEC-025/030 | UP3NEC-025/030 | --- |
| 30 x 3.0 mm | UP2.2NEC-030/030 | UP3NEC-030/030 | --- |
| 50 x 3.0 mm | UP2.2NEC-050/030 | UP3NEC-050/030 | UP5NEC-050/030 |
| 75 x 3.0 mm | UP2.2NEC-075/030 | UP3NEC-075/030 | UP5NEC-075/030 |
| 100 x 3.0 mm | UP2.2NEC-100/030 | UP3NEC-100/030 | UP5NEC-100/030 |
| 125 x 3.0 mm | UP2.2NEC-125/030 | UP3NEC-125/030 | UP5NEC-125/030 |
| 150 x 3.0 mm | UP2.2NEC-150/030 | UP3NEC-150/030 | UP5NEC-150/030 |
| 250 x 3.0 mm | --- | --- | UP5NEC-250/030 |
| 30 x 4.0 mm | UP2.2NEC-030/040 | --- | UP5NEC-030/040 |
| 50 x 4.0 mm | UP2.2NEC-050/040 | --- | UP5NEC-050/040 |
| 125 x 4.0 mm | UP2.2NEC-125/040 | UP3NEC-125/040 | UP5NEC-125/040 |
| 150 x 4.0 mm | --- | --- | UP5NEC-150/040 |
| 250 x 4.0 mm | --- | --- | UP5NEC-250/040 |
| 25 x 4.6 mm | UP2.2NEC-025/046 | UP3NEC-025/046 | UP5NEC-025/046 |
| 30 x 4.6 mm | UP2.2NEC-030/046 | UP3NEC-030/046 | UP5NEC-030/046 |
| 50 x 4.6 mm | UP2.2NEC-050/046 | UP3NEC-050/046 | UP5NEC-050/046 |
| 75 x 4.6 mm | UP2.2NEC-075/046 | UP3NEC-075/046 | UP5NEC-075/046 |
| 100 x 4.6 mm | UP2.2NEC-100/046 | UP3NEC-100/046 | UP5NEC-100/046 |
| 125 x 4.6 mm | UP2.2NEC-125/046 | UP3NEC-125/046 | UP5NEC-125/046 |
| 150 x 4.6 mm | UP2.2NEC-150/046 | UP3NEC-150/046 | UP5NEC-150/046 |
| 250 x 4.6 mm | --- | --- | UP5NEC-250/046 |

RELATED PRODUCTS

Columns Protection
 Find our Guard Cartridges
 & Holder on page G.66

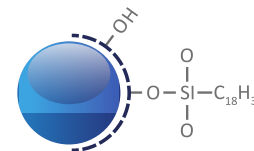


Advion Interchim Scientific columns for small organic molecules



Uptisphere® C18-TF

Alternative selectivity to classical C18 for challenging separations for - but not limited to - aromatic, polyphenol, PAHs...



| Dimensions | 5 µm |
|--------------|---------------|
| 50 x 2.1 mm | UP5TF-050/021 |
| 75 x 2.1 mm | UP5TF-075/021 |
| 100 x 2.1 mm | UP5TF-100/021 |
| 125 x 2.1 mm | UP5TF-125/021 |
| 150 x 2.1 mm | UP5TF-150/021 |
| 250 x 2.1 mm | UP5TF-250/021 |
| 50 x 3.0 mm | UP5TF-050/030 |
| 75 x 3.0 mm | UP5TF-075/030 |
| 100 x 3.0 mm | UP5TF-100/030 |
| 125 x 3.0 mm | UP5TF-125/030 |
| 150 x 3.0 mm | UP5TF-150/030 |
| 250 x 3.0 mm | UP5TF-250/030 |
| 30 x 4.0 mm | UP5TF-030/040 |
| 50 x 4.0 mm | UP5TF-050/040 |
| 125 x 4.0 mm | UP5TF-125/040 |
| 150 x 4.0 mm | UP5TF-150/040 |
| 250 x 4.0 mm | UP5TF-250/040 |
| 25 x 4.6 mm | UP5TF-025/046 |
| 30 x 4.6 mm | UP5TF-030/046 |
| 50 x 4.6 mm | UP5TF-050/046 |
| 75 x 4.6 mm | UP5TF-075/046 |
| 100 x 4.6 mm | UP5TF-100/046 |
| 125 x 4.6 mm | UP5TF-125/046 |
| 150 x 4.6 mm | UP5TF-150/046 |
| 250 x 4.6 mm | UP5TF-250/046 |

Uptisphere® C18-TF

C18 - Octadecyl

USP code: L1

Pore size: n.a.

Surface area: n.a.

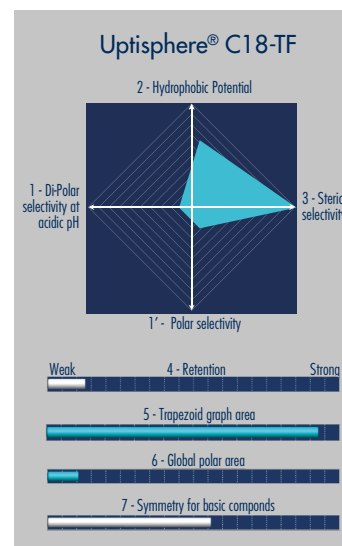
Functionalization: Poly-functional

% Carbon: 14 %

End-Capping: One step

pH Stability: 1.5 - 8

Mode: Reverse



Field of application

- UHPLC
- HPLC
- Prep-LC
- Flash

RELATED PRODUCTS

Evaporating your sample allows you to optimize the pre-concentration factor for sensitive analysis.

See the puriFlash® XS-Vap stand-alone evaporator in the section: Sample preparation

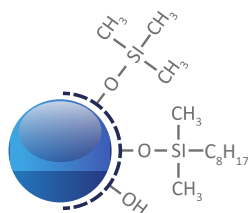
RELATED PRODUCTS

Columns Protection
Find our Guard Cartridges & Holder on page G.66



LC ANALYSIS

Advion Interchim Scientific columns for small organic molecules



Uptisphere® C8

C8 - Octyl

USP code: L7

Pore size: 120 Å

Surface area: 320 m²/g

Functionalization: Mono-functional

% Carbon: 11 %

End-Capping: One step

pH Stability: 2 - 7

Mode: Reverse

Field of application

| | |
|--------|-------------------------------------|
| UHPLC | <input type="checkbox"/> |
| HPLC | <input checked="" type="checkbox"/> |
| PrepLC | <input checked="" type="checkbox"/> |
| Flash | <input type="checkbox"/> |

Uptisphere® C8

Mid-polar and non polar compounds. Less retentive than C18.

| Dimensions | 5 µm |
|--------------|---------------|
| 25 x 2.1 mm | --- |
| 30 x 2.1 mm | --- |
| 50 x 2.1 mm | UP5C8-050/021 |
| 75 x 2.1 mm | UP5C8-075/021 |
| 100 x 2.1 mm | UP5C8-100/021 |
| 125 x 2.1 mm | UP5C8-125/021 |
| 150 x 2.1 mm | UP5C8-150/021 |
| 250 x 2.1 mm | UP5C8-250/021 |
| 25 x 3.0 mm | --- |
| 30 x 3.0 mm | --- |
| 50 x 3.0 mm | UP5C8-050/030 |
| 75 x 3.0 mm | UP5C8-075/030 |
| 100 x 3.0 mm | UP5C8-100/030 |
| 125 x 3.0 mm | UP5C8-125/030 |
| 150 x 3.0 mm | UP5C8-150/030 |
| 250 x 3.0 mm | UP5C8-250/030 |
| 30 x 4.0 mm | UP5C8-030/040 |
| 50 x 4.0 mm | UP5C8-050/040 |
| 125 x 4.0 mm | UP5C8-125/040 |
| 150 x 4.0 mm | UP5C8-150/040 |
| 250 x 4.0 mm | UP5C8-250/040 |
| 25 x 4.6 mm | UP5C8-025/046 |
| 30 x 4.6 mm | UP5C8-030/046 |
| 50 x 4.6 mm | UP5C8-050/046 |
| 75 x 4.6 mm | UP5C8-075/046 |
| 100 x 4.6 mm | UP5C8-100/046 |
| 125 x 4.6 mm | UP5C8-125/046 |
| 150 x 4.6 mm | UP5C8-150/046 |
| 250 x 4.6 mm | UP5C8-250/046 |

RELATED PRODUCTS

Columns Protection

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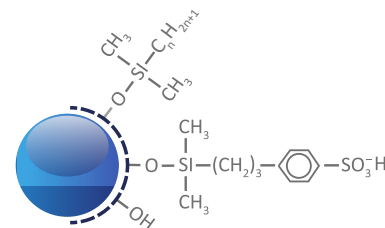


Advion Interchim Scientific columns for small organic molecules



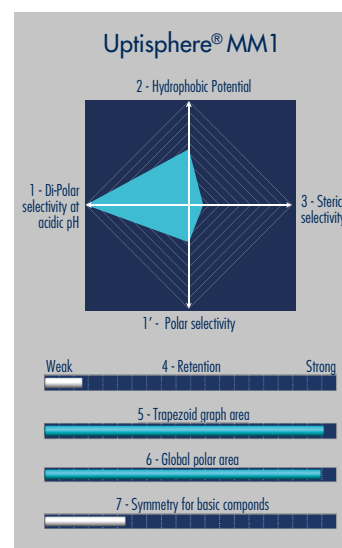
Uptisphere® MM1

Ion exchange and hydrophobic chains are bonded onto the surface of silica providing unique selectivity. Compounds that possess basic functionality are retained by ion exchange functionality. An organic solvent will elute hydrophobic compounds.



| Dimensions | 5µm |
|--------------|----------------|
| 50 x 2.1 mm | UP5MM1-050/021 |
| 75 x 2.1 mm | UP5MM1-075/021 |
| 100 x 2.1 mm | UP5MM1-100/021 |
| 125 x 2.1 mm | UP5MM1-125/021 |
| 150 x 2.1 mm | UP5MM1-150/021 |
| 250 x 2.1 mm | UP5MM1-250/021 |
| 50 x 3.0 mm | UP5MM1-050/030 |
| 75 x 3.0 mm | UP5MM1-075/030 |
| 100 x 3.0 mm | UP5MM1-100/030 |
| 125 x 3.0 mm | UP5MM1-125/030 |
| 150 x 3.0 mm | UP5MM1-150/030 |
| 250 x 3.0 mm | UP5MM1-250/030 |
| 30 x 4.0 mm | UP5MM1-030/040 |
| 50 x 4.0 mm | UP5MM1-050/040 |
| 125 x 4.0 mm | UP5MM1-125/040 |
| 150 x 4.0 mm | UP5MM1-150/040 |
| 250 x 4.0 mm | UP5MM1-250/040 |
| 25 x 4.6 mm | UP5MM1-025/046 |
| 30 x 4.6 mm | UP5MM1-030/046 |
| 50 x 4.6 mm | UP5MM1-050/046 |
| 75 x 4.6 mm | UP5MM1-075/046 |
| 100 x 4.6 mm | UP5MM1-100/046 |
| 125 x 4.6 mm | UP5MM1-125/046 |
| 150 x 4.6 mm | UP5MM1-150/046 |
| 250 x 4.6 mm | UP5MM1-250/046 |

Uptisphere® MM1
 C8 / SCX
 USP code: L44
 Pore size: 120 Å
 Surface area: 320 m²/g
 Functionalization: Mono-functional
 % Carbon: n.a.
 End-Capping: One step
 pH Stability: 2 - 6.5
 Mode: Reverse / Ion Exchange



Field of application

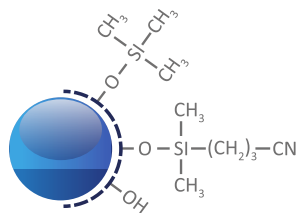
- UHPLC
- HPLC
- Prep-LC
- Flash

RELATED PRODUCTS

Columns Protection
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Advion Interchim Scientific columns for small organic molecules



Uptisphere® CN

CN - Cyano

USP code: L26

Pore size: 120 Å

Surface area: 320 m²/g

Functionalization: Mono-functional

% Carbon: 8 %

End-Capping: One step

pH Stability: 2 - 7

Mode: Reverse / Normal

Field of application

| | |
|---------|-------------------------------------|
| UHPLC | <input type="checkbox"/> |
| HPLC | <input checked="" type="checkbox"/> |
| Prep-LC | <input checked="" type="checkbox"/> |
| Flash | <input type="checkbox"/> |

Uptisphere® CN

CN functional groups can be used either in normal phase to purify polar compounds or in reverse phase for mid-polar compounds.

| Dimensions | 3 µm | 5 µm |
|--------------|---------------|---------------|
| 25 x 2.1 mm | UP3CN-025/021 | --- |
| 30 x 2.1 mm | UP3CN-030/021 | --- |
| 50 x 2.1 mm | UP3CN-050/021 | UP5CN-050/021 |
| 75 x 2.1 mm | UP3CN-075/021 | UP5CN-075/021 |
| 100 x 2.1 mm | UP3CN-100/021 | UP5CN-100/021 |
| 125 x 2.1 mm | UP3CN-125/021 | UP5CN-125/021 |
| 150 x 2.1 mm | UP3CN-150/021 | UP5CN-150/021 |
| 250 x 2.1 mm | --- | UP5CN-250/021 |
| 25 x 3.0 mm | UP3CN-025/030 | --- |
| 30 x 3.0 mm | UP3CN-030/030 | --- |
| 50 x 3.0 mm | UP3CN-050/030 | UP5CN-050/030 |
| 75 x 3.0 mm | UP3CN-075/030 | UP5CN-075/030 |
| 100 x 3.0 mm | UP3CN-100/030 | UP5CN-100/030 |
| 125 x 3.0 mm | UP3CN-125/030 | UP5CN-125/030 |
| 150 x 3.0 mm | UP3CN-150/030 | UP5CN-150/030 |
| 250 x 3.0 mm | --- | UP5CN-250/030 |
| 30 x 4.0 mm | --- | UP5CN-030/040 |
| 50 x 4.0 mm | --- | UP5CN-050/040 |
| 125 x 4.0 mm | UP3CN-125/040 | UP5CN-125/040 |
| 150 x 4.0 mm | --- | UP5CN-150/040 |
| 250 x 4.0 mm | --- | UP5CN-250/040 |
| 25 x 4.6 mm | UP3CN-025/046 | UP5CN-025/046 |
| 30 x 4.6 mm | UP3CN-030/046 | UP5CN-030/046 |
| 50 x 4.6 mm | UP3CN-050/046 | UP5CN-050/046 |
| 75 x 4.6 mm | UP3CN-075/046 | UP5CN-075/046 |
| 100 x 4.6 mm | UP3CN-100/046 | UP5CN-100/046 |
| 125 x 4.6 mm | UP3CN-125/046 | UP5CN-125/046 |
| 150 x 4.6 mm | UP3CN-150/046 | UP5CN-150/046 |
| 250 x 4.6 mm | --- | UP5CN-250/046 |

RELATED PRODUCTS

Columns Protection

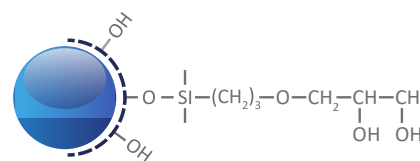
Find our Guard Cartridges & Holder on page G.66





Uptisphere® OH

The diol function provides globally a neutral surface onto the silica. It leads to greater separation of basic compounds by normal phase vs. regular silica.



| Dimensions | 6 µm |
|--------------|---------------|
| 250 x 2.1 mm | UP6OH-250/021 |
| 150 x 3.0 mm | UP6OH-150/030 |
| 250 x 3.0 mm | UP6OH-250/030 |
| 125 x 4.0 mm | UP6OH-125/040 |
| 150 x 4.0 mm | UP6OH-250/040 |
| 150 x 4.6 mm | UP6OH-150/046 |
| 250 x 4.6 mm | UP6OH-250/046 |

Uptisphere® OH

OH - Diol

USP code: L20

Pore size: 120 Å

Surface area: 320 m²/g

Functionalization: Mono-functional

% Carbon: 6 %

End-Capping: None

pH Stability: 1.5 - 6.5

Mode: Reverse / Normal

Field of application

| | |
|---------|---|
| UHPLC | ○ |
| HPLC | ● |
| Prep-LC | ● |
| Flash | ○ |

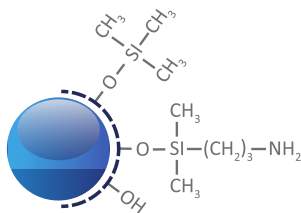
RELATED PRODUCTS

Columns Protection

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Advion Interchim Scientific columns for small organic molecules



Uptisphere® NH2

NH2 - Amino

USP code: L8

Pore size: 120 Å

Surface area: 320 m²/g

Functionalization: Mono-functional

% Carbon: 5 %

End-Capping: None

pH Stability: 2 - 6.5

Mode: Reverse / Normal / Ion

Exchange

Field of application

| | |
|---------|---|
| UHPLC | ● |
| HPLC | ● |
| Prep-LC | ● |
| Flash | ○ |

Uptisphere® NH2

Can be both a weak anion exchanger for strong acids or a polar phase that can interact with OH, NH, SH, ... functions

| Dimensions | 2.2 µm | 3 µm | 5 µm |
|--------------|------------------|----------------|----------------|
| 25 x 2.1 mm | UP2.2NH2-025/021 | UP3NH2-025/021 | --- |
| 30 x 2.1 mm | UP2.2NH2-030/021 | UP3NH2-030/021 | --- |
| 50 x 2.1 mm | UP2.2NH2-050/021 | UP3NH2-050/021 | UP5NH2-050/021 |
| 75 x 2.1 mm | UP2.2NH2-075/021 | UP3NH2-075/021 | UP5NH2-075/021 |
| 100 x 2.1 mm | UP2.2NH2-100/021 | UP3NH2-100/021 | UP5NH2-100/021 |
| 125 x 2.1 mm | UP2.2NH2-125/021 | UP3NH2-125/021 | UP5NH2-125/021 |
| 150 x 2.1 mm | UP2.2NH2-150/021 | UP3NH2-150/021 | UP5NH2-150/021 |
| 250 x 2.1 mm | --- | --- | UP5NH2-250/021 |
| 25 x 3.0 mm | UP2.2NH2-025/030 | UP3NH2-025/030 | --- |
| 30 x 3.0 mm | UP2.2NH2-030/030 | UP3NH2-030/030 | --- |
| 50 x 3.0 mm | UP2.2NH2-050/030 | UP3NH2-050/030 | UP5NH2-050/030 |
| 75 x 3.0 mm | UP2.2NH2-075/030 | UP3NH2-075/030 | UP5NH2-075/030 |
| 100 x 3.0 mm | UP2.2NH2-100/030 | UP3NH2-100/030 | UP5NH2-100/030 |
| 125 x 3.0 mm | UP2.2NH2-125/030 | UP3NH2-125/030 | UP5NH2-125/030 |
| 150 x 3.0 mm | UP2.2NH2-150/030 | UP3NH2-150/030 | UP5NH2-150/030 |
| 250 x 3.0 mm | --- | --- | UP5NH2-250/030 |
| 30 x 4.0 mm | UP2.2NH2-030/040 | --- | UP5NH2-030/040 |
| 50 x 4.0 mm | UP2.2NH2-050/040 | --- | UP5NH2-050/040 |
| 125 x 4.0 mm | UP2.2NH2-125/040 | UP3NH2-125/040 | UP5NH2-125/040 |
| 150 x 4.0 mm | --- | --- | UP5NH2-150/040 |
| 250 x 4.0 mm | --- | --- | UP5NH2-250/040 |
| 25 x 4.6 mm | UP2.2NH2-025/046 | UP3NH2-025/046 | UP5NH2-025/046 |
| 30 x 4.6 mm | UP2.2NH2-030/046 | UP3NH2-030/046 | UP5NH2-030/046 |
| 50 x 4.6 mm | UP2.2NH2-050/046 | UP3NH2-050/046 | UP5NH2-050/046 |
| 75 x 4.6 mm | UP2.2NH2-075/046 | UP3NH2-075/046 | UP5NH2-075/046 |
| 100 x 4.6 mm | UP2.2NH2-100/046 | UP3NH2-100/046 | UP5NH2-100/046 |
| 125 x 4.6 mm | UP2.2NH2-125/046 | UP3NH2-125/046 | UP5NH2-125/046 |
| 150 x 4.6 mm | UP2.2NH2-150/046 | UP3NH2-150/046 | UP5NH2-150/046 |
| 250 x 4.6 mm | --- | --- | UP5NH2-250/046 |

RELATED PRODUCTS

Columns Protection

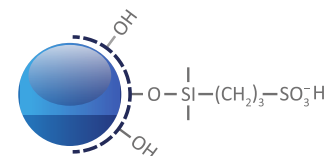
Find our Guard Cartridges & Holder on page G.66





Uptisphere® SCX

Strong cation exchanger (SCX) contains sulfonic acid used to analyze weak basic compounds which have one or more positive charges.



| Dimensions | 5 µm | 10 µm |
|--------------|----------------|-----------------|
| 50 x 2.1 mm | UP5SCX-050/021 | --- |
| 75 x 2.1 mm | UP5SCX-075/021 | --- |
| 100 x 2.1 mm | UP5SCX-100/021 | --- |
| 125 x 2.1 mm | UP5SCX-125/021 | --- |
| 150 x 2.1 mm | UP5SCX-150/021 | --- |
| 250 x 2.1 mm | UP5SCX-250/021 | --- |
| 50 x 3.0 mm | UP5SCX-050/030 | --- |
| 75 x 3.0 mm | UP5SCX-075/030 | --- |
| 100 x 3.0 mm | UP5SCX-100/030 | --- |
| 125 x 3.0 mm | UP5SCX-125/030 | --- |
| 150 x 3.0 mm | UP5SCX-150/030 | UP10SCX-150/030 |
| 250 x 3.0 mm | UP5SCX-250/030 | UP10SCX-250/030 |
| 30 x 4.0 mm | UP5SCX-030/040 | --- |
| 50 x 4.0 mm | UP5SCX-050/040 | --- |
| 125 x 4.0 mm | UP5SCX-125/040 | UP10SCX-125/040 |
| 150 x 4.0 mm | UP5SCX-150/040 | --- |
| 250 x 4.0 mm | UP5SCX-250/040 | UP10SCX-250/040 |
| 300 x 4.0 mm | --- | UP10SCX-300/040 |
| 25 x 4.6 mm | UP5SCX-025/046 | --- |
| 30 x 4.6 mm | UP5SCX-030/046 | --- |
| 50 x 4.6 mm | UP5SCX-050/046 | --- |
| 75 x 4.6 mm | UP5SCX-075/046 | --- |
| 100 x 4.6 mm | UP5SCX-100/046 | --- |
| 125 x 4.6 mm | UP5SCX-125/046 | --- |
| 150 x 4.6 mm | UP5SCX-150/046 | UP10SCX-150/046 |
| 250 x 4.6 mm | UP5SCX-250/046 | UP10SCX-250/046 |

Uptisphere® SCX

SCX - Strong cation Exchanger

USP code: L9

Pore size: 120 Å

Surface area: 320 m²/g

Functionalization: Mono-functional

% Carbon: n.a.

End-Capping: None

pH Stability: 1 - 7.5

Mode: Ion Exchange

Field of application

| | |
|---------|---|
| UHPLC | ○ |
| HPLC | ● |
| Prep-LC | ● |
| Flash | ○ |

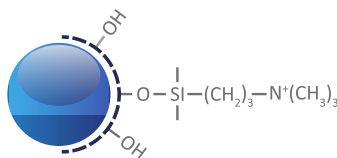
RELATED PRODUCTS

Columns Protection

Find our Guard Cartridges
& Holder on page G.66



Advion Interchim Scientific columns for small organic molecules



Uptisphere® SAX

SAX - Strong Anion Exchanger

USP code: L14

Pore size: 120 Å

Surface area: 320 m²/g

Functionalization: Mono-functional

% Carbon: n.a.

End-Capping: None

pH Stability: 1 - 7.5

Mode: Ion Exchange

Uptisphere® SAX

Strong anion exchanger (SAX) contains quaternary amine, used to analyze weak acid compounds which have one or more negative charges nucleotides, nucleosides, organic acids...

| Dimensions | 5 µm | 10 µm |
|--------------|----------------|-----------------|
| 50 x 2.1 mm | UP5SAX-050/021 | --- |
| 75 x 2.1 mm | UP5SAX-075/021 | --- |
| 100 x 2.1 mm | UP5SAX-100/021 | --- |
| 125 x 2.1 mm | UP5SAX-125/021 | --- |
| 150 x 2.1 mm | UP5SAX-150/021 | --- |
| 250 x 2.1 mm | UP5SAX-250/021 | --- |
| 50 x 3.0 mm | UP5SAX-050/030 | --- |
| 75 x 3.0 mm | UP5SAX-075/030 | --- |
| 100 x 3.0 mm | UP5SAX-100/030 | --- |
| 125 x 3.0 mm | UP5SAX-125/030 | --- |
| 150 x 3.0 mm | UP5SAX-150/030 | UP10SAX-150/030 |
| 250 x 3.0 mm | UP5SAX-250/030 | UP10SAX-250/030 |
| 30 x 4.0 mm | UP5SAX-030/040 | --- |
| 50 x 4.0 mm | UP5SAX-050/040 | --- |
| 125 x 4.0 mm | UP5SAX-125/040 | UP10SAX-125/040 |
| 150 x 4.0 mm | UP5SAX-150/040 | --- |
| 250 x 4.0 mm | UP5SAX-250/040 | --- |
| 300 x 4.0 mm | --- | UP10SAX-250/040 |
| 25 x 4.6 mm | UP5SAX-025/046 | UP10SAX-300/040 |
| 30 x 4.6 mm | UP5SAX-030/046 | --- |
| 50 x 4.6 mm | UP5SAX-050/046 | --- |
| 75 x 4.6 mm | UP5SAX-075/046 | --- |
| 100 x 4.6 mm | UP5SAX-100/046 | --- |
| 125 x 4.6 mm | UP5SAX-125/046 | --- |
| 150 x 4.6 mm | UP5SAX-150/046 | UP10SAX-150/046 |
| 250 x 4.6 mm | UP5SAX-250/046 | UP10SAX-250/046 |

Field of application

| | |
|---------|-------------------------------------|
| UHPLC | <input type="checkbox"/> |
| HPLC | <input checked="" type="checkbox"/> |
| Prep-LC | <input checked="" type="checkbox"/> |
| Flash | <input type="checkbox"/> |

RELATED PRODUCTS

Columns Protection

Find our Guard Cartridges & Holder on page G.66



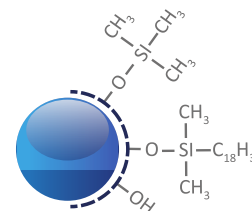
Advion Interchim Scientific columns for small organic molecules



puriFlash® C18-XS

The proprietary multi-step bonding technology guarantees a fully end-capped phase, stable under basic pH conditions up to pH: 10.

It's an excellent phase for the integral purification of basic drugs.



| Dimensions | 5 µm |
|--------------|------------------|
| 50 x 2.1 mm | PF5C18XS-050/021 |
| 75 x 2.1 mm | PF5C18XS-075/021 |
| 100 x 2.1 mm | PF5C18XS-100/021 |
| 125 x 2.1 mm | PF5C18XS-125/021 |
| 150 x 2.1 mm | PF5C18XS-150/021 |
| 250 x 2.1 mm | PF5C18XS-250/021 |
| 50 x 3.0 mm | PF5C18XS-050/030 |
| 75 x 3.0 mm | PF5C18XS-075/030 |
| 100 x 3.0 mm | PF5C18XS-100/030 |
| 125 x 3.0 mm | PF5C18XS-125/030 |
| 150 x 3.0 mm | PF5C18XS-150/030 |
| 250 x 3.0 mm | PF5C18XS-250/030 |
| 50 x 4.0 mm | PF5C18XS-050/040 |
| 125 x 4.0 mm | PF5C18XS-125/040 |
| 150 x 4.0 mm | PF5C18XS-150/040 |
| 250 x 4.0 mm | PF5C18XS-250/040 |
| 25 x 4.6 mm | PF5C18XS-025/046 |
| 30 x 4.6 mm | PF5C18XS-030/046 |
| 50 x 4.6 mm | PF5C18XS-050/046 |
| 75 x 4.6 mm | PF5C18XS-075/046 |
| 100 x 4.6 mm | PF5C18XS-100/046 |
| 125 x 4.6 mm | PF5C18XS-125/046 |
| 150 x 4.6 mm | PF5C18XS-150/046 |
| 250 x 4.6 mm | PF5C18XS-250/046 |

puriFlash® C18-XS

C18 - Octadecyl

USP code: L1

Pore size: 100 Å

Surface area: 300 m²/g

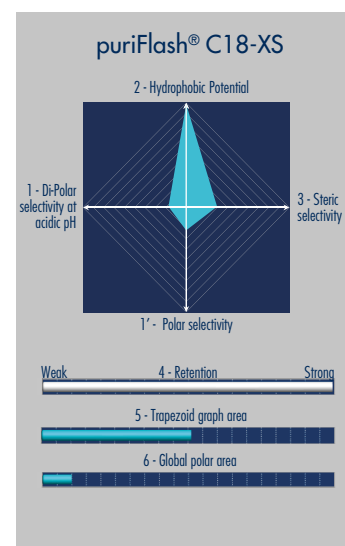
Functionalization: Mono-functional

% Carbon: 17 %

End-Capping: Multi step

pH Stability: 1 - 10

Mode: Reverse



Field of application

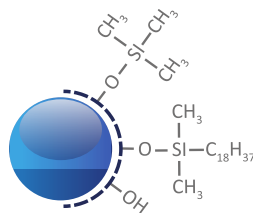
- UHPLC
- HPLC
- Prep-LC
- Flash

RELATED PRODUCTS

Columns Protection
Find our Guard Cartridges
& Holder on page G.66



Advion Interchim Scientific columns for small organic molecules



puriFlash® C18-HP

C18 - Octadecyl

USP code: L1

Pore size: 100 Å

Surface area: 300 m²/g

Functionalization: Mono-functional

% Carbon: 16.5 %

End-Capping: One step

pH Stability: 1.5 - 7.5

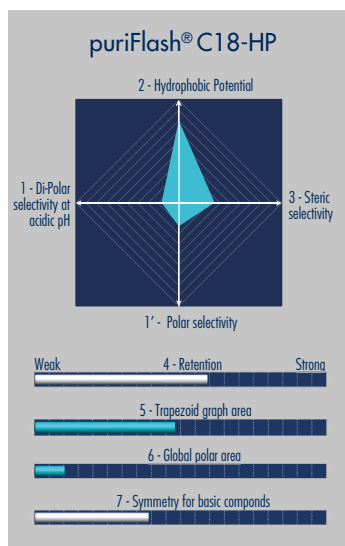
Mode: Reverse

puriFlash® C18-HP

Serves many pharmaceutical applications.

Excellent choice for routine purification in reverse phase mode.

| Dimensions | 5 µm |
|--------------|------------------|
| 50 x 2.1 mm | PF5C18HP-050/021 |
| 75 x 2.1 mm | PF5C18HP-075/021 |
| 100 x 2.1 mm | PF5C18HP-100/021 |
| 125 x 2.1 mm | PF5C18HP-125/021 |
| 150 x 2.1 mm | PF5C18HP-150/021 |
| 250 x 2.1 mm | PF5C18HP-250/021 |
| 50 x 3.0 mm | PF5C18HP-050/030 |
| 75 x 3.0 mm | PF5C18HP-075/030 |
| 100 x 3.0 mm | PF5C18HP-100/030 |
| 125 x 3.0 mm | PF5C18HP-125/030 |
| 150 x 3.0 mm | PF5C18HP-150/030 |
| 250 x 3.0 mm | PF5C18HP-250/030 |
| 50 x 4.0 mm | PF5C18HP-050/040 |
| 125 x 4.0 mm | PF5C18HP-125/040 |
| 150 x 4.0 mm | PF5C18HP-150/040 |
| 250 x 4.0 mm | PF5C18HP-250/040 |
| 25 x 4.6 mm | PF5C18HP-025/046 |
| 30 x 4.6 mm | PF5C18HP-030/046 |
| 50 x 4.6 mm | PF5C18HP-050/046 |
| 75 x 4.6 mm | PF5C18HP-075/046 |
| 100 x 4.6 mm | PF5C18HP-100/046 |
| 125 x 4.6 mm | PF5C18HP-125/046 |
| 150 x 4.6 mm | PF5C18HP-150/046 |
| 250 x 4.6 mm | PF5C18HP-250/046 |



Field of application

UHPLC
 HPLC
 Prep-LC
 Flash

RELATED PRODUCTS

Columns Protection

Find our Guard Cartridges & Holder on page G.66

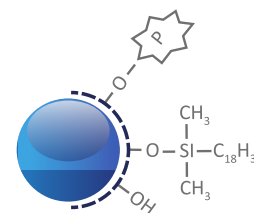


Advion Interchim Scientific columns for small organic molecules



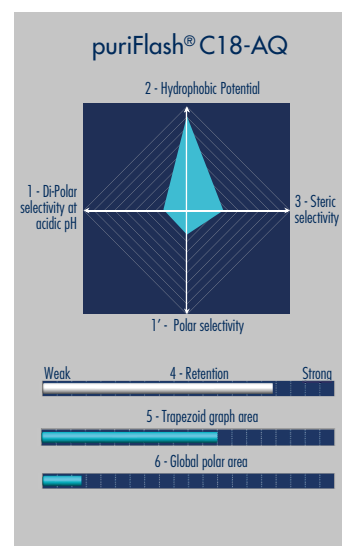
puriFlash® C18-AQ

The bonding chemistry enables a starting gradient of 100% of water. Suitable for the purification of mid and non polar compounds.



| Dimensions | 5 µm |
|--------------|------------------|
| 50 x 2.1 mm | PF5C18AQ-050/021 |
| 75 x 2.1 mm | PF5C18AQ-075/021 |
| 100 x 2.1 mm | PF5C18AQ-100/021 |
| 125 x 2.1 mm | PF5C18AQ-125/021 |
| 150 x 2.1 mm | PF5C18AQ-150/021 |
| 250 x 2.1 mm | PF5C18AQ-250/021 |
| 50 x 3.0 mm | PF5C18AQ-050/030 |
| 75 x 3.0 mm | PF5C18AQ-075/030 |
| 100 x 3.0 mm | PF5C18AQ-100/030 |
| 125 x 3.0 mm | PF5C18AQ-125/030 |
| 150 x 3.0 mm | PF5C18AQ-150/030 |
| 250 x 3.0 mm | PF5C18AQ-250/030 |
| 50 x 4.0 mm | PF5C18AQ-050/040 |
| 125 x 4.0 mm | PF5C18AQ-125/040 |
| 150 x 4.0 mm | PF5C18AQ-150/040 |
| 250 x 4.0 mm | PF5C18AQ-250/040 |
| 25 x 4.6 mm | PF5C18AQ-025/046 |
| 30 x 4.6 mm | PF5C18AQ-030/046 |
| 50 x 4.6 mm | PF5C18AQ-050/046 |
| 75 x 4.6 mm | PF5C18AQ-075/046 |
| 100 x 4.6 mm | PF5C18AQ-100/046 |
| 125 x 4.6 mm | PF5C18AQ-125/046 |
| 150 x 4.6 mm | PF5C18AQ-150/046 |
| 250 x 4.6 mm | PF5C18AQ-250/046 |

puriFlash® C18-AQ
 C18 - Octadecyl
 USP code: L1
 Pore size: 100 Å
 Surface area: 300 m²/g
 Functionalization: Mono-functional
 % Carbon: 14 %
 End-Capping: Mixte
 pH Stability: 2 - 7.5
 Mode: Reverse



Field of application

- UHPLC ○
- HPLC ●
- Prep-LC ●
- Flash ●

RELATED PRODUCTS

Columns Protection
 Find our Guard Cartridges
 & Holder on page G.66



Advion Interchim Scientific (U)HPLC Columns protection

HPLC Column Protection & Prevention:

To achieve the full benefits from your HPLC column, it must be protected from physical and chemical aggressors.

Analytical Guard Cartridges

The use of a guard cartridge is the best protection against chemical pollution from the sample. A real "fuse", it must be replaced periodically to ensure optimal protection. The indicators of change can be an abnormal pressure before injection or a changing chromatographic profile.

(U)HPLC Guard Cartridge System: silicas from 1.7µm up to 5µm



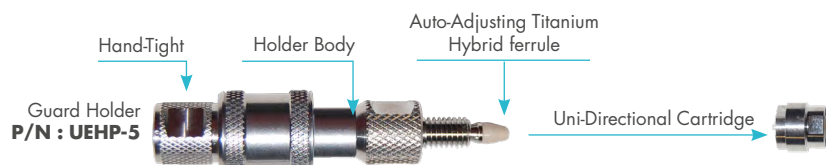
- 900 bar maximum pressure
- High performance
- Low dead volume
- Compatibles 2.6 - 2.7 µm Core Shell silicas

| Core Shell Guard cartridges | Reverse Phase | Hilic Mode | Normal Phase |
|-----------------------------|-------------------|----------------------|--------------|
| 2.6µm - 5 x 2.1mm - 3u | CS-RP-2.6-005/021 | CS-HILIC-2.6-005/021 | --- |
| 2.6µm - 5 x 4.0mm - 3u | CS-RP-2.6-005/046 | CS-HILIC-2.6-005/046 | --- |

1.7 up to 5 µm Fully Porous Silicas

| Guard cartridges | Reverse Phase | Hilic Mode | Normal Phase |
|---------------------------|-------------------|----------------------|-------------------|
| 1.7 µm - 5 x 2.1 mm - 3 u | UP-RP-1.7-005/021 | --- | --- |
| 1.7 µm - 5 x 4.0 mm - 3 u | UP-RP-1.7-005/046 | --- | --- |
| 2.2 µm - 5 x 2.1 mm - 3 u | UP-RP-2.2-005/021 | UP-HILIC-2.2-005/021 | UP-NP-2.2-005/021 |
| 2.2 µm - 5 x 4.0 mm - 3 u | UP-RP-2.2-005/046 | UP-HILIC-2.2-005/046 | UP-NP-2.2-005/046 |
| 3 µm - 5 x 2.1mm - 3 u | UP-RP-3-005/021 | UP-HILIC-3-005/021 | UP-NP-3-005/021 |
| 3 µm - 5 x 4.0 mm - 3 u | UP-RP-3-005/046 | UP-HILIC-3-005/046 | UP-NP-3-005/046 |
| 5 µm - 5 x 2.1 mm - 3 u | UP-RP-5-005/021 | UP-HILIC-5-005/021 | UP-NP-5-005/021 |
| 5 µm - 5 x 4.0 mm - 3 u | UP-RP-5-005/046 | UP-HILIC-5-005/046 | UP-NP-5-005/046 |

(U)HPLC Guard Cartridge System: Core shell Silicas for 2.6 – 2.7 µm



- 1000 bar maximum pressure
- High performance
- Low dead volume

| Uptisphere® CS-HP Guard cartridges | Reverse Phase | Hilic Mode |
|------------------------------------|-------------------|----------------------|
| 5 x 2.1mm - 3u | UE-RP-2.6-005/021 | UE-HILIC-2.6-005/021 |
| 5 x 3.0mm - 3u | UE-RP-2.6-005/030 | UE-HILIC-2.6-005/030 |
| 5 x 4.6mm - 3u | UE-RP-2.6-005/046 | UE-HILIC-2.6-005/046 |

HPLC in-line filters

- Protection from physical contamination
- Compatible with 1/16" fittings
- Porosity 0.5 or 2 µm



| Porosity | P/N | Qty /pack |
|----------|--------|-----------|
| 0,5 µm | T50270 | 10 u |
| 2,0 µm | R21281 | 10 u |

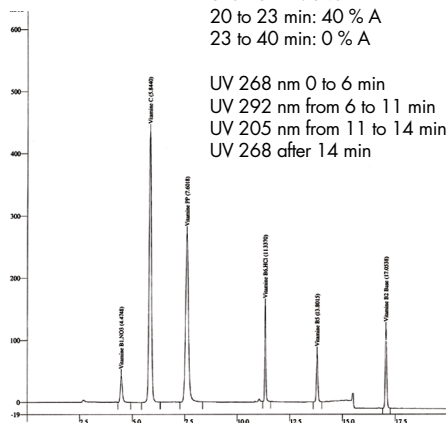


WATER-SOLUBLE VITAMINS

Uptisphere® 120 Å,
5 µm C18-HDO,
250 x 4.6 mm

A : ACN
B : 0.05M Buffer (pH : 2.6)
0 to 20 min: 0 % A
20 to 23 min: 40 % A
23 to 40 min: 0 % A

UV 268 nm 0 to 6 min
UV 292 nm from 6 to 11 min
UV 205 nm from 11 to 14 min
UV 268 after 14 min

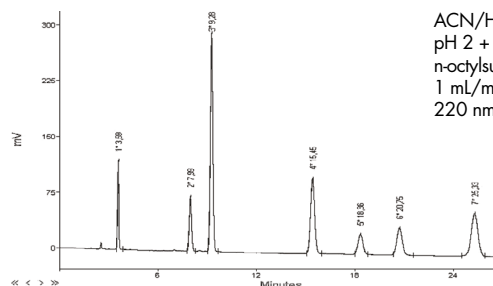


4,5 B1,NO3
5,8 C
7,6 PP
11,3 B6,HCl
13,8 B5
17 B2 base

CATECHOLAMINES

Strategy™ 5 µm C18-HQ, 250 x 4,6 mm

ACN/H₂O 20/80
pH 2 + 30 mM sodium
n-octylsulfonic acid
1 mL/min
220 nm



| Sample | tr | As | N | Rs |
|----------------------------------|-------|------|----------|-------|
| 4-Hydroxy-3-methoxymandelic acid | 3.59 | 0.93 | 13611.09 | 0 |
| DL-threodihydroxy-phenyl serine | 7.99 | 1.08 | 14845.64 | 22.84 |
| 2-Acetamidophenol | 9.28 | 1.02 | 17871.29 | 4.81 |
| DL-noradrenaline | 15.45 | 1.02 | 18212.13 | 16.75 |
| adrenaline | 18.36 | 1.01 | 16933.1 | 5.71 |
| DL-octapamine | 20.75 | 1.01 | 18519.6 | 4.07 |
| dopamine | 25.33 | 0.99 | 18129.81 | 6.72 |

PAH'S 610 STANDARD

Uptisphere® 5 µm
C18-TF, 250 x 4,6 mm

Solvent A: ACN : H₂O, 50: 50, v/v
Solvent B: ACN

Flow rate: 1.0 mL/min
Column temp.: 30°C

Gradient:

Min % A

0.0 80.0

5.0 80.0

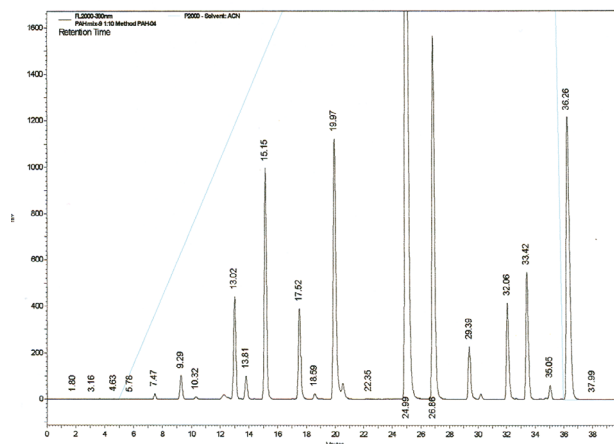
30.0 1.0

35.0 1.0

36.0 80.0

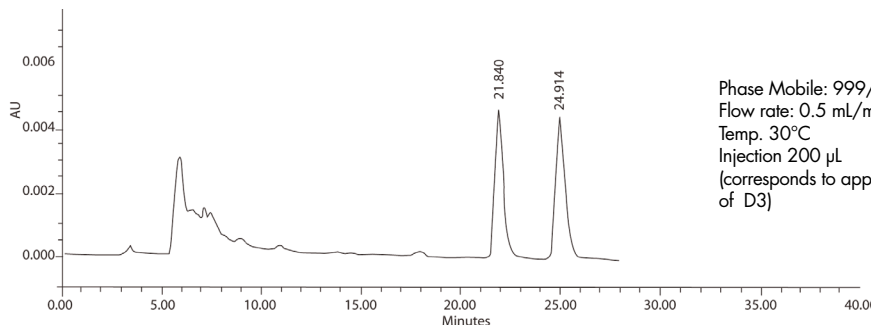
40.0 80.0

Detection : FL ex 270 nm, em 380 nm



VITAMIN D3 ANALYSIS

Uptisphere® 5 µm
C18-TF, 250 x 4.6 mm



Phase Mobile: 999/1 ACN/MeOH
Flow rate: 0.5 mL/min
Temp. 30°C
Injection 200 µL
(corresponds to approximately 40 ng of D3)

Other applications available on request.



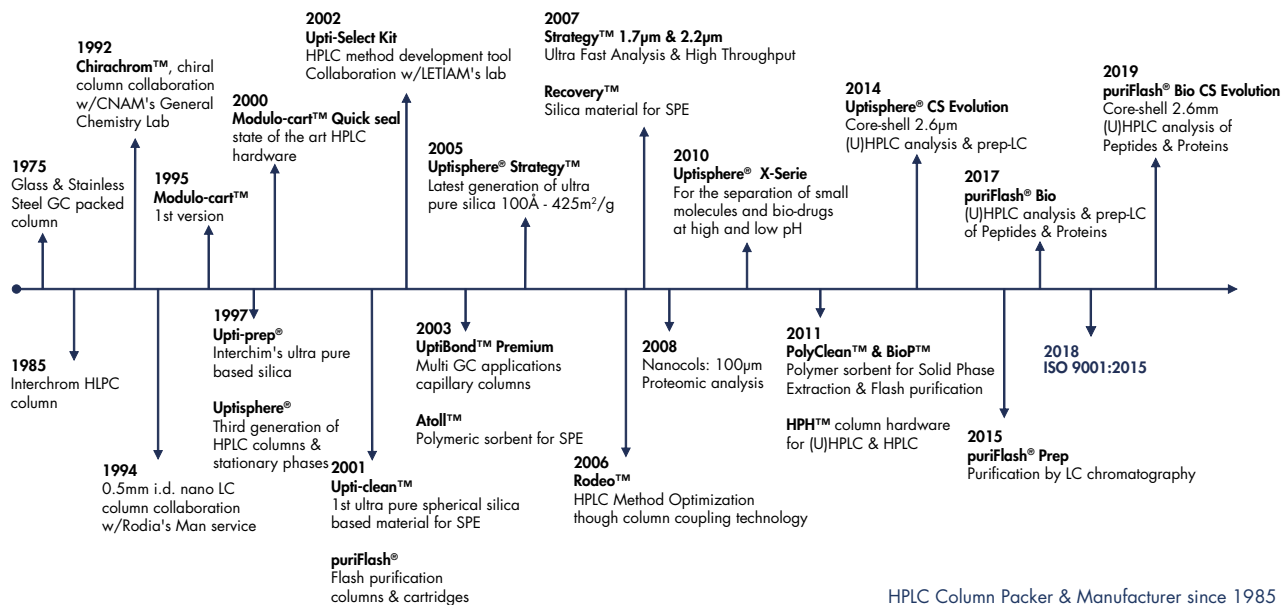
LC ANALYSIS FOR PEPTIDES & PROTEINS

Summary

| | |
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| LC Analysis For Peptides & Proteins | H.2 - H.29 |
| HPLC - Advion Interchim Scientific Technologies | H.2 - H.5 |
| History | H.2 |
| Advion Interchim Scientific Silica Technologies | H.3 |
| Advion Interchim Scientific Stationary Phase Selection Guide | H.4 - H.5 |
| PuriFlash® BIO Selection Guide | H.6 |
| Advion Interchim Scientific Core Shell Columns | H.7 |
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| puriFlash® BIO 100 C18-T | H.9 |
| puriFlash® BIO 100 C18-XS | H.10 |
| puriFlash® BIO 200 C18-N | H.11 |
| puriFlash® BIO 200 C18-T | H.12 |
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| puriFlash® BIO 200 C8-N | H.14 |
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| Advion Interchim Scientific HPLC Columns Protection | H.28 |
| Advion Interchim Scientific Columns Applications | H.29 |

LC ANALYSIS FOR PEPTIDES & PROTEINS

HPLC - Advion Interchim Scientific Technologies



HPLC Column Packer & Manufacturer since 1985

Silicas for (U)HPLC, LC-Preparative & Flash Columns

Uptisphere® CS Evolution

Core Shell columns for fast & highly efficient identification & quantification of small molecules.

Uptisphere® Strategy™

(U)HPLC, Analytical & Prep LC Columns with high surface area for identification, quantification & purification of small molecules & pharma compounds.

Uptisphere® 120 Å

HPLC & Prep LC Columns for the identification, quantification of small molecules & pharma compounds.

puriFlash®

Analytical, Prep LC & Flash columns with High Load-ability for routine analysis & easy transfer to purification of small organic molecules in pharma applications.

puriFlash® Bio

(U)HPLC, Analytical, Prep LC & Flash columns for the identification, quantification & purification of Peptides, Polypeptides & Proteins at high & low pH.

Uptisphere® Bio

X-serie™ Uptisphere® 300Å Uptisphere® TP

HPLC & prep LC columns for the identification, quantification of Proteins, Peptides & Polypeptides at high & low pH.





Our silica technologies from Advion Interchim Scientific

All Advion Interchim Scientific Uptisphere® silicas (120 Å, CS Evolution, Strategy™, puriFlash® & puriFlash® Bio) follow rigorous and innovative manufacturing processes. Base silicas are produced in ceramic reactors from standard particles for purification are totally free of all traces of metals for analysis. Each of the different synthesis steps are strictly controlled.

This rigour leads to extremely mechanically stable particles. The particle size and porosity distributions as well as the specific surface areas are perfectly defined and reproducible.

Our puriFlash® & puriFlash® Bio silicas are specifically designed to meet the requirements of preparative liquid chromatography. They combine quality and cost effectiveness.

Our silicas have three major advantages:

1. A perfect control of the surface state.
We physically or chemically modify the surface of the silica to choose the type, the amount of silanols or the overall surface energy according to the objective to be achieved.
2. Cylindrical pores.
The quantity of free silanols and their excellent accessibility enable acquisition of a homogeneous and particularly dense functionalization (grafting). This results in very good loading capacity and stability of these stationary phases under aggressive mobile phase conditions such as basic buffers.
3. High mechanical stability.
Our stationary phases can withstand multiple packings and de-packings without damaging the integrity of the substrate. They are the tool of choice for preparative chromatography.

Modified silicas

The Laboratoire d'Etude des Techniques et des Instruments d'Analyse Moléculaire (LETIAM), a constituent unit of the analytical chemistry group of Paris Sud located at the IUT of Orsay, played a fundamental role in our vision, which led to the development of our stationary phases.

The laboratory of Sciences and Separative Methods - (SMS) of the Institute of Research in Fine Organic Chemistry - (IRCOF) has also helped in our development process with their innovative synthesis schemes for the modification of our "Core-Shell" silicas Uptisphere® CS Evolution.

Today, we offer about 50 selectivities to meet the needs of analysts and chemists for the identification, quantification and purification of small organic molecules, peptides and proteins.

Silica base: standard Pure & Ultra Pure (99.995%)

Particles: irregular, granular, spherical

Particulate Size:

1.7 µm [+/- 0.1]
2.2 µm [+/- 0.15]
2.5 - 2.6 µm [+/- 0.1]
3 - 3.5 µm [+/- 0.2]
5 µm [+/- 0.3]
10 µm [+/- 1.0]
15 µm [+/- 2.0]
25 - 30 µm [+/- 5]
50 µm [+/- 10]

Surface / Pore Size:

60Å [+/- 10] / 500m²/g [+/- 50]
85Å [+/- 5] / 130m²/g [+/- 25]
100Å [+/- 15] / 425m²/g [+/- 40]
120Å [+/- 15] / 320m²/g [+/- 40]
130Å [+/- 15] / 300m²/g [+/- 40]
200Å [+/- 15] / 150m²/g [+/- 40]
220Å [+/- 15] / 200m²/g [+/- 40]
300Å [+/- 40] / 100m²/g [+/- 20]

Metal Traces: Pure standard < 500 ppm - Ultra Pure < 10 ppm (Fe < 1 ppm)

pH Stability: depending on the physical and / or chemical modification



LC ANALYSIS FOR PEPTIDES & PROTEINS

HPLC - Advion Interchim Scientific Technologies

Advion Interchim Scientific Stationary Phase Selection Guide

| Name | AIS code | USP Code | Pore Size | Surface | Particle size | | | | | Bonding | Functionalization | % C. | End-Capping |
|--------------------------------|----------|----------|-----------|-----------------------|---------------|-----|-----|-----|-----|---------------------------|-------------------------|--------|-------------|
| | | | | | 2,5 | 2,6 | 3,0 | 3,5 | 5,0 | | | | |
| Peptides & Proteins | | | | | | | | | | | | | |
| puriFlash Bio CS Evolution™ | C18-N | L1 | 85 Å | 130 m ² /g | | x | | | | C18 - octadecyl | mono-functional | | None |
| puriFlash® Bio 100 | C18-N | L1 | 100 Å | 320 m ² /g | x | | | x | x | C18 - octadecyl | mono-functional | 15.5 % | none |
| puriFlash® Bio 100 | C18T | L1 | 100 Å | 320 m ² /g | x | | | x | x | C18 - octadecyl | tri-functional | 17.0 % | One-step |
| puriFlash® Bio 100 | C18-XS | L1 | 100 Å | 320 m ² /g | x | | | x | x | C18 - octadecyl | mono-functional | 17.0 % | Multi-step |
| puriFlash® Bio 200 | C18-N | L1 | 200 Å | 150 m ² /g | x | | | x | x | C18 - octadecyl | mono-functional | 7.0 % | none |
| puriFlash® Bio 200 | C18T | L1 | 200 Å | 150 m ² /g | x | | | x | x | C18 - octadecyl | tri-functional | 10.0% | One-step |
| puriFlash® Bio 200 | C18-XS | L1 | 200 Å | 150 m ² /g | x | | | x | x | C18 - octadecyl | mono-functional | 8.0 % | Multi-step |
| puriFlash® Bio 200 | C8-N | L7 | 200 Å | 150 m ² /g | x | | | x | x | C8 - octyl | mono-functional | 5.0 % | none |
| puriFlash® Bio 300 | C4-AQ | L26 | 300 Å | 100 m ² /g | | | | x | x | C4 - butyl | mono-functional | 3.0 % | Mixte |
| puriFlash® Bio 100 | RPNH | | 100 Å | 320 m ² /g | x | | | | | RP - Alkyl chain / Amines | mono-functional | 4.0 % | none |
| puriFlash® Bio 200 | RPNH | | 200 Å | 150 m ² /g | | | | x | x | RP - Alkyl chain / Amines | mono-functional | 4.0 % | none |
| puriFlash® Bio 300 | RPNH | | 300 Å | 100 m ² /g | | | | x | x | RP - Alkyl chain / Amines | mono-functional | 2.0 % | none |
| Uptisphere® X-Serie | OD2 | L1 | 130 Å | 300 m ² /g | | | x | | x | C18 - octadecyl | poly-functional type II | 20.0 % | Multi-step |
| Uptisphere® X-Serie | C18-AQ | L1 | 220 Å | 200 m ² /g | | | x | | x | C18 - octadecyl | poly-functional type II | 14.0 % | Mixte |
| Uptisphere® X-Serie | C8 | L7 | 220 Å | 200 m ² /g | | | x | | x | C8 - octyl | poly-functional type II | 8.0 % | Multi-step |
| Uptisphere® 300Å | WOD | L1 | 300 Å | 100 m ² /g | | | x | | x | C18 - octadecyl | mono-functional | 10.0 % | One step |
| Uptisphere® 300Å | WC4 | L26 | 300 Å | 100 m ² /g | | | x | | x | C4 - butyl | mono-functional | 4.0 % | One step |
| Uptisphere® TP | TP18 | L1 | 300 Å | 100 m ² /g | | | x | | x | C18 - octadecyl | Poly-functional | 8,0 % | One step |
| Uptisphere® TP | TP14 | L26 | 300 Å | 100 m ² /g | | | x | | x | C4 - butyl | Poly-functional | 3,5 % | One step |
| Uptisphere® TP | TP01 | L1 | 300 Å | 100 m ² /g | | | | | x | C18 - octadecyl | Poly-functional | 8,0 % | none |



| pH Stability | Chromatographic Mode | Application |
|--------------|------------------------|---|
| 1.5 - 7.0 | Reverse | In-Process QA/QC of Peptides synthesis. |
| 1.5 - 8.0 | Reverse | In-Process QA/QC of Peptides Synthesis. Analysis & Purification of polar Peptides with less than 40AA & mw. up to 5KDa under pseudo hilic mode with 85% -to- 95% ACN. Analysis & Purification of hydrophobic Peptides with less than 40AA & mw. up to 5KDa. |
| 1.5 - 8.0 | Reverse | Analysis & Purification of mid & non-polar Peptides, hydrophobic Peptides with less than 40AA & mw. up to 5KDa. |
| 1.0 - 10.0 | Reverse | Analysis & Purification of mid & non-polar Peptides, hydrophobic Peptides with less than 40AA & mw. up to 5KDa under basic conditions up to pH: 10.0. |
| 1.5 - 8.0 | Reverse | Analysis & Purification of polar Peptides less than 160AA & mw. up to 20KDa under pseudo hilic mode with 85% -to- 95% ACN Analysis & Purification of hydrophobic Peptides with less than 80AA & mw. up to 10KDa. |
| 1.5 - 8.0 | Reverse | Analysis & Purification of mid & non-polar Peptides, hydrophobic Peptides with less than 80AA & mw. up to 10KD. |
| 1.0 - 10.0 | Reverse | Analysis & Purification of mid & non-polar Peptides, hydrophobic Peptides with less than 80AA & mw. up to 10KDa under basic conditions up to pH: 10.0. |
| 1.5 - 8.0 | Reverse | Analysis & Purification of mid & non-polar Peptides, hydrophobic Peptides with less than 160AA & mw. up to 20KDa. |
| 1.5 - 8.0 | Reverse | Analysis & Purification of natural Peptides, fatty acids with larger than 80AA & mw. up to 100KDa. |
| 1.5 - 8.0 | Reverse / Ion Exchange | Ultra fast & efficient analysis of oligonucleotides up to 25 mer. |
| 1.5 - 8.0 | Reverse / Ion Exchange | Analysis & Purification of oligonucleotides up to 40 mer. |
| 1.5 - 8.0 | Reverse / Ion Exchange | Analysis & Purification of large oligos, aptamers, DNA. |
| 1 - 13 | Reverse | BioDrugs with low molecular weight. |
| 1 - 10 | Reverse | Mid-polar BioDrugs & Peptides with medium molecular weight. 100% water compatible. |
| 1 - 13 | Reverse | BioDrugs & Peptides with medium molecular weight. |
| 1.5 - 7 | Reverse | Weakly hydrophobic peptides & oligopeptides up to 50 kD. |
| 2 - 7 | Reverse | Hydrophobic proteines & polypeptides, 50 up to from 50 kD. |
| 1.5 - 7 | Reverse | Weakly hydrophobic peptides & oligopeptides up to 50 kDa. |
| 2 - 7 | Reverse | Hydrophobic proteins & polypeptides, 50 up to 150 kDa. |
| 1.5 - 7 | Reverse | PAH's. |



LC ANALYSIS FOR PEPTIDES & PROTEINS

PuriFlash® BIO Selection Guide

puriFlash® BIO, dedicated to the analysis & purification of peptides & oligonucleotides

I Peptides selection guide I

| Peptides | Polar | Mid & non-polar | Hydrophobic | Natural, Fatty Acids |
|--|-------------------------|---|--|-------------------------|
| <p>< 40 AA MW: up to 5 KDa</p> <p>pH: 1.5 up to 8.0</p> <p>max. pH: 10</p> | puriFlash® BIO 100 C18N | puriFlash® BIO 100 C18T puriFlash® BIO 100 C18XS | Screening puriFlash® BIO 100 (C18N / C18T) puriFlash® BIO 100 C18XS | |
| <p>< 80 AA MW: up to 10 KDa</p> <p>pH: 1.5 up to 8.0</p> <p>max. pH: 10</p> | puriFlash® BIO 200 C18N | puriFlash® BIO 200 C18T puriFlash® BIO 200 C18XS | Screening puriFlash® BIO 200 (C18N / C18T) puriFlash® BIO 200 C18XS | |
| <p>< 160 AA MW: up to 20 KDa</p> <p>pH: 1.5 up to 8.0</p> | puriFlash® BIO 200 C18N | puriFlash® BIO 200 C8N | puriFlash® BIO 200 C8N | |
| <p>< 80AA MW: up to 100 KDa</p> <p>pH: 1.5 up to 8.0</p> | | | | puriFlash® BIO 300 C4AQ |

Oligonucleotides

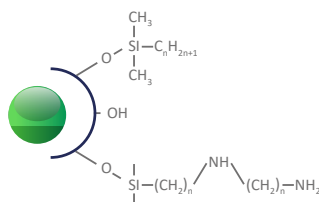
In-Process QA/QC of Peptides Synthesis

In-Process QA/QC of Peptides Synthesis
puriFlash® BIO CS 2.6C18N => puriFlash® BIO 100 2.5C18N

Notes:

Polar Peptides => HILIC mode using higher % of ACN 95 to 85%

Hydrophobic Peptides => it is useful to work with Water/ACN using a few % Formic Acid or 0.05% TFA ~ pH 2. In case your peptides have Lysine, Arginine etc. it is better to have an alkali environment in the solvent. You need real buffer and according to buffer solubility it is suggested to switch to MeOH instead of ACN. Usually step-Gradients (Ramp Gradients) or Pseudo-isocratic or very flat gradients lead to highest capacity.



puriFlash® BIO RPNH

Oligonucleotides < 25 merpuriFlash® BIO 100 2.5RPNH
Oligonucleotides < 40 merpuriFlash® BIO 200 RPNH
Aptamers, DNApuriFlash® BIO 300 RPNH

LC ANALYSIS FOR PEPTIDES & PROTEINS

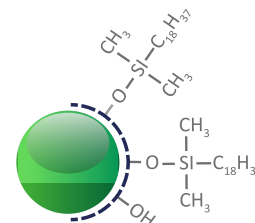
Advion Interchim Scientific Core Shell Columns



puriFlash® Bio CS Evolution™ C18-N

In-Process QA/QC of Peptides synthesis

| Dimensions | 2.6 µm |
|--------------|--------------------|
| 25 x 2.1 mm | PFB2.6C18N-025/021 |
| 50 x 2.1 mm | PFB2.6C18N-050/021 |
| 75 x 2.1 mm | PFB2.6C18N-075/021 |
| 100 x 2.1 mm | PFB2.6C18N-100/021 |
| 125 x 2.1 mm | PFB2.6C18N-125/021 |
| 150 x 2.1 mm | PFB2.6C18N-150/021 |
| 25 x 3.0 mm | PFB2.6C18N-025/030 |
| 50 x 3.0 mm | PFB2.6C18N-050/030 |
| 75 x 3.0 mm | PFB2.6C18N-075/030 |
| 100 x 3.0 mm | PFB2.6C18N-100/030 |
| 125 x 3.0 mm | PFB2.6C18N-125/030 |
| 150 x 3.0 mm | PFB2.6C18N-150/030 |
| 25 x 4.6 mm | PFB2.6C18N-025/046 |
| 50 x 4.6 mm | PFB2.6C18N-050/046 |
| 75 x 4.6 mm | PFB2.6C18N-075/046 |
| 100 x 4.6 mm | PFB2.6C18N-100/046 |
| 125 x 4.6 mm | PFB2.6C18N-125/046 |
| 150 x 4.6 mm | PFB2.6C18N-150/046 |



puriFlash® Bio CS Evolution™ C18-N

C18 - Octadecyl

USP code: L1

Pore size: 85Å

Surface area: 130 m²/g

Functionalization: n.a.

% Carbon: n.a.

End-Capping: None

pH Stability: 1.5 - 8

Mode: Reverse

Maximum pressure: 600 bar

FIELD OF APPLICATION

- UHPLC
- HPLC
- PrepLC
- Flash

RELATED PRODUCTS

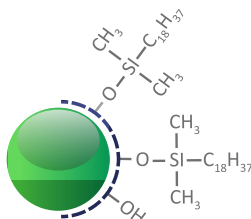
Columns Protection

Find our Guard Cartridges & Holder on page H.28



LC ANALYSIS FOR PEPTIDES & PROTEINS

Advion Interchim Scientific Columns



puriFlash® BIO 100 C18-N

C18 - Octadecyl

USP code: L1

Pore size: 10Å

Surface area: 320 m²/g

Functionalization: Mono functional

% Carbon: 15.5 %

End-Capping: None

pH Stability: 1.5 - 8

Mode: Reverse

Field of application

UHPLC ●
 HPLC ●
 Prep-LC ●
 Flash ●

puriFlash® BIO 100 C18-N

On-line quality control of peptide synthesis.

Analysis & purification of polar peptides of less than 40AA or molecular weight up to 5 KDa, in reverse phase condition or in pseudo-HILIC mode (95% to 85% ACN).

Analysis & purification of hydrophobic peptides of less than 40AA or molecular weight up to 5 KDa.

| Dimensions | 2.5 µm | 3.5 µm | 5 µm |
|--------------|--------------------|--------------------|------------------|
| 25 x 2.1 mm | PFB2.5C18N-025/021 | --- | --- |
| 50 x 2.1 mm | PFB2.5C18N-050/021 | PFB3.5C18N-050/021 | PFB5C18N-050/021 |
| 75 x 2.1 mm | PFB2.5C18N-075/021 | PFB3.5C18N-075/021 | PFB5C18N-075/021 |
| 100 x 2.1 mm | PFB2.5C18N-100/021 | PFB3.5C18N-100/021 | PFB5C18N-100/021 |
| 125 x 2.1 mm | PFB2.5C18N-125/021 | PFB3.5C18N-125/021 | PFB5C18N-125/021 |
| 150 x 2.1 mm | PFB2.5C18N-150/021 | PFB3.5C18N-150/021 | PFB5C18N-150/021 |
| 250 x 2.1 mm | --- | --- | PFB5C18N-250/021 |
| 25 x 3.0 mm | PFB2.5C18N-025/030 | --- | --- |
| 50 x 3.0 mm | PFB2.5C18N-050/030 | PFB3.5C18N-050/030 | PFB5C18N-050/030 |
| 75 x 3.0 mm | PFB2.5C18N-075/030 | PFB3.5C18N-075/030 | PFB5C18N-075/030 |
| 100 x 3.0 mm | PFB2.5C18N-100/030 | PFB3.5C18N-100/030 | PFB5C18N-100/030 |
| 125 x 3.0 mm | PFB2.5C18N-125/030 | PFB3.5C18N-125/030 | PFB5C18N-125/030 |
| 150 x 3.0 mm | PFB2.5C18N-150/030 | PFB3.5C18N-150/030 | PFB5C18N-150/030 |
| 250 x 3.0 mm | --- | --- | PFB5C18N-250/030 |
| 25 x 4.6 mm | PFB2.5C18N-025/046 | PFB3.5C18N-025/046 | PFB5C18N-025/046 |
| 50 x 4.6 mm | PFB2.5C18N-050/046 | PFB3.5C18N-050/046 | PFB5C18N-050/046 |
| 75 x 4.6 mm | PFB2.5C18N-075/046 | PFB3.5C18N-075/046 | PFB5C18N-075/046 |
| 100 x 4.6 mm | PFB2.5C18N-100/046 | PFB3.5C18N-100/046 | PFB5C18N-100/046 |
| 125 x 4.6 mm | PFB2.5C18N-125/046 | PFB3.5C18N-125/046 | PFB5C18N-125/046 |
| 150 x 4.6 mm | PFB2.5C18N-150/046 | PFB3.5C18N-150/046 | PFB5C18N-150/046 |
| 250 x 4.6 mm | --- | --- | PFB5C18N-250/046 |

RELATED PRODUCTS

Columns Protection

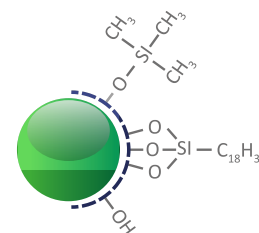
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& Holder on page H.28





puriFlash® BIO 100 C18-T

Analysis & purification of mid polar & non polar peptides, hydrophobic peptides of less than 40 AA or molecular weight up to 5 KDa.



| Dimensions | 2.5 µm | 3.5 µm | 5 µm |
|--------------|--------------------|--------------------|------------------|
| 25 x 2.1 mm | PFB2.5C18T-025/021 | --- | --- |
| 50 x 2.1 mm | PFB2.5C18T-050/021 | PFB3.5C18T-050/021 | PFB5C18T-050/021 |
| 75 x 2.1 mm | PFB2.5C18T-075/021 | PFB3.5C18T-075/021 | PFB5C18T-075/021 |
| 100 x 2.1 mm | PFB2.5C18T-100/021 | PFB3.5C18T-100/021 | PFB5C18T-100/021 |
| 125 x 2.1 mm | PFB2.5C18T-125/021 | PFB3.5C18T-125/021 | PFB5C18T-125/021 |
| 150 x 2.1 mm | PFB2.5C18T-150/021 | PFB3.5C18T-150/021 | PFB5C18T-150/021 |
| 250 x 2.1 mm | --- | PFB3.5C18T-250/021 | PFB5C18T-250/021 |
| 25 x 3.0 mm | PFB2.5C18T-025/030 | --- | --- |
| 50 x 3.0 mm | PFB2.5C18T-050/030 | PFB3.5C18T-050/030 | PFB5C18T-050/030 |
| 75 x 3.0 mm | PFB2.5C18T-075/030 | PFB3.5C18T-075/030 | PFB5C18T-075/030 |
| 100 x 3.0 mm | PFB2.5C18T-100/030 | PFB3.5C18T-100/030 | PFB5C18T-100/030 |
| 125 x 3.0 mm | PFB2.5C18T-125/030 | PFB3.5C18T-125/030 | PFB5C18T-125/030 |
| 150 x 3.0 mm | PFB2.5C18T-150/030 | PFB3.5C18T-150/030 | PFB5C18T-150/030 |
| 250 x 3.0 mm | --- | PFB3.5C18T-250/030 | PFB5C18T-250/030 |
| 25 x 4.6 mm | PFB2.5C18T-025/046 | PFB3.5C18T-025/046 | PFB5C18T-025/046 |
| 50 x 4.6 mm | PFB2.5C18T-050/046 | PFB3.5C18T-050/046 | PFB5C18T-050/046 |
| 75 x 4.6 mm | PFB2.5C18T-075/046 | PFB3.5C18T-075/046 | PFB5C18T-075/046 |
| 100 x 4.6 mm | PFB2.5C18T-100/046 | PFB3.5C18T-100/046 | PFB5C18T-100/046 |
| 125 x 4.6 mm | PFB2.5C18T-125/046 | PFB3.5C18T-125/046 | PFB5C18T-125/046 |
| 150 x 4.6 mm | PFB2.5C18T-150/046 | PFB3.5C18T-150/046 | PFB5C18T-150/046 |
| 250 x 4.6 mm | --- | PFB3.5C18T-250/046 | PFB5C18T-250/046 |

puriFlash® BIO 100 C18-T
C18 - Octadecyl
USP code : L1
Pore size: 200Å
Surface area: 150 m²/g
Functionalization: Tri functional
% Carbon: 10 %
End-Capping: One step
pH Stability: 1.5 - 8
Mode: Reverse

Field of application

UHPLC
HPLC
PrepLC
Flash



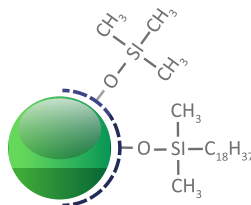
RELATED PRODUCTS

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LC ANALYSIS FOR PEPTIDES & PROTEINS

Advion Interchim Scientific Columns



puriFlash® BIO 100 C18-XS

C18 - Octadecyl

USP code: L1

Pore size: 100Å

Surface area: 320 m²/g

Functionalization: Mono functional

% Carbon: 17 %

End-Capping: Multi step

pH Stability: 1 - 10

Mode: Reverse

Field of application

UHPLC
HPLC
PrepLC
Flash



puriFlash® BIO 100 C18-XS

Analysis & purification of mid polar & non polar peptides, hydrophobic peptides of less than 40 AA or molecular weights up to 5 KDa.

Can be used under basic mobile phase conditions up to pH 10.

| Dimensions | 2.5 µm | 3.5 µm | 5 µm |
|--------------|---------------------|---------------------|-------------------|
| 25 x 2.1 mm | PFB2.5C18XS-025/021 | --- | --- |
| 50 x 2.1 mm | PFB2.5C18XS-050/021 | PFB3.5C18XS-050/021 | PFB5C18XS-050/021 |
| 75 x 2.1 mm | PFB2.5C18XS-075/021 | PFB3.5C18XS-075/021 | PFB5C18XS-075/021 |
| 100 x 2.1 mm | PFB2.5C18XS-100/021 | PFB3.5C18XS-100/021 | PFB5C18XS-100/021 |
| 125 x 2.1 mm | PFB2.5C18XS-125/021 | PFB3.5C18XS-125/021 | PFB5C18XS-125/021 |
| 150 x 2.1 mm | PFB2.5C18XS-150/021 | PFB3.5C18XS-150/021 | PFB5C18XS-150/021 |
| 250 x 2.1 mm | --- | PFB3.5C18XS-250/021 | PFB5C18XS-250/021 |
| 25 x 3.0 mm | PFB2.5C18XS-025/030 | --- | --- |
| 50 x 3.0 mm | PFB2.5C18XS-050/030 | PFB3.5C18XS-050/030 | PFB5C18XS-050/030 |
| 75 x 3.0 mm | PFB2.5C18XS-075/030 | PFB3.5C18XS-075/030 | PFB5C18XS-075/030 |
| 100 x 3.0 mm | PFB2.5C18XS-100/030 | PFB3.5C18XS-100/030 | PFB5C18XS-100/030 |
| 125 x 3.0 mm | PFB2.5C18XS-125/030 | PFB3.5C18XS-125/030 | PFB5C18XS-125/030 |
| 150 x 3.0 mm | PFB2.5C18XS-150/030 | PFB3.5C18XS-150/030 | PFB5C18XS-150/030 |
| 250 x 3.0 mm | --- | PFB3.5C18XS-250/030 | PFB5C18XS-250/030 |
| 25 x 4.6 mm | PFB2.5C18XS-025/046 | PFB3.5C18XS-025/046 | PFB5C18XS-025/046 |
| 50 x 4.6 mm | PFB2.5C18XS-050/046 | PFB3.5C18XS-050/046 | PFB5C18XS-050/046 |
| 75 x 4.6 mm | PFB2.5C18XS-075/046 | PFB3.5C18XS-075/046 | PFB5C18XS-075/046 |
| 100 x 4.6 mm | PFB2.5C18XS-100/046 | PFB3.5C18XS-100/046 | PFB5C18XS-100/046 |
| 125 x 4.6 mm | PFB2.5C18XS-125/046 | PFB3.5C18XS-125/046 | PFB5C18XS-125/046 |
| 150 x 4.6 mm | PFB2.5C18XS-150/046 | PFB3.5C18XS-150/046 | PFB5C18XS-150/046 |
| 250 x 4.6 mm | --- | PFB3.5C18XS-250/046 | PFB5C18XS-250/046 |

RELATED PRODUCTS

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& Holder on page H.28



LC ANALYSIS FOR PEPTIDES & PROTEINS

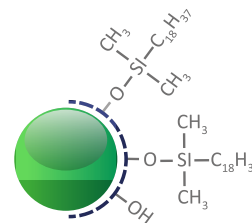
Advion Interchim Scientific Columns



puriFlash® BIO 200 C18-N

Analysis & purification of polar peptides of less than 160 AA or molecular weight up to 20 KDa, in reverse phase condition or in pseudo-HILIC mode (95 % to 85 % ACN).

Analysis & purification of hydrophobic peptides of less than 80 AA or molecular weight up to 10 KDa.



| Dimensions | 2.5 µm | 3.5 µm | 5 µm |
|--------------|-------------------|-------------------|-----------------|
| 25 x 2.1 mm | PT2.5C18N-025/021 | --- | --- |
| 50 x 2.1 mm | PT2.5C18N-050/021 | PT3.5C18N-050/021 | PT5C18N-050/021 |
| 75 x 2.1 mm | PT2.5C18N-075/021 | PT3.5C18N-075/021 | PT5C18N-075/021 |
| 100 x 2.1 mm | PT2.5C18N-100/021 | PT3.5C18N-100/021 | PT5C18N-100/021 |
| 125 x 2.1 mm | PT2.5C18N-125/021 | PT3.5C18N-125/021 | PT5C18N-125/021 |
| 150 x 2.1 mm | PT2.5C18N-150/021 | PT3.5C18N-150/021 | PT5C18N-150/021 |
| 250 x 2.1 mm | --- | --- | PT5C18N-250/021 |
| 25 x 3.0 mm | PT2.5C18N-025/030 | --- | --- |
| 50 x 3.0 mm | PT2.5C18N-050/030 | PT3.5C18N-050/030 | PT5C18N-050/030 |
| 75 x 3.0 mm | PT2.5C18N-075/030 | PT3.5C18N-075/030 | PT5C18N-075/030 |
| 100 x 3.0 mm | PT2.5C18N-100/030 | PT3.5C18N-100/030 | PT5C18N-100/030 |
| 125 x 3.0 mm | PT2.5C18N-125/030 | PT3.5C18N-125/030 | PT5C18N-125/030 |
| 150 x 3.0 mm | PT2.5C18N-150/030 | PT3.5C18N-150/030 | PT5C18N-150/030 |
| 250 x 3.0 mm | --- | --- | PT5C18N-250/030 |
| 25 x 4.6 mm | PT2.5C18N-025/046 | PT3.5C18N-025/046 | PT5C18N-025/046 |
| 50 x 4.6 mm | PT2.5C18N-050/046 | PT3.5C18N-050/046 | PT5C18N-050/046 |
| 75 x 4.6 mm | PT2.5C18N-075/046 | PT3.5C18N-075/046 | PT5C18N-075/046 |
| 100 x 4.6 mm | PT2.5C18N-100/046 | PT3.5C18N-100/046 | PT5C18N-100/046 |
| 125 x 4.6 mm | PT2.5C18N-125/046 | PT3.5C18N-125/046 | PT5C18N-125/046 |
| 150 x 4.6 mm | PT2.5C18N-150/046 | PT3.5C18N-150/046 | PT5C18N-150/046 |
| 250 x 4.6 mm | --- | --- | PT5C18N-250/046 |

puriFlash® BIO 200 C18-N

C18 - Octadecyl

USP code: L1

Pore size: 200Å

Surface area: 150 m²/g

Functionalization: Mono functional

% Carbon: 7 %

End-Capping: None

pH Stability: 1.5 - 8

Mode: Reverse

Field of application

UHPLC

HPLC

Prep-LC

Flash



RELATED PRODUCTS

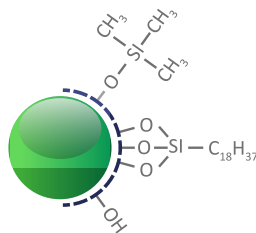
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LC ANALYSIS FOR PEPTIDES & PROTEINS

Advion Interchim Scientific Columns



puriFlash® BIO 200 C18-T

C18 - Octadecyl

USP code: L1

Pore size: 200Å

Surface area: 150 m²/g

Functionalization: Tri functional

% Carbon: 10 %

End-Capping: One step

pH Stability: 1.5 - 8

Mode: Reverse

Field of application

UHPLC

HPLC

PrepLC

Flash



puriFlash® BIO 200 C18-T

Analysis & purification of mid polar & non polar peptides, hydrophobic peptides of less than 80 AA or molecular weight up to 10 KDa.

| Dimensions | 2.5 µm | 3.5 µm | 5 µm |
|--------------|-------------------|-------------------|-----------------|
| 25 x 2.1 mm | PT2.5C18T-025/021 | --- | --- |
| 50 x 2.1 mm | PT2.5C18T-050/021 | PT3.5C18T-050/021 | PT5C18T-050/021 |
| 75 x 2.1 mm | PT2.5C18T-075/021 | PT3.5C18T-075/021 | PT5C18T-075/021 |
| 100 x 2.1 mm | PT2.5C18T-100/021 | PT3.5C18T-100/021 | PT5C18T-100/021 |
| 125 x 2.1 mm | PT2.5C18T-125/021 | PT3.5C18T-125/021 | PT5C18T-125/021 |
| 150 x 2.1 mm | PT2.5C18T-150/021 | PT3.5C18T-150/021 | PT5C18T-150/021 |
| 250 x 2.1 mm | --- | PT3.5C18T-250/021 | PT5C18T-250/021 |
| 25 x 3.0 mm | PT2.5C18T-025/030 | --- | --- |
| 50 x 3.0 mm | PT2.5C18T-050/030 | PT3.5C18T-050/030 | PT5C18T-050/030 |
| 75 x 3.0 mm | PT2.5C18T-075/030 | PT3.5C18T-075/030 | PT5C18T-075/030 |
| 100 x 3.0 mm | PT2.5C18T-100/030 | PT3.5C18T-100/030 | PT5C18T-100/030 |
| 125 x 3.0 mm | PT2.5C18T-125/030 | PT3.5C18T-125/030 | PT5C18T-125/030 |
| 150 x 3.0 mm | PT2.5C18T-150/030 | PT3.5C18T-150/030 | PT5C18T-150/030 |
| 250 x 3.0 mm | --- | PT3.5C18T-250/030 | PT5C18T-250/030 |
| 25 x 4.6 mm | PT2.5C18T-025/046 | PT3.5C18T-025/046 | PT5C18T-025/046 |
| 50 x 4.6 mm | PT2.5C18T-050/046 | PT3.5C18T-050/046 | PT5C18T-050/046 |
| 75 x 4.6 mm | PT2.5C18T-075/046 | PT3.5C18T-075/046 | PT5C18T-075/046 |
| 100 x 4.6 mm | PT2.5C18T-100/046 | PT3.5C18T-100/046 | PT5C18T-100/046 |
| 125 x 4.6 mm | PT2.5C18T-125/046 | PT3.5C18T-125/046 | PT5C18T-125/046 |
| 150 x 4.6 mm | PT2.5C18T-150/046 | PT3.5C18T-150/046 | PT5C18T-150/046 |
| 250 x 4.6 mm | --- | PT3.5C18T-250/046 | PT5C18T-250/046 |

RELATED PRODUCTS

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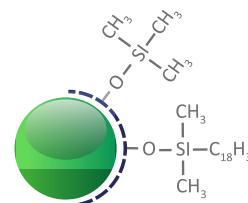




puriFlash® BIO 200 C18-XS

Analysis & purification of mid polar & non polar peptides, hydrophobic peptides of less than 80 AA or molecular weight up to 10 KDa.

Can be used under basic mobile phase conditions up to pH 10.0.



| Dimensions | 2.5 µm | 3.5 µm | 5 µm |
|--------------|--------------------|--------------------|------------------|
| 25 x 2.1 mm | PT2.5C18XS-025/021 | --- | --- |
| 50 x 2.1 mm | PT2.5C18XS-050/021 | PT3.5C18XS-050/021 | PT5C18XS-050/021 |
| 75 x 2.1 mm | PT2.5C18XS-075/021 | PT3.5C18XS-075/021 | PT5C18XS-075/021 |
| 100 x 2.1 mm | PT2.5C18XS-100/021 | PT3.5C18XS-100/021 | PT5C18XS-100/021 |
| 125 x 2.1 mm | PT2.5C18XS-125/021 | PT3.5C18XS-125/021 | PT5C18XS-125/021 |
| 150 x 2.1 mm | PT2.5C18XS-150/021 | PT3.5C18XS-150/021 | PT5C18XS-150/021 |
| 250 x 2.1 mm | --- | PT3.5C18XS-250/021 | PT5C18XS-250/021 |
| 25 x 3.0 mm | PT2.5C18XS-025/030 | --- | --- |
| 50 x 3.0 mm | PT2.5C18XS-050/030 | PT3.5C18XS-050/030 | PT5C18XS-050/030 |
| 75 x 3.0 mm | PT2.5C18XS-075/030 | PT3.5C18XS-075/030 | PT5C18XS-075/030 |
| 100 x 3.0 mm | PT2.5C18XS-100/030 | PT3.5C18XS-100/030 | PT5C18XS-100/030 |
| 125 x 3.0 mm | PT2.5C18XS-125/030 | PT3.5C18XS-125/030 | PT5C18XS-125/030 |
| 150 x 3.0 mm | PT2.5C18XS-150/030 | PT3.5C18XS-150/030 | PT5C18XS-150/030 |
| 250 x 3.0 mm | --- | PT3.5C18XS-250/030 | PT5C18XS-250/030 |
| 25 x 4.6 mm | PT2.5C18XS-025/046 | PT3.5C18XS-025/046 | PT5C18XS-025/046 |
| 50 x 4.6 mm | PT2.5C18XS-050/046 | PT3.5C18XS-050/046 | PT5C18XS-050/046 |
| 75 x 4.6 mm | PT2.5C18XS-075/046 | PT3.5C18XS-075/046 | PT5C18XS-075/046 |
| 100 x 4.6 mm | PT2.5C18XS-100/046 | PT3.5C18XS-100/046 | PT5C18XS-100/046 |
| 125 x 4.6 mm | PT2.5C18XS-125/046 | PT3.5C18XS-125/046 | PT5C18XS-125/046 |
| 150 x 4.6 mm | PT2.5C18XS-150/046 | PT3.5C18XS-150/046 | PT5C18XS-150/046 |
| 250 x 4.6 mm | --- | PT3.5C18XS-250/046 | PT5C18XS-250/046 |

puriFlash® BIO 200 C18-XS

C18 - Octadecyl

USP code: L1

Pore size: 200Å

Surface area: 150 m²/g

Functionalization: Mono functional

% Carbon: 8 %

End-Capping: Multi step

pH Stability: 1 - 10

Mode: Reverse

Field of application

UHPLC
HPLC
PrepLC
Flash



RELATED PRODUCTS

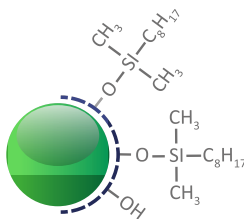
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LC ANALYSIS FOR PEPTIDES & PROTEINS

Advion Interchim Scientific Columns



puriFlash® BIO 200 C8-N
 C8 - Octyl
 USP code: L7
 Pore size: 200Å
 Surface area: 150 m²/g
 Functionalization: Mono functional
 % Carbon: 5 %
 End-Capping: None
 pH Stability: 1.5 - 8
 Mode: Reverse

Field of application

UHPLC
 HPLC
 Prep-LC
 Flash



puriFlash® BIO 200 C8-N

Analysis & purification of mid polar & non polar peptides, hydrophobic peptides of less than 160 AA or molecular weight up to 20 KD.

| Dimensions | 2.5 µm | 3.5 µm | 5 µm |
|--------------|------------------|------------------|----------------|
| 25 x 2.1 mm | PT2.5C8N-025/021 | --- | --- |
| 50 x 2.1 mm | PT2.5C8N-050/021 | PT3.5C8N-050/021 | PT5C8N-050/021 |
| 75 x 2.1 mm | PT2.5C8N-075/021 | PT3.5C8N-075/021 | PT5C8N-075/021 |
| 100 x 2.1 mm | PT2.5C8N-100/021 | PT3.5C8N-100/021 | PT5C8N-100/021 |
| 125 x 2.1 mm | PT2.5C8N-125/021 | PT3.5C8N-125/021 | PT5C8N-125/021 |
| 150 x 2.1 mm | PT2.5C8N-150/021 | PT3.5C8N-150/021 | PT5C8N-150/021 |
| 250 x 2.1 mm | --- | --- | PT5C8N-250/021 |
| 25 x 3.0 mm | PT2.5C8N-025/030 | PT3.5C8N-050/030 | --- |
| 50 x 3.0 mm | PT2.5C8N-050/030 | PT3.5C8N-075/030 | PT5C8N-050/030 |
| 75 x 3.0 mm | PT2.5C8N-075/030 | PT3.5C8N-100/030 | PT5C8N-075/030 |
| 100 x 3.0 mm | PT2.5C8N-100/030 | PT3.5C8N-125/030 | PT5C8N-100/030 |
| 125 x 3.0 mm | PT2.5C8N-125/030 | PT3.5C8N-150/030 | PT5C8N-125/030 |
| 150 x 3.0 mm | PT2.5C8N-150/030 | --- | PT5C8N-150/030 |
| 250 x 3.0 mm | --- | --- | PT5C8N-250/030 |
| 25 x 4.6 mm | PT2.5C8N-025/046 | PT3.5C8N-025/046 | PT5C8N-025/046 |
| 50 x 4.6 mm | PT2.5C8N-050/046 | PT3.5C8N-050/046 | PT5C8N-050/046 |
| 75 x 4.6 mm | PT2.5C8N-075/046 | PT3.5C8N-075/046 | PT5C8N-075/046 |
| 100 x 4.6 mm | PT2.5C8N-100/046 | PT3.5C8N-100/046 | PT5C8N-100/046 |
| 125 x 4.6 mm | PT2.5C8N-125/046 | PT3.5C8N-125/046 | PT5C8N-125/046 |
| 150 x 4.6 mm | PT2.5C8N-150/046 | PT3.5C8N-150/046 | PT5C8N-150/046 |
| 250 x 4.6 mm | --- | --- | PT5C8N-250/046 |

RELATED PRODUCTS

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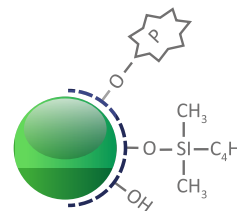
LC ANALYSIS FOR PEPTIDES & PROTEINS

Advion Interchim Scientific Columns



puriFlash® BIO 300 C4-AQ

Analysis & purification of natural peptides, fatty acids of more than 80 AA or molecular weight up to 100 KDa.



| Dimensions | 3.5 µm | 5 µm |
|--------------|-------------------|-----------------|
| 50 x 2.1 mm | PP3.5C4AQ-050/021 | PP5C4AQ-050/021 |
| 75 x 2.1 mm | PP3.5C4AQ-075/021 | PP5C4AQ-075/021 |
| 100 x 2.1 mm | PP3.5C4AQ-100/021 | PP5C4AQ-100/021 |
| 125 x 2.1 mm | PP3.5C4AQ-125/021 | PP5C4AQ-125/021 |
| 150 x 2.1 mm | PP3.5C4AQ-150/021 | PP5C4AQ-150/021 |
| 250 x 2.1 mm | --- | PP5C4AQ-250/021 |
| 50 x 3.0 mm | PP3.5C4AQ-050/030 | PP5C4AQ-050/030 |
| 75 x 3.0 mm | PP3.5C4AQ-075/030 | PP5C4AQ-075/030 |
| 100 x 3.0 mm | PP3.5C4AQ-100/030 | PP5C4AQ-100/030 |
| 125 x 3.0 mm | PP3.5C4AQ-125/030 | PP5C4AQ-125/030 |
| 150 x 3.0 mm | PP3.5C4AQ-150/030 | PP5C4AQ-150/030 |
| 250 x 3.0 mm | --- | PP5C4AQ-250/030 |
| 25 x 4.6 mm | PP3.5C4AQ-025/046 | PP5C4AQ-025/046 |
| 50 x 4.6 mm | PP3.5C4AQ-050/046 | PP5C4AQ-050/046 |
| 75 x 4.6 mm | PP3.5C4AQ-075/046 | PP5C4AQ-075/046 |
| 100 x 4.6 mm | PP3.5C4AQ-100/046 | PP5C4AQ-100/046 |
| 125 x 4.6 mm | PP3.5C4AQ-125/046 | PP5C4AQ-125/046 |
| 150 x 4.6 mm | PP3.5C4AQ-150/046 | PP5C4AQ-150/046 |
| 250 x 4.6 mm | --- | PP5C4AQ-250/046 |

puriFlash® BIO 300 C4-AQ

C4 - Butyl

USP code: L26

Pore size: 300Å

Surface area: 100 m²/g

Functionalization: Mono functional

% Carbon: 3 %

End-Capping: Mixte

pH Stability: 1.5 - 8

Mode: Reverse

Field of application

UHPLC

HPLC

PrepLC

Flash



RELATED PRODUCTS

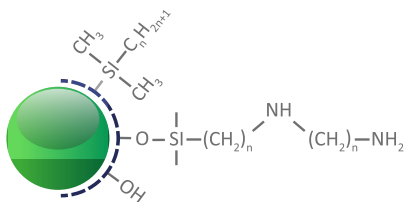
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LC ANALYSIS FOR PEPTIDES & PROTEINS

Advion Interchim Scientific Columns



puriFlash® BIO 100 RPNH

RP - Alkyl chain / Amines
 Pore size: 100 Å
 Surface area: 320 m²/g
 Functionalization: Mono functional
 % Carbon: 4 %
 End-Capping: None
 pH Stability: 1.5 - 8
 Mode: Reverse / Ion Exchange

Field of application

UHPLC
 HPLC
 PrepLC
 Flash

puriFlash® BIO 100 RPNH

Ultra fast & efficient analysis of oligonucleotides up to 25 mers.

| Dimensions | 2.5 µm |
|--------------|--------------------|
| 25 x 2.1 mm | PFB2.5RPNH-025/021 |
| 50 x 2.1 mm | PFB2.5RPNH-050/021 |
| 75 x 2.1 mm | PFB2.5RPNH-075/021 |
| 100 x 2.1 mm | PFB2.5RPNH-100/021 |
| 125 x 2.1 mm | PFB2.5RPNH-125/021 |
| 150 x 2.1 mm | PFB2.5RPNH-150/021 |
| 250 x 2.1 mm | --- |
| 25 x 3.0 mm | PFB2.5RPNH-025/030 |
| 50 x 3.0 mm | PFB2.5RPNH-050/030 |
| 75 x 3.0 mm | PFB2.5RPNH-075/030 |
| 100 x 3.0 mm | PFB2.5RPNH-100/030 |
| 125 x 3.0 mm | PFB2.5RPNH-125/030 |
| 150 x 3.0 mm | PFB2.5RPNH-150/030 |
| 250 x 3.0 mm | --- |
| 25 x 4.6 mm | PFB2.5RPNH-025/046 |
| 50 x 4.6 mm | PFB2.5RPNH-050/046 |
| 75 x 4.6 mm | PFB2.5RPNH-075/046 |
| 100 x 4.6 mm | PFB2.5RPNH-100/046 |
| 125 x 4.6 mm | PFB2.5RPNH-125/046 |
| 150 x 4.6 mm | PFB2.5RPNH-150/046 |

RELATED PRODUCTS

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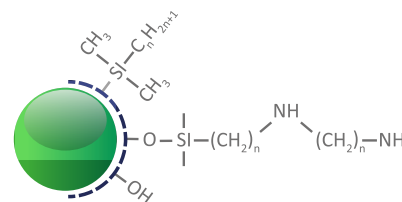
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puriFlash® BIO 200 RPNH

Analysis & Purification of oligonucleotides up to 40 mers.



| Dimensions | 3.5 µm | 5 µm |
|--------------|-------------------|-----------------|
| 50 x 2.1 mm | PT3.5RPNH-050/021 | PT5RPNH-050/021 |
| 75 x 2.1 mm | PT3.5RPNH-075/021 | PT5RPNH-075/021 |
| 100 x 2.1 mm | PT3.5RPNH-100/021 | PT5RPNH-100/021 |
| 125 x 2.1 mm | PT3.5RPNH-125/021 | PT5RPNH-125/021 |
| 150 x 2.1 mm | PT3.5RPNH-150/021 | PT5RPNH-150/021 |
| 250 x 2.1 mm | --- | PT5RPNH-250/021 |
| 50 x 3.0 mm | PT3.5RPNH-050/030 | PT5RPNH-050/030 |
| 75 x 3.0 mm | PT3.5RPNH-075/030 | PT5RPNH-075/030 |
| 100 x 3.0 mm | PT3.5RPNH-100/030 | PT5RPNH-100/030 |
| 125 x 3.0 mm | PT3.5RPNH-125/030 | PT5RPNH-125/030 |
| 150 x 3.0 mm | PT3.5RPNH-150/030 | PT5RPNH-150/030 |
| 250 x 3.0 mm | --- | PT5RPNH-250/030 |
| 25 x 4.6 mm | PT3.5RPNH-025/046 | PT5RPNH-025/046 |
| 50 x 4.6 mm | PT3.5RPNH-050/046 | PT5RPNH-050/046 |
| 75 x 4.6 mm | PT3.5RPNH-075/046 | PT5RPNH-075/046 |
| 100 x 4.6 mm | PT3.5RPNH-100/046 | PT5RPNH-100/046 |
| 125 x 4.6 mm | PT3.5RPNH-125/046 | PT5RPNH-125/046 |
| 150 x 4.6 mm | PT3.5RPNH-150/046 | PT5RPNH-150/046 |
| 250 x 4.6 mm | --- | PT5RPNH-250/046 |

puriFlash® BIO 200 RPNH
 RP - Alkyl chain / Amines
 Pore size: 200Å
 Surface area: 150 m²/g
 Functionalization: Mono functional
 % Carbon: 4 %
 End-Capping: None
 pH Stability: 1.5 - 8
 Mode: Reverse / Ion Exchange

Field of application

UHPLC
 HPLC
 Prep-LC
 Flash



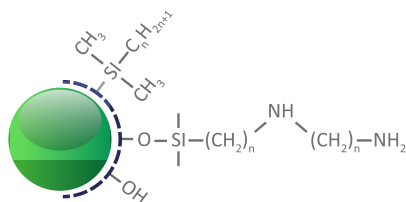
RELATED PRODUCTS

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LC ANALYSIS FOR PEPTIDES & PROTEINS

Advion Interchim Scientific Columns



puriFlash® BIO 300 RPNH
 RP - Alkyl chain / Amines
 Pore size: 300Å
 Surface area: 100 m²/g
 Functionalization: Mono functional
 % Carbon: 2 %
 End-Capping: None
 pH Stability: 1.5 - 8
 Mode: Reverse / Ion Exchange

Field of application

UHPLC
 HPLC
 PrepLC
 Flash

puriFlash® BIO 300 RPNH

Analysis & Purification of large oligonucleotides, aptamers, DNA

| Dimensions | 3.5 μm | 5 μm |
|--------------|-------------------|-----------------|
| 50 x 2.1 mm | PP3.5RPNH-050/021 | PP5RPNH-050/021 |
| 75 x 2.1 mm | PP3.5RPNH-075/021 | PP5RPNH-075/021 |
| 100 x 2.1 mm | PP3.5RPNH-100/021 | PP5RPNH-100/021 |
| 125 x 2.1 mm | PP3.5RPNH-125/021 | PP5RPNH-125/021 |
| 150 x 2.1 mm | PP3.5RPNH-150/021 | PP5RPNH-150/021 |
| 250 x 2.1 mm | --- | PP5RPNH-250/021 |
| 50 x 3.0 mm | PP3.5RPNH-050/030 | PP5RPNH-050/030 |
| 75 x 3.0 mm | PP3.5RPNH-075/030 | PP5RPNH-075/030 |
| 100 x 3.0 mm | PP3.5RPNH-100/030 | PP5RPNH-100/030 |
| 125 x 3.0 mm | PP3.5RPNH-125/030 | PP5RPNH-125/030 |
| 150 x 3.0 mm | PP3.5RPNH-150/030 | PP5RPNH-150/030 |
| 250 x 3.0 mm | --- | PP5RPNH-250/030 |
| 25 x 4.6 mm | PP3.5RPNH-025/046 | PP5RPNH-025/046 |
| 50 x 4.6 mm | PP3.5RPNH-050/046 | PP5RPNH-050/046 |
| 75 x 4.6 mm | PP3.5RPNH-075/046 | PP5RPNH-075/046 |
| 100 x 4.6 mm | PP3.5RPNH-100/046 | PP5RPNH-100/046 |
| 125 x 4.6 mm | PP3.5RPNH-125/046 | PP5RPNH-125/046 |
| 150 x 4.6 mm | PP3.5RPNH-150/046 | PP5RPNH-150/046 |
| 250 x 4.6 mm | --- | PP5RPNH-250/046 |

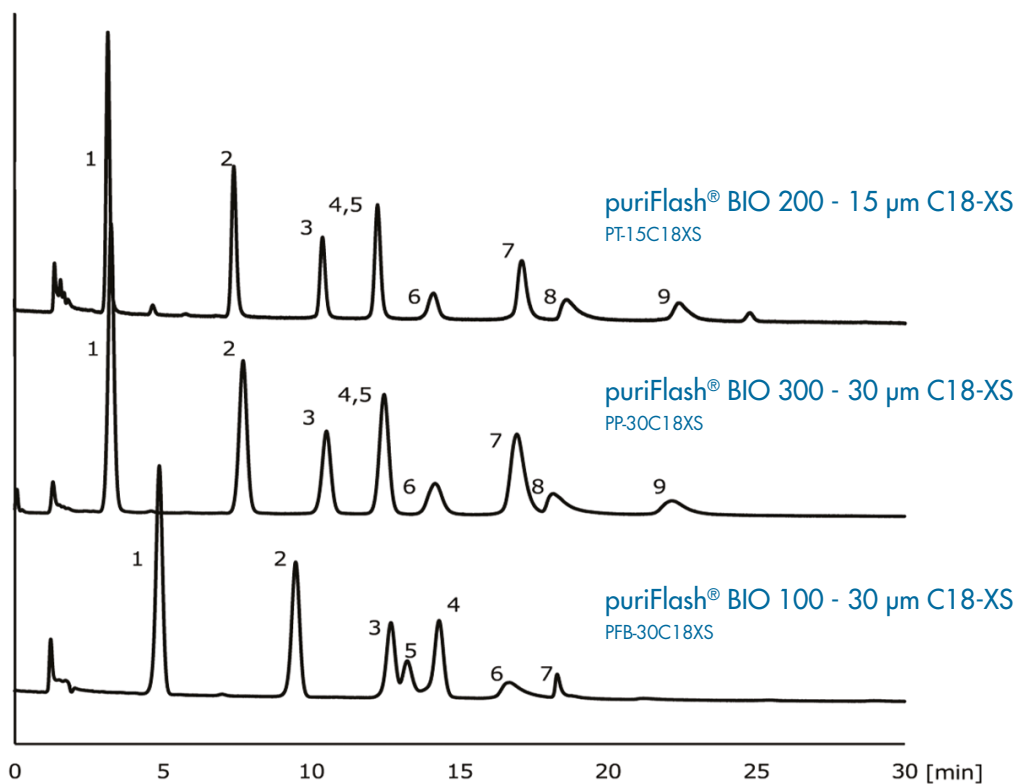
RELATED PRODUCTS

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SEPARATION / PURIFICATION OF PEPTIDES AND PROTEINS BY HPLC / UV



1. Gly-Tyr (238 Da)
2. Val-Tyr-Val (380 Da)
3. Met-Enkephalin (574Da)
4. Leu-Enkephalin (556 Da)
5. Angiotensin II acetate (1 kDa)
6. Ribonuclease A (13.7 kDa)
7. Cytochrome C (12 kDa)
8. Holo-transferrin (80 kDa)
9. Aponyoglobin (16.95 kDa)

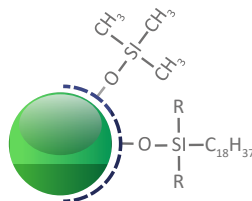
Acetonitrile / Water = 5:95 - 60:40 (v/v), tg: 0 - 30 min,
Flowrate: 2 mL/min, T°: 40°C, 280 nm, injection 10 µL,
Column size 250 x 4.6 mmID
Standard peptides (0.25 mg/mL) + standard proteins (0.5 mg/mL)



LC ANALYSIS

FOR PEPTIDES & PROTEINS

Advion Interchim Scientific Columns



Uptisphere® BIO X-Serie OD₂
 C18 - Octadecyl
 USP code: L1
 Pore size: 130Å
 Surface area: 300 m²/g
 Functionalization: Poly-functional type II
 % Carbon: 20 %
 End-Capping: Multi step
 pH Stability: 1 - 13
 Mode: Reverse

Field of application

UHPLC
 HPLC
 PrepLC
 Flash

Uptisphere® BIO X-Serie OD₂

BioDrugs with low molecular weight.

| Dimensions | 3 μm | 5 μm |
|--------------|----------------|----------------|
| 25 x 2.1 mm | UX3OD2-025/021 | --- |
| 30 x 2.1 mm | UX3OD2-030/021 | --- |
| 50 x 2.1 mm | UX3OD2-050/021 | UX5OD2-050/021 |
| 75 x 2.1 mm | UX3OD2-075/021 | UX5OD2-075/021 |
| 100 x 2.1 mm | UX3OD2-100/021 | UX5OD2-100/021 |
| 125 x 2.1 mm | UX3OD2-125/021 | UX5OD2-125/021 |
| 150 x 2.1 mm | UX3OD2-150/021 | UX5OD2-150/021 |
| 250 x 2.1 mm | --- | UX5OD2-250/021 |
| 25 x 3.0 mm | UX3OD2-025/030 | --- |
| 30 x 3.0 mm | UX3OD2-030/030 | --- |
| 50 x 3.0 mm | UX3OD2-050/030 | UX5OD2-050/030 |
| 75 x 3.0 mm | UX3OD2-075/030 | UX5OD2-075/030 |
| 100 x 3.0 mm | UX3OD2-100/030 | UX5OD2-100/030 |
| 125 x 3.0 mm | UX3OD2-125/030 | UX5OD2-125/030 |
| 150 x 3.0 mm | UX3OD2-150/030 | UX5OD2-150/030 |
| 250 x 3.0 mm | --- | UX5OD2-250/030 |
| 30 x 4.0 mm | --- | UX5OD2-030/040 |
| 50 x 4.0 mm | --- | UX5OD2-050/040 |
| 125 x 4.0 mm | UX3OD2-125/040 | UX5OD2-125/040 |
| 150 x 4.0 mm | --- | UX5OD2-150/040 |
| 250 x 4.0 mm | --- | UX5OD2-250/040 |
| 25 x 4.6 mm | UX3OD2-025/046 | UX5OD2-025/046 |
| 30 x 4.6 mm | UX3OD2-030/046 | UX5OD2-030/046 |
| 50 x 4.6 mm | UX3OD2-050/046 | UX5OD2-050/046 |
| 75 x 4.6 mm | UX3OD2-075/046 | UX5OD2-075/046 |
| 100 x 4.6 mm | UX3OD2-100/046 | UX5OD2-100/046 |
| 125 x 4.6 mm | UX3OD2-125/046 | UX5OD2-125/046 |
| 150 x 4.6 mm | UX3OD2-150/046 | UX5OD2-150/046 |
| 250 x 4.6 mm | --- | UX5OD2-250/046 |

RELATED PRODUCTS

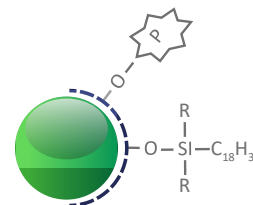
Columns Protection
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 & Holder on page H.28





Uptisphere® BIO X-Serie C18-AQ

Mid-polar BioDrugs & medium molecular weight peptides.
Compatible with 100% aqueous mobile phases.



| Dimensions | 3 µm | 5 µm |
|--------------|---------------|---------------|
| 25 x 2.1 mm | UX3AQ-025/021 | --- |
| 30 x 2.1 mm | UX3AQ-030/021 | --- |
| 50 x 2.1 mm | UX3AQ-050/021 | UX5AQ-050/021 |
| 75 x 2.1 mm | UX3AQ-075/021 | UX5AQ-075/021 |
| 100 x 2.1 mm | UX3AQ-100/021 | UX5AQ-100/021 |
| 125 x 2.1 mm | UX3AQ-125/021 | UX5AQ-125/021 |
| 150 x 2.1 mm | UX3AQ-150/021 | UX5AQ-150/021 |
| 250 x 2.1 mm | --- | UX5AQ-250/021 |
| 25 x 3.0 mm | UX3AQ-025/030 | --- |
| 30 x 3.0 mm | UX3AQ-030/030 | --- |
| 50 x 3.0 mm | UX3AQ-050/030 | UX5AQ-050/030 |
| 75 x 3.0 mm | UX3AQ-075/030 | UX5AQ-075/030 |
| 100 x 3.0 mm | UX3AQ-100/030 | UX5AQ-100/030 |
| 125 x 3.0 mm | UX3AQ-125/030 | UX5AQ-125/030 |
| 150 x 3.0 mm | UX3AQ-150/030 | UX5AQ-150/030 |
| 250 x 3.0 mm | --- | UX5AQ-250/030 |
| 30 x 4.0 mm | --- | UX5AQ-030/040 |
| 50 x 4.0 mm | --- | UX5AQ-050/040 |
| 125 x 4.0 mm | UX3AQ-125/040 | UX5AQ-125/040 |
| 150 x 4.0 mm | --- | UX5AQ-150/040 |
| 250 x 4.0 mm | --- | UX5AQ-250/040 |
| 25 x 4.6 mm | UX3AQ-025/046 | UX5AQ-025/046 |
| 30 x 4.6 mm | UX3AQ-030/046 | UX5AQ-030/046 |
| 50 x 4.6 mm | UX3AQ-050/046 | UX5AQ-050/046 |
| 75 x 4.6 mm | UX3AQ-075/046 | UX5AQ-075/046 |
| 100 x 4.6 mm | UX3AQ-100/046 | UX5AQ-100/046 |
| 125 x 4.6 mm | UX3AQ-125/046 | UX5AQ-125/046 |
| 150 x 4.6 mm | UX3AQ-150/046 | UX5AQ-150/046 |
| 250 x 4.6 mm | --- | UX5AQ-250/046 |

Uptisphere® BIO X-Serie C18-AQ

C18 - Octadecyl

USP code: L1

Pore size: 220Å

Surface area: 200 m²/g

Functionalization: Poly-functional type II

% Carbon: 14 %

End-Capping: Mixte

pH Stability: 1 - 10

Mode : Reverse

Field of application

UHPLC
HPLC
PrepLC
Flash



RELATED PRODUCTS

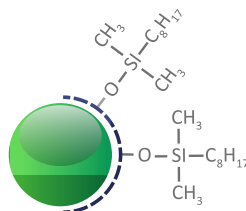
Columns Protection

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& Holder on page H.28



LC ANALYSIS FOR PEPTIDES & PROTEINS

Advion Interchim Scientific Columns



Uptisphere® BIO X-Series C8

C8 - Octyl

USP code: L7

Pore size: 220Å

Surface area: 200 m²/g

Functionalization: Poly-functional type II

% Carbon: 8 %

End-Capping: Multi step

pH Stability: 1 - 13

Mode: Reverse

Field of application

UHPLC

HPLC

PrepLC

Flash



Uptisphere® BIO X-Series C8

BioDrugs & Peptides with medium molecular weight.

| Dimensions | 3 µm | 5 µm |
|--------------|---------------|---------------|
| 25 x 2.1 mm | UX3C8-025/021 | --- |
| 30 x 2.1 mm | UX3C8-030/021 | --- |
| 50 x 2.1 mm | UX3C8-050/021 | UX5C8-050/021 |
| 75 x 2.1 mm | UX3C8-075/021 | UX5C8-075/021 |
| 100 x 2.1 mm | UX3C8-100/021 | UX5C8-100/021 |
| 125 x 2.1 mm | UX3C8-125/021 | UX5C8-125/021 |
| 150 x 2.1 mm | UX3C8-150/021 | UX5C8-150/021 |
| 250 x 2.1 mm | --- | UX5C8-250/021 |
| 25 x 3.0 mm | UX3C8-025/030 | --- |
| 30 x 3.0 mm | UX3C8-030/030 | --- |
| 50 x 3.0 mm | UX3C8-050/030 | UX5C8-050/030 |
| 75 x 3.0 mm | UX3C8-075/030 | UX5C8-075/030 |
| 100 x 3.0 mm | UX3C8-100/030 | UX5C8-100/030 |
| 125 x 3.0 mm | UX3C8-125/030 | UX5C8-125/030 |
| 150 x 3.0 mm | UX3C8-150/030 | UX5C8-150/030 |
| 250 x 3.0 mm | --- | UX5C8-250/030 |
| 30 x 4.0 mm | --- | UX5C8-030/040 |
| 50 x 4.0 mm | --- | UX5C8-050/040 |
| 125 x 4.0 mm | UX3C8-125/040 | UX5C8-125/040 |
| 150 x 4.0 mm | --- | UX5C8-150/040 |
| 250 x 4.0 mm | --- | UX5C8-250/040 |
| 25 x 4.6 mm | UX3C8-025/046 | UX5C8-025/046 |
| 30 x 4.6 mm | UX3C8-030/046 | UX5C8-030/046 |
| 50 x 4.6 mm | UX3C8-050/046 | UX5C8-050/046 |
| 75 x 4.6 mm | UX3C8-075/046 | UX5C8-075/046 |
| 100 x 4.6 mm | UX3C8-100/046 | UX5C8-100/046 |
| 125 x 4.6 mm | UX3C8-125/046 | UX5C8-125/046 |
| 150 x 4.6 mm | UX3C8-150/046 | UX5C8-150/046 |
| 250 x 4.6 mm | --- | UX5C8-250/046 |

RELATED PRODUCTS

Columns Protection

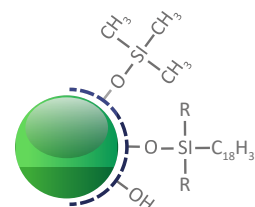
Find our Guard Cartridges
& Holder on page H.28





Uptisphere® BIO 300Å WOD

Weakly hydrophobic peptides & oligopeptides up to 50 kD.



| Dimensions | 3 µm | 5 µm |
|--------------|----------------|----------------|
| 25 x 2.1 mm | UP3WOD-025/021 | --- |
| 30 x 2.1 mm | UP3WOD-030/021 | --- |
| 50 x 2.1 mm | UP3WOD-050/021 | UP5WOD-050/021 |
| 75 x 2.1 mm | UP3WOD-075/021 | UP5WOD-075/021 |
| 100 x 2.1 mm | UP3WOD-100/021 | UP5WOD-100/021 |
| 125 x 2.1 mm | UP3WOD-125/021 | UP5WOD-125/021 |
| 150 x 2.1 mm | UP3WOD-150/021 | UP5WOD-150/021 |
| 250 x 2.1 mm | --- | UP5WOD-250/021 |
| 25 x 3.0 mm | UP3WOD-025/030 | --- |
| 30 x 3.0 mm | UP3WOD-030/030 | --- |
| 50 x 3.0 mm | UP3WOD-050/030 | UP5WOD-050/030 |
| 75 x 3.0 mm | UP3WOD-075/030 | UP5WOD-075/030 |
| 100 x 3.0 mm | UP3WOD-100/030 | UP5WOD-100/030 |
| 125 x 3.0 mm | UP3WOD-125/030 | UP5WOD-125/030 |
| 150 x 3.0 mm | UP3WOD-150/030 | UP5WOD-150/030 |
| 250 x 3.0 mm | --- | UP5WOD-250/030 |
| 30 x 4.0 mm | --- | UP5WOD-030/040 |
| 50 x 4.0 mm | --- | UP5WOD-050/040 |
| 125 x 4.0 mm | UP3WOD-125/040 | UP5WOD-125/040 |
| 150 x 4.0 mm | --- | UP5WOD-150/040 |
| 250 x 4.0 mm | --- | UP5WOD-250/040 |
| 25 x 4.6 mm | UP3WOD-025/046 | UP5WOD-025/046 |
| 30 x 4.6 mm | UP3WOD-030/046 | UP5WOD-030/046 |
| 50 x 4.6 mm | UP3WOD-050/046 | UP5WOD-050/046 |
| 75 x 4.6 mm | UP3WOD-075/046 | UP5WOD-075/046 |
| 100 x 4.6 mm | UP3WOD-100/046 | UP5WOD-100/046 |
| 125 x 4.6 mm | UP3WOD-125/046 | UP5WOD-125/046 |
| 150 x 4.6 mm | UP3WOD-150/046 | UP5WOD-150/046 |
| 250 x 4.6 mm | --- | UP5WOD-250/046 |

Uptisphere® BIO 300Å WOD

C18 - OctadEcyI

USP code: L1

Pore size: 300Å

Surface area: 100 m²/g

Functionalization : Mono-functional

% Carbon: 10 %

End-Capping: One step

pH Stability: 1.5 - 7

Mode: Reverse

Field of application

UHPLC
HPLC
Prep-LC
Flash



RELATED PRODUCTS

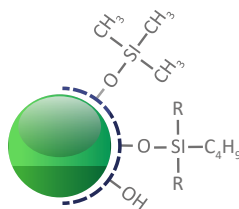
Columns Protection

Find our Guard Cartridges & Holder on page H.28



LC ANALYSIS FOR PEPTIDES & PROTEINS

Advion Interchim Scientific Columns



Uptisphere® BIO 300Å WC4

C4 - Butyl

USP code: L26

Pore size: 300Å

Surface area: 100 m²/g

Functionalization : Mono-functional

% Carbon: 4 %

End-Capping: One step

pH Stability: 2 - 7

Mode: Reverse

Field of application

| | |
|--------|-------------------------------------|
| UHPLC | <input type="checkbox"/> |
| HPLC | <input checked="" type="checkbox"/> |
| PrepLC | <input checked="" type="checkbox"/> |
| Flash | <input type="checkbox"/> |

Uptisphere® BIO 300Å WC4

Hydrophobic proteins & polypeptides, from 50 up to 150 kD.

| Dimensions | 3 μm | 5 μm |
|--------------|----------------|----------------|
| 25 x 2.1 mm | UP3WC4-025/021 | --- |
| 30 x 2.1 mm | UP3WC4-030/021 | --- |
| 50 x 2.1 mm | UP3WC4-050/021 | UP5WC4-050/021 |
| 75 x 2.1 mm | UP3WC4-075/021 | UP5WC4-075/021 |
| 100 x 2.1 mm | UP3WC4-100/021 | UP5WC4-100/021 |
| 125 x 2.1 mm | UP3WC4-125/021 | UP5WC4-125/021 |
| 150 x 2.1 mm | UP3WC4-150/021 | UP5WC4-150/021 |
| 250 x 2.1 mm | --- | UP5WC4-250/021 |
| 25 x 3.0 mm | UP3WC4-025/030 | --- |
| 30 x 3.0 mm | UP3WC4-030/030 | --- |
| 50 x 3.0 mm | UP3WC4-050/030 | UP5WC4-050/030 |
| 75 x 3.0 mm | UP3WC4-075/030 | UP5WC4-075/030 |
| 100 x 3.0 mm | UP3WC4-100/030 | UP5WC4-100/030 |
| 125 x 3.0 mm | UP3WC4-125/030 | UP5WC4-125/030 |
| 150 x 3.0 mm | UP3WC4-150/030 | UP5WC4-150/030 |
| 250 x 3.0 mm | --- | UP5WC4-250/030 |
| 30 x 4.0 mm | --- | UP5WC4-030/040 |
| 50 x 4.0 mm | --- | UP5WC4-050/040 |
| 125 x 4.0 mm | UP3WC4-125/040 | UP5WC4-125/040 |
| 150 x 4.0 mm | --- | UP5WC4-150/040 |
| 250 x 4.0 mm | --- | UP5WC4-250/040 |
| 25 x 4.6 mm | UP3WC4-025/046 | UP5WC4-025/046 |
| 30 x 4.6 mm | UP3WC4-030/046 | UP5WC4-030/046 |
| 50 x 4.6 mm | UP3WC4-050/046 | UP5WC4-050/046 |
| 75 x 4.6 mm | UP3WC4-075/046 | UP5WC4-075/046 |
| 100 x 4.6 mm | UP3WC4-100/046 | UP5WC4-100/046 |
| 125 x 4.6 mm | UP3WC4-125/046 | UP5WC4-125/046 |
| 150 x 4.6 mm | UP3WC4-150/046 | UP5WC4-150/046 |
| 250 x 4.6 mm | --- | UP5WC4-250/046 |

RELATED PRODUCTS

Columns Protection

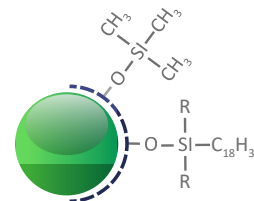
Find our Guard Cartridges
& Holder on page H.28





Uptisphere® BIO TP 18

Weakly hydrophobic peptides & oligopeptides up to 50 kDa.



| Dimensions | 3 μm | 5 μm |
|--------------|-----------------|-----------------|
| 25 x 2.1 mm | UP3TP18-025/021 | --- |
| 30 x 2.1 mm | UP3TP18-030/021 | --- |
| 50 x 2.1 mm | UP3TP18-050/021 | UP5TP18-050/021 |
| 75 x 2.1 mm | UP3TP18-075/021 | UP5TP18-075/021 |
| 100 x 2.1 mm | UP3TP18-100/021 | UP5TP18-100/021 |
| 125 x 2.1 mm | UP3TP18-125/021 | UP5TP18-125/021 |
| 150 x 2.1 mm | UP3TP18-150/021 | UP5TP18-150/021 |
| 250 x 2.1 mm | --- | UP5TP18-250/021 |
| 25 x 3.0 mm | UP3TP18-025/030 | --- |
| 30 x 3.0 mm | UP3TP18-030/030 | --- |
| 50 x 3.0 mm | UP3TP18-050/030 | UP5TP18-050/030 |
| 75 x 3.0 mm | UP3TP18-075/030 | UP5TP18-075/030 |
| 100 x 3.0 mm | UP3TP18-100/030 | UP5TP18-100/030 |
| 125 x 3.0 mm | UP3TP18-125/030 | UP5TP18-125/030 |
| 150 x 3.0 mm | UP3TP18-150/030 | UP5TP18-150/030 |
| 250 x 3.0 mm | --- | UP5TP18-250/030 |
| 25 x 4.6 mm | UP3TP18-025/046 | UP5TP18-025/046 |
| 30 x 4.6 mm | UP3TP18-030/046 | UP5TP18-030/046 |
| 50 x 4.6 mm | UP3TP18-050/046 | UP5TP18-050/046 |
| 75 x 4.6 mm | UP3TP18-075/046 | UP5TP18-075/046 |
| 100 x 4.6 mm | UP3TP18-100/046 | UP5TP18-100/046 |
| 125 x 4.6 mm | UP3TP18-125/046 | UP5TP18-125/046 |
| 150 x 4.6 mm | UP3TP18-150/046 | UP5TP18-150/046 |
| 250 x 4.6 mm | --- | UP5TP18-250/046 |

Uptisphere® BIO TP 18

C18 - Octadecyl
 USP code: L1
 Pore size: 300Å
 Surface area: 100 m²/g
 Functionalization: Poly-functional
 % Carbon: 8 %
 End-Capping: One step
 pH Stability: 1.5 - 7.5
 Mode: Reverse

Field of application

- UHPLC
- HPLC
- PrepLC
- Flash

RELATED PRODUCTS

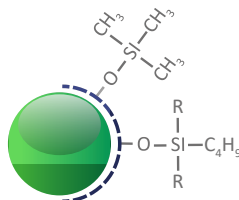
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 & Holder on page H.28



LC ANALYSIS

FOR PEPTIDES & PROTEINS

Advion Interchim Scientific Columns



Uptisphere® BIO TP 14
 C4 - Butyl
 USP code: L26
 Pore size: 300Å
 Surface area: 100 m²/g
 Functionalization: Poly-functional
 % Carbon: 3.5 %
 End-Capping: One Step
 pH Stability: 2 - 7
 Mode: Reverse

Field of application

UHPLC
 HPLC
 PrepLC
 Flash

Uptisphere® BIO TP 14

Hydrophobic proteins & polypeptides, from 50 to 150 kDa.

| Dimensions | 3 μm | 5 μm |
|--------------|-----------------|-----------------|
| 25 x 2.1 mm | UP3TP14-025/021 | --- |
| 30 x 2.1 mm | UP3TP14-030/021 | --- |
| 50 x 2.1 mm | UP3TP14-050/021 | UP5TP14-050/021 |
| 75 x 2.1 mm | UP3TP14-075/021 | UP5TP14-075/021 |
| 100 x 2.1 mm | UP3TP14-100/021 | UP5TP14-100/021 |
| 125 x 2.1 mm | UP3TP14-125/021 | UP5TP14-125/021 |
| 150 x 2.1 mm | UP3TP14-150/021 | UP5TP14-150/021 |
| 250 x 2.1 mm | --- | UP5TP14-250/021 |
| 25 x 3.0 mm | UP3TP14-025/030 | --- |
| 30 x 3.0 mm | UP3TP14-030/030 | --- |
| 50 x 3.0 mm | UP3TP14-050/030 | UP5TP14-050/030 |
| 75 x 3.0 mm | UP3TP14-075/030 | UP5TP14-075/030 |
| 100 x 3.0 mm | UP3TP14-100/030 | UP5TP14-100/030 |
| 125 x 3.0 mm | UP3TP14-125/030 | UP5TP14-125/030 |
| 150 x 3.0 mm | UP3TP14-150/030 | UP5TP14-150/030 |
| 250 x 3.0 mm | --- | UP5TP14-250/030 |
| 25 x 4.6 mm | UP3TP14-025/046 | UP5TP14-025/046 |
| 30 x 4.6 mm | UP3TP14-030/046 | UP5TP14-030/046 |
| 50 x 4.6 mm | UP3TP14-050/046 | UP5TP14-050/046 |
| 75 x 4.6 mm | UP3TP14-075/046 | UP5TP14-075/046 |
| 100 x 4.6 mm | UP3TP14-100/046 | UP5TP14-100/046 |
| 125 x 4.6 mm | UP3TP14-125/046 | UP5TP14-125/046 |
| 150 x 4.6 mm | UP3TP14-150/046 | UP5TP14-150/046 |
| 250 x 4.6 mm | --- | UP5TP14-250/046 |

RELATED PRODUCTS

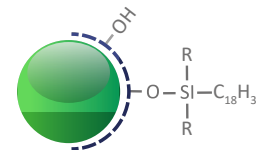
Columns Protection
 Find our Guard Cartridges
 & Holder on page H.28





Uptisphere® TP 01

Dedicated to the analysis of PAH (Polycyclic Aromatic Hydrocarbons).



| Dimensions | 5 µm |
|--------------|-----------------|
| 50 x 2.1 mm | UP5TP01-050/021 |
| 75 x 2.1 mm | UP5TP01-075/021 |
| 100 x 2.1 mm | UP5TP01-100/021 |
| 125 x 2.1 mm | UP5TP01-125/021 |
| 150 x 2.1 mm | UP5TP01-150/021 |
| 250 x 2.1 mm | UP5TP01-250/021 |
| 50 x 3.0 mm | UP5TP01-050/030 |
| 75 x 3.0 mm | UP5TP01-075/030 |
| 100 x 3.0 mm | UP5TP01-100/030 |
| 125 x 3.0 mm | UP5TP01-125/030 |
| 150 x 3.0 mm | UP5TP01-150/030 |
| 250 x 3.0 mm | UP5TP01-250/030 |
| 25 x 4.6 mm | UP5TP01-025/046 |
| 30 x 4.6 mm | UP5TP01-030/046 |
| 50 x 4.6 mm | UP5TP01-050/046 |
| 75 x 4.6 mm | UP5TP01-075/046 |
| 100 x 4.6 mm | UP5TP01-100/046 |
| 125 x 4.6 mm | UP5TP01-125/046 |
| 150 x 4.6 mm | UP5TP01-150/046 |
| 250 x 4.6 mm | UP5TP01-250/046 |

Uptisphere® TP 01

C18 - OctadEyl

USP code: L1

Pore size: 300Å

Surface area: 100 m²/g

Functionalization: Poly-functional

% Carbon: 8 %

End-Capping: None

pH Stability: 1.5 - 7.5

Mode: Reverse

Field of application

UHPLC



HPLC



PrepLC



Flash



RELATED PRODUCTS

Columns Protection

Find our Guard Cartridges
& Holder on page H.28



LC ANALYSIS

FOR PEPTIDES & PROTEINS

Advion Interchim Scientific HPLC Columns Protection



HPLC Column Protection & Prevention:

To achieve the full benefits from your HPLC column potential, it must be protected from physical and chemical aggressors.

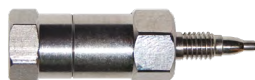
Analytical Guard Cartridges

The use of a guard cartridge is certainly the best protection against chemical pollution from the sample. A real "fuse", it must be replaced periodically to ensure optimal protection.

The indicators of change can be an abnormal pressure before injection or a changing chromatographic profile.

HPLC Guard Cartridge System: Wide Pore Silicas > 150Å

Guard Holder
P/N : AGHP-5



Guard Cartridges



- 900 bar maximum pressure
- High performance
- Low dead volume

3 & 5µm Wide Pore Silicas - Pore size > 150Å

| Description | 3 µm | 5 µm |
|----------------------------------|-----------------|-----------------|
| Uptisphere HP for Reverse Phase | | |
| Guard cartridges 5 x 2.1 mm (3u) | UW-RP-3-005/021 | UW-RP-5-005/021 |
| Guard cartridges 5 x 4.0 mm (3u) | UW-RP-3-005/046 | UW-RP-5-005/046 |

HPLC in-line filters

- Protection from physical contamination
- Compatible with 1/16" fittings
- Porosity 0.5 or 2 µm

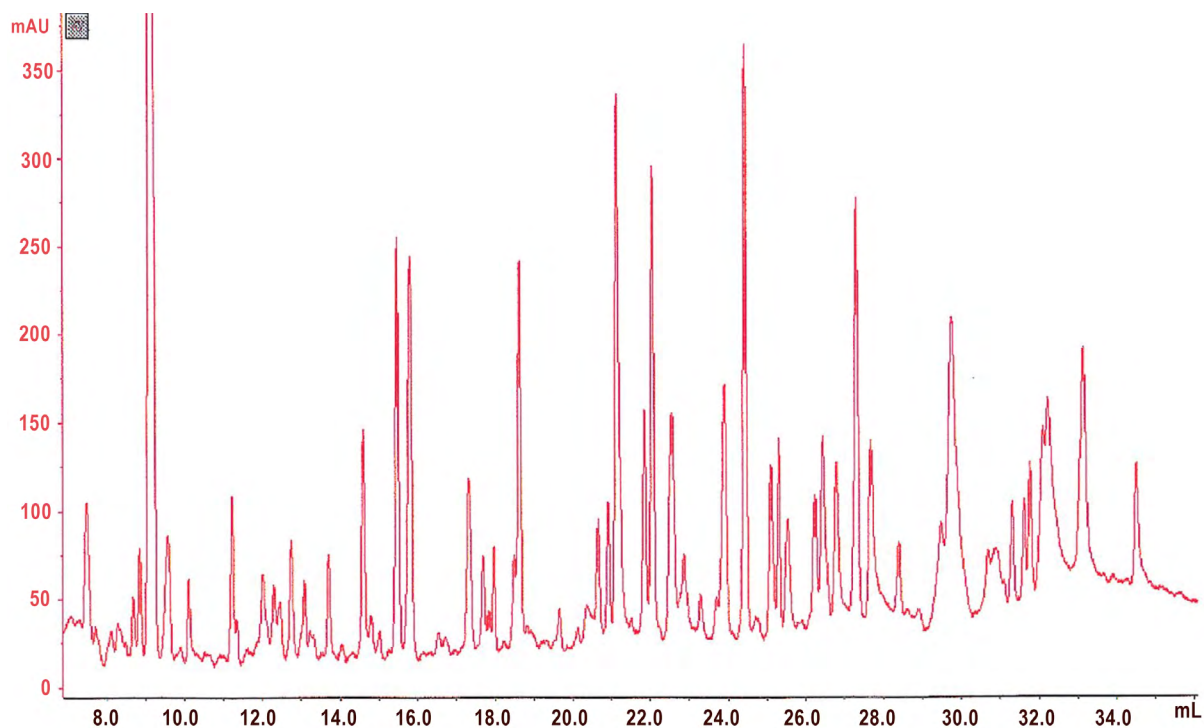


| Porosity | P/N | Qty /pack |
|----------|--------|-----------|
| 0.5 µm | T50270 | 10 u |
| 2.0 µm | R21281 | 10 u |



TRYPsin DIGEST OF MONOCLONAL IGG

Uptisphere 300Å 5 µm C18-ODB, 250 x 3.0 mm (P/N UPWOD-250/030)



A: TFA 0.115%
B: MeCN + TFA 0.1%
Flow rate: 0.5 mL/min
0-5%: 0.1 cv ; 45% :20 cv ; 80% :3 cv

(Courtesy of LFB)



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Accuracy
& Repeatability

puriFlash® Generation 5

Ultra Performance Flash Purification:

How to do high performance purification?

Our "Best-In-Class" instruments have been designed to make your purifications easier, more intuitive & more productive.

Compact & Advanced:

The compact size improves ergonomics, sphere of use and workstation comfort. Various integrated technologies such as nanoELSD, UV, leak detectors and more increase the overall productivity of the instrument. You can safely optimize and manage your workspace: the "Fume Enclosure" function allows benchtop installation, freeing the fume hood for chemistry use.

Versatile in terms of applications, the on-board detection technologies guarantee maximum purification efficiency without product loss.

Reliable & Safe:

There are no surprises or hidden costs to worry about after purchase.

Generation 5 puriFlash® is available 24/7 for purifications with confidence. The systems are robust and require minimal service.

The cost of ownership is under control.

Stay focused on your work with the peace of mind that you are obtaining the best possible purification.

There is no risk of product loss thanks to the complete monitoring of the system by multiple sensors, the overpressure management and pauses.

InterSoft® X:

This is the "Simplexity" or "French-KISS" revolution, in reference to our origins (Keeps Intelligence Simple & Smart).

Its sleek design makes the chemist's life easier. It remains accessible to all users whether beginners or experts, with minimal training.

Intuitive, the Gen 5 pushes the boundaries with innovative Flash & Go, Load & Go and Boost & Go technologies. With InterSoft® X you can develop a method, challenge Genius or, if you prefer, create the method by yourself.

Genius™ :

Your personal Artificial Intelligence, integrated in InterSoft® X, generates the best possible purification based on current knowledge.

Start the method safely and get your pure products!



Flash&Go :

Take a picture of your TLC plate using our mobile application. Automatically send the data to InterSoft X "Genius".
You are ready to perform the purification.



Load&Go :

Load your liquid or solid sample with the multi-channel electric valve.
InterSoft® X "Genius" manages column equilibration, sample loading and system cleaning.



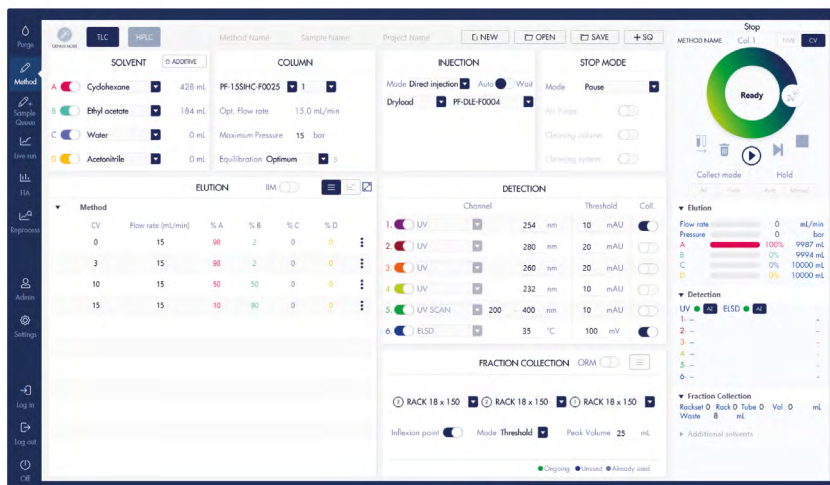
Boost&Go :

Intelligent management of the flow increase to speed up the purification process in complete safety.

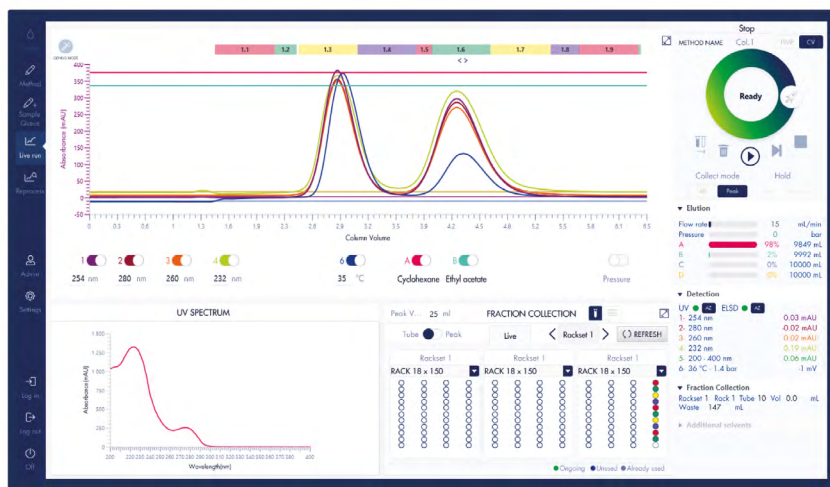


Flash & Prep columns, Dry-Loads, racks, loop identification & data implementation in Genius.



- Accessibility of multi-profile users with minimum training.
- Best-in-class design that makes the chemist's life easier.
- Challenge Genius, your Personal Artificial Intelligence, to develop the purification method, or do it by yourself.
- "Push the boundaries" with the intuitive Flash & Go, Load & Go and Boost & Go technologies.



Flash your TLC plate using our mobile app., automatically send the data to InterSoft® X "Genius". You are set to run the purification.



Load your liquid or solid sample through the multi-way electrical valve. InterSoft® X "Genius" will manage the column equilibration, sample loading and system cleaning for you.



Intelligent management of the flow rate increase to safely speed up the purification.



Flash & Prep columns, Dry-Loads, racks, loops identification & data implementation into "Genius".



"TLC to Flash & Prep Chromatography"

Revolutionize your TLC using our App

Software intelligence for a greatly improved daily routine.

As experts in purification, we offer maximum working comfort and the highest efficiency for your laboratory. Thanks to the app that we have developed, we can share your vision for the future by constantly providing new technology solutions. It takes a digital form here, virtual but already real on the screen of your mobile or tablet.

A unique technology that slides through your fingers with one single click.

Our goal is to support you and to save you time day after day. Therefore our App allows:

- Automatic detection of your compounds and calculation of R_f and $\Delta CV (= \Delta K)$ values.
- Direct (and secure) information transfer to puriFlash® and the "Genius" AI, which suggests the best method for a successful purification.
- Data archiving.



Flash & Go: "New TLC"

The application is extremely intuitive and user-friendly:



Take a picture of the TLC with your smartphone or download it from your library.



Your compounds will be automatically detected. Select the ones of interest with a tap.



The application calculates R_f and $\Delta CV (= \Delta K)$. It indicates if the R_f are placed in the comfort zone to carry out your purification.



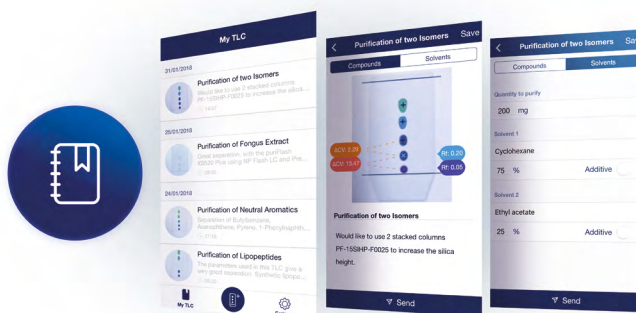
From the smallest ΔCV obtained on your TLC plate, the application gives you the level of difficulty of the separation.



Indicate the solvents, their proportions and your comments in the dedicated areas.



Save your TLC plate information. Send them to the email address of your choice or directly to your puriFlash® by bluetooth or wifi: the "Genius" AI will recommend the best method for a successful purification.



"MY TLC" for data customization

All information from your previous TLC plates are archived in a single location. In case you would like to reuse the parameters of the plate for a new separation, simply send them to any puriFlash® with a single click.



"SETTINGS" to personalize your experience

Connect your smartphone and tablet with your puriFlash® via bluetooth or Wifi. Configure your application according to your preferences. Quickly and directly access our internet sites.

Do you need a tablet or smartphone to benefit from our application in your laboratory?

Nothing is more simple: select your choice from the accessories offered for all our purification systems.



<https://goo.gl/givKvL>



"TLC to Flash & Prep Chromatography" is a free application. Our wish was to enable everybody to use it freely. You can even use it if you do not possess a puriFlash® purification system. Nevertheless, your experience as an user may be reduced since only our systems are equipped with a unique technology that allows data exchange. Therefore you cannot equally benefit from the "Genius" proposals with regard to the best method developments for your purification.

Genius

"Keeps Intelligence Simple, Smart"



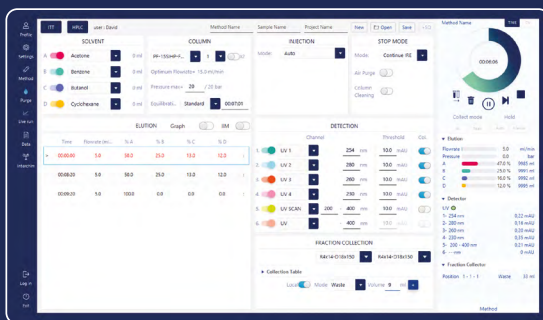
Whatever your sample,
from any of NP-TLC, NP-LC, NP-LC screening, RP-LC, RP-LC screening experiments,
Genius, your Personal Artificial Intelligence embedded in InterSoft® X, generates
the best possible purification method in the current knowledge.

Run the method safely and get your products pure!

FR 3079932A1
(French patent number)

InterSoft® X

"Keeps Intelligence Simple, Smart"



- Accessibility of multi-profile users with minimal training -
- Best-In-Class design that makes the Chemist's life Easier -
- "Push the boundaries" with Flash&Go, Load&Go and Boost&Go intuitive technologies -
- Challenge Genius, your Personal Artificial Intelligence, to develop the Purification Method, or do it by yourself -



Get a LC purification platform as unique as your work!
Customize it and make yours the puriFlash® 360° now.



Key features:

- **Simplicity:** powerful features but easy to use.
- **Technology concentrated in a small package** to improve the chemist's workflow.
- **Easy accessibility of multi-profile users** with minimum of training thanks to InterSoft®X software.

Low to high pressure LC purification of small & large molecules with 3X detection UV, ELSD & MS

The puriFlash® 360° LC Purification Platform combines simplicity & best-in-class design to make chemists purifications by liquid chromatography easier, intuitive and productive. No matter your level of expertise, the platform controlled by InterSoft®X, with Genius our embedded artificial intelligence, allows routine to sophisticated RP purification of small organics, natural products, peptides and proteins.

Stay focused on your job with the peace of mind that you will have the best purification possible.

There is no risk of product loss with full system sensor monitoring, overpressure management and pauses. Confidently run the platform 24/7 with minimum after-sales service required.

Small but mighty, the puriFlash® XS 520 Plus offers 300 mL/min @ up to 20 bar specifications. It is the ideal entry-level system for routine NP purification of small organics. For larger-scale purification, the puriFlash® 5.250 offers up to 250 bar with second dimension to enlarge the separation potential and safely isolate high value compounds.



ULTRA PERFORMANCE FLASH PURIFICATION



puriFlash® XS 520 Plus
300 mL/min - 20 bar
Small, but Mighty



puriFlash® 5.020
300 mL/min - 20 bar
The Partner of Daily Challenges



puriFlash® 5.050
250 mL/min - 50 bar
Cross-over Flash /Prep

ULTRA HIGH PERFORMANCE FLASH PURIFICATION



puriFlash® 5.250
250 mL/min - 250 bar
Optimized for your
preparative purifications



puriFlash® 5.400-UV
125 mL/min - 400 bar
The Ultra-Purification



puriFlash® 5.250P
125 mL/min - 250 bar
Purification of Complex
Mixtures of Peptides

PROCESS PURIFICATION



puriFlash® 535-XL
400 mL/min - 35 bar
Process - Kilo-Lab



puriFlash® 5.015-XL
825 mL/min - 15 bar
Process - Kilo-Lab



Accuracy
& Repeatability



Flash
& Go



Load
& Go



Boost
& Go

Find the complete range on our website.
<https://www.flash-chromatography.com/>

=> Download our dedicated literature



Ultra High Performance Purification - puriFlash® XS 520 Plus

puriFlash® XS 520 Plus

Small Organic molecules
 Impurity Identification
 Natural Products
 Peptides, Oligonucleotides
 Proteins, Bio-drugs
 Metabolite Isolation
 Trace Enrichment



Accuracy
& Repeatability

300
ml/min

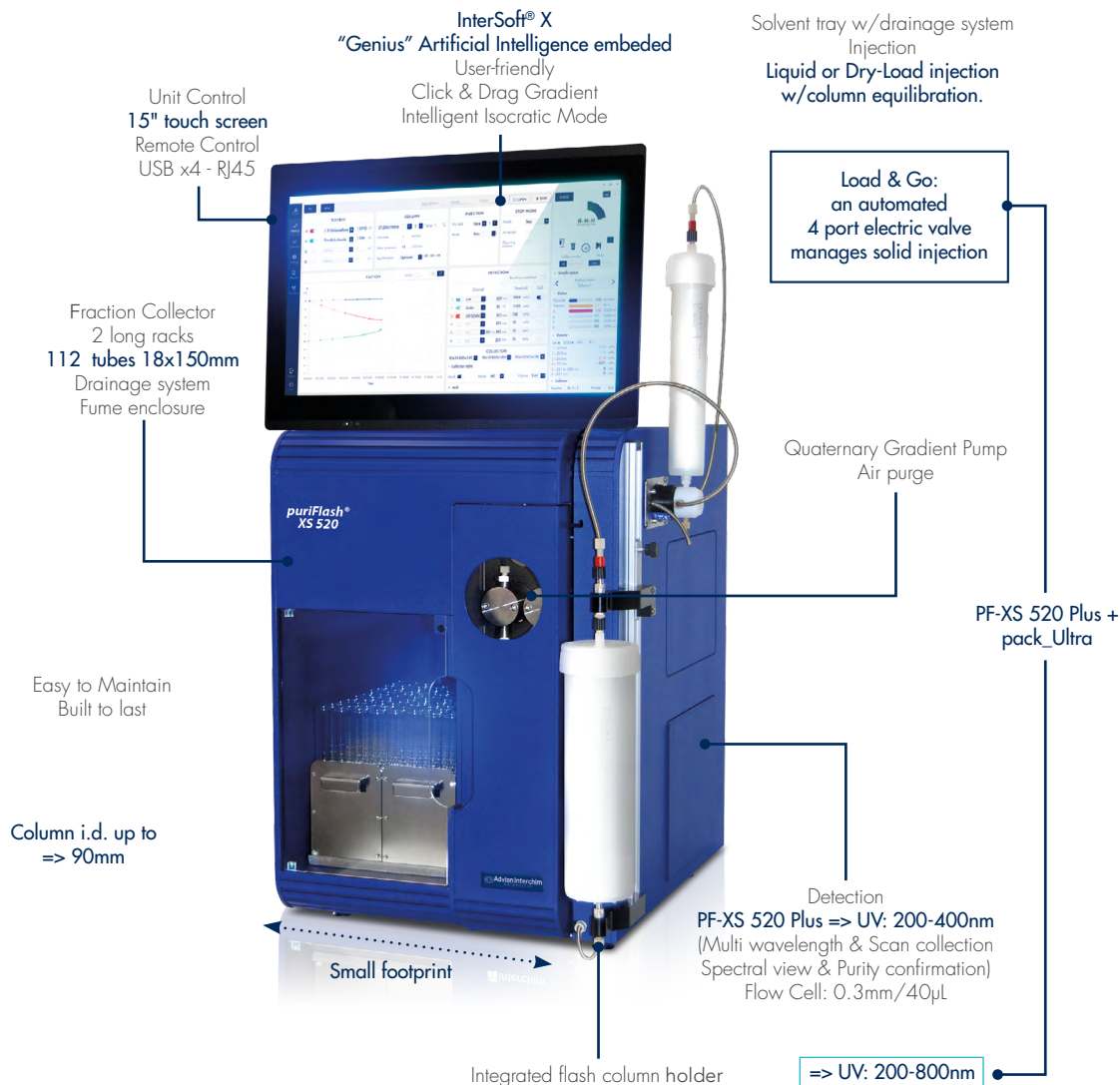
up to
F0800

20
bar

Small but mighty

Concentrated technology for unmatched performance.

Designed for routine flash purification the technology and unique quality of the pump will take you much further. Increase the pressure and the puriFlash® XS 520 Plus will continue to offer precision, linearity and repeatability to perform complex and sophisticated purifications. No matter whether you're an expert or not, Genius will support you to achieve the best possible purification.



Flash
& Go

Load
& Go

Boost
& Go

P/N : PFXS52 (220 v)
 P/N : PFXS53 (110 v)

Ultra High Performance Purification - puriFlash® 5.020



puriFlash® 5.020

- Small Organic molecules
- Impurity Identification
- Natural Products
- Peptides, Oligonucleotides
- Proteins, Bio-drugs
- Metabolite Isolation
- Trace Enrichment



Accuracy & Repeatability

300 ml/min

up to F0800

20 bar

The partner for your everyday challenges

Access to automation and more security. Spend more time on your purifications, allowing the integrated technology of the puriFlash® 5.020 to manage your system. This includes benefits such as an RFID detector, sensors for unexpected leakage, solvent level sensors and more.

InterSoft® X
"Genius" Artificial Intelligence embedded
User-friendly
Click & Drag Gradient
Intelligent Isocratic Mode

Solvent tray w/drainage system

Unit Control
15" touch screen
Remote Control
USB x8 - RJ45

Pre-column holder

Quaternary Gradient Pump
Air purge

Fraction Collector
3 racks Gen5
132 tubes 18x150mm
Drainage system
Fume enclosure

Injection
Liquid or Dry-Load injection
w/column equilibration.

Load & Go:
an automated
4 port electric valve
manages solid injection

Modular & Easy to Maintain
Built to last

Column i.d. up to
=> 90mm

Safety:
Leak detection
Solvent & waste level monitoring

Detection
UV: 200-400nm
Pack-UVextended: UV: 200-800nm
(Multi wavelength & Scan collection
Spectral view & Purity confirmation)
Flow Cell: 0.3mm/40µL
Pack-iELSD

Integrated flash column holder



P/N : PFG5A0 (220 v)
P/N : PFG5A1 (110 v)



puriFlash® 5.050

Small Organic molecules
Impurity Identification
Natural Products
Peptides, Oligonucleotides
Proteins, Bio-drugs
Metabolite Isolation
Trace Enrichment



Accuracy & Repeatability

250
mL/minup to
80mm i.d.
Col.50
bar

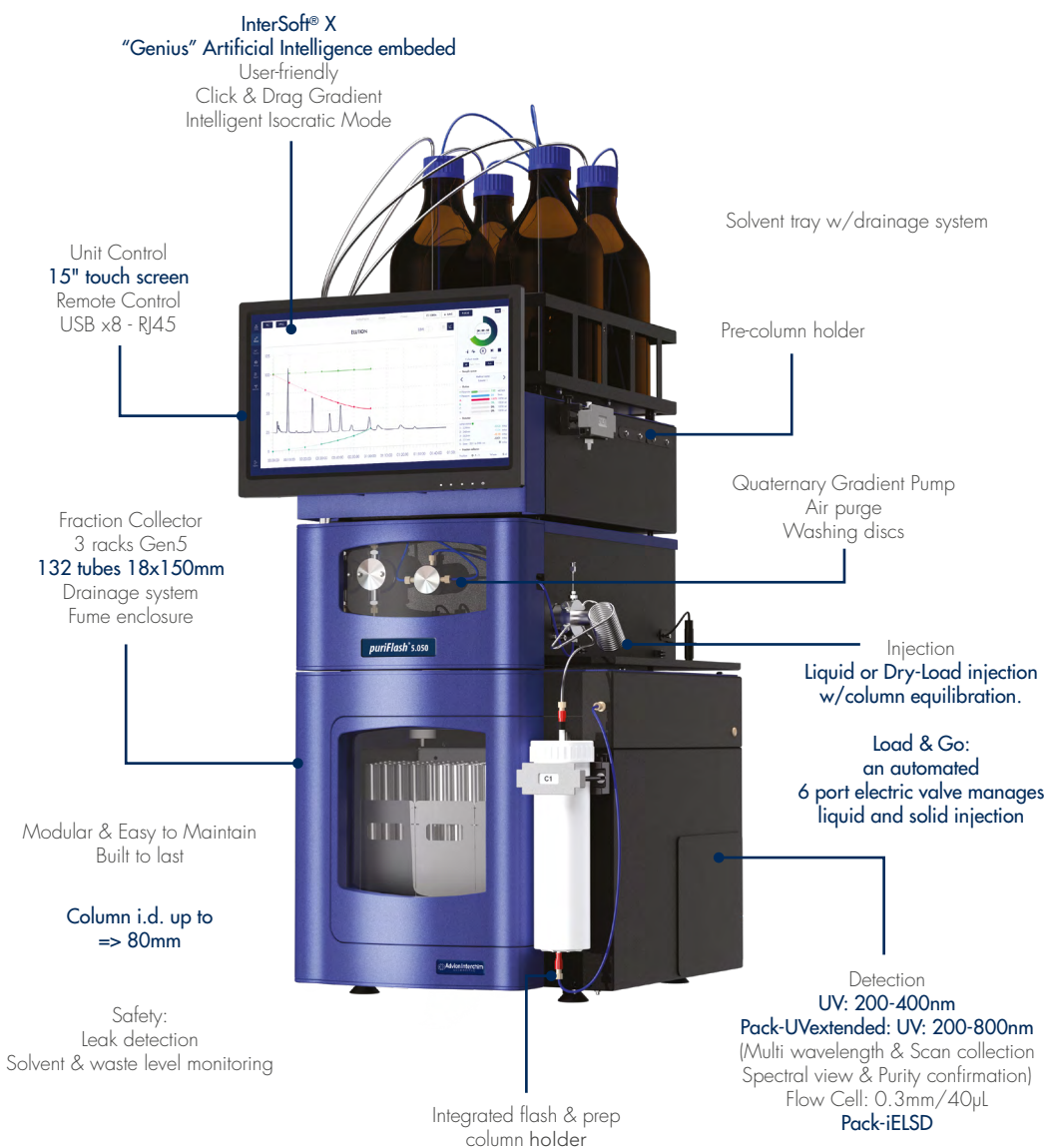
Cross-over Flash /Prep

Access to preparative chromatography.

A single instrument to perform both flash and preparative purifications.

Switch from normal to reverse phase and work with reusable columns.

Build eco-friendly methods with sustainable purification development.

Flash
& GoLoad
& GoBoost
& Go

P/N : PFG5C0 (220 v)
P/N : PFG5C1 (110 v)

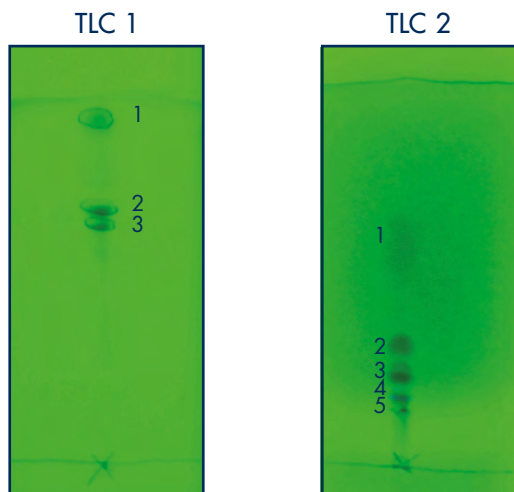


| | Flash Purification XS 520 Plus | | | Flash Purification 5.020 | Flash Purification 5.050 |
|---|-----------------------------------|--|---------------|---|---|
| Pump | | | | | |
| Flow rate | 300 mL/min | | | 300 mL/min | 250 mL/min |
| Max. pressure | 20 bar | | | 20 bar | 50 bar |
| Quaternary Gradient | yes | | | yes | yes |
| Air purge | yes | | | yes | yes |
| Washing discs | no | | | no | yes |
| Pump washing discs (pack) | no | | | no | no |
| Detector | | | | | |
| | *Plus | _UVextended | _Ultra | | |
| UV: 200 - 400 nm multi wavelength & scan collection | yes | no | no | yes | yes |
| UV: 200 - 800 nm multi wavelength & scan collection | no | yes | yes | pack-UVextended | pack-UVextended |
| Spectral view & purity confirmation | | yes | | yes | yes |
| iELSD Detection (pack) | | no | | pack-iELSD | pack-iELSD |
| Injection | | | | | |
| | *Plus | _UVextended | _Ultra | | |
| 4 port electrical valve | no | no | yes | yes | no |
| 6 port electrical valve w/loop | | no | | no | yes |
| 6 port + 10 port electrical valves w/loop | | no | | no | no |
| Injection mode: liquid - Dry-Load | | yes | | yes | yes |
| Column Selection valve | | | | | |
| 6 port electrical valve | | no | | no | no |
| System Optimization | | | | | |
| Tubing - after pump | | 1/8" x 1.6 mm id | | 1/8" x 1.6 mm id | 1/8"x1.6 mm id |
| Flow cell: optical length / Volume | | 0.3 mm/40 µL | | 0.3 mm/40 µL | 0.3 mm/40 µL |
| Column Holder | | | | | |
| Integrated | | yes | | yes | yes |
| Pre-column holder | | no | | yes | yes |
| Fraction Collector | | | | | |
| Regular Collector | | 2 long racks 112 tubes 18 x 150 mm | | 3 racks Gen5 132 tubes 18 x 150 mm | 3 racks Gen5 132 tubes 18 x 150 mm |
| Unit control | | | | | |
| Touch screen 15" | | yes | | yes | yes |
| USB | | 4 | | 8 | 8 |
| RJ45 | | yes | | yes | yes |
| Software | | | | | |
| Intersoft® X | | yes | | yes | yes |
| Safety | | | | | |
| Leak detection (pump, FC, iELSD, holders) | | no | | yes | yes |
| Solvent & waste level monitoring | | yes | | yes | yes |
| Collector w/drainage system | | yes | | yes | yes |
| Solvent level monitoring | | no | | yes | yes |
| RFID | | no | | yes | yes |
| Fume Enclosure | | yes | | yes | yes |
| Size | | | | | |
| | | W: 14" - 35.5 cm D: 18.5" - 47 cm H: 30" - 77 cm | | W: 15.75" - 40 cm D: 20.0" - 51 cm H: 29.5" - 75 cm | W: 15.75" - 40 cm D: 20.0" - 51 cm H: 29.5" - 75 cm |

Genius Makes Easy & Secured Purifications

Whatever your sample, from any of NP-TLC, NP-LC, NP-LC screening, RP-LC, RP-LC screening experiments, Genius, your personal Artificial Intelligence embedded in InterSoft® X, generates the best possible purification method in current knowledge. Safely run the method and get your products pure!

1. TLC method development



Mobile phase:
87% DCM / MeOH 13%

| Compound | Rf | CV |
|----------|------|------|
| 1 | 0.95 | 1.05 |
| 2 | 0.68 | 1.47 |
| 3 | 0.64 | 1.56 |

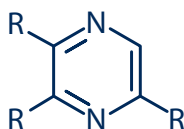
$\Delta CV_{3,2} = 0.09$

Mobile phase:
90% Toluene / MeOH 10%

| Compound | Rf | CV |
|----------|------|------|
| 1 | 0.57 | 1.75 |
| 2 | 0.31 | 3.23 |
| 3 | 0.25 | 4 |
| 4 | 0.18 | 5.56 |
| 5 | 0.14 | 7.14 |

Rf of compounds 2 and 3 are close, the separation will not be optimal on Flash column.

Genius provides new TLC conditions (TLC 2) in order to increase ΔRf & ΔCV .



2. Genius proposal



Among the columns proposed by Genius, we have selected a PF-15SIHP-F0012, which was available in stock:

TLC to Flash & Prep (Normal Phase)

↑ UPLOAD

↺ RESET

Crude sample 100 mg

Solvent 1 Toluene 90 % Additive

Solvent 2 Methanol 10 % Additive

Select your compound(s) of interest

| | |
|---------|-------------------------------------|
| Rf 0.57 | <input checked="" type="checkbox"/> |
| Rf 0.31 | <input checked="" type="checkbox"/> |
| Rf 0.25 | <input checked="" type="checkbox"/> |
| Rf 0.18 | <input checked="" type="checkbox"/> |
| Rf 0.14 | <input checked="" type="checkbox"/> |

SELECT A COLUMN

| Column | Stock |
|------------------------|-------------------------------------|
| PF-30SIHP-F0012 | <input type="checkbox"/> |
| PF-15SIHP-F0012 | <input checked="" type="checkbox"/> |
| PF-30SIHP-F0025 | <input type="checkbox"/> |
| PF-30SIHP-F0040 | <input type="checkbox"/> |
| PF-30SIHP-F0080 | <input type="checkbox"/> |
| PF-30SIHP-F0120 | <input type="checkbox"/> |

Top 3 columns

INJECTION MODE

The crude is fully soluble in the below conditions:
Toluene 98.9%
Methanol 1.1%

Yes No

Liquid _____ mL (max 1.66 mL)

Dry load PF-DLE-F0004

GO TO MANUAL METHOD

GO TO RUN



3. Flash conditions

Device: puriFlash® 5.020

Solvents: A: Toluene

B: Methanol

Column: PF-15SIHP-F0012

Flow rate: 15 mL/min

Injection mode: Solid deposit with celite
(Dry-load F0004)

Crude sample: 100 mg

Detection: UV 265 nm

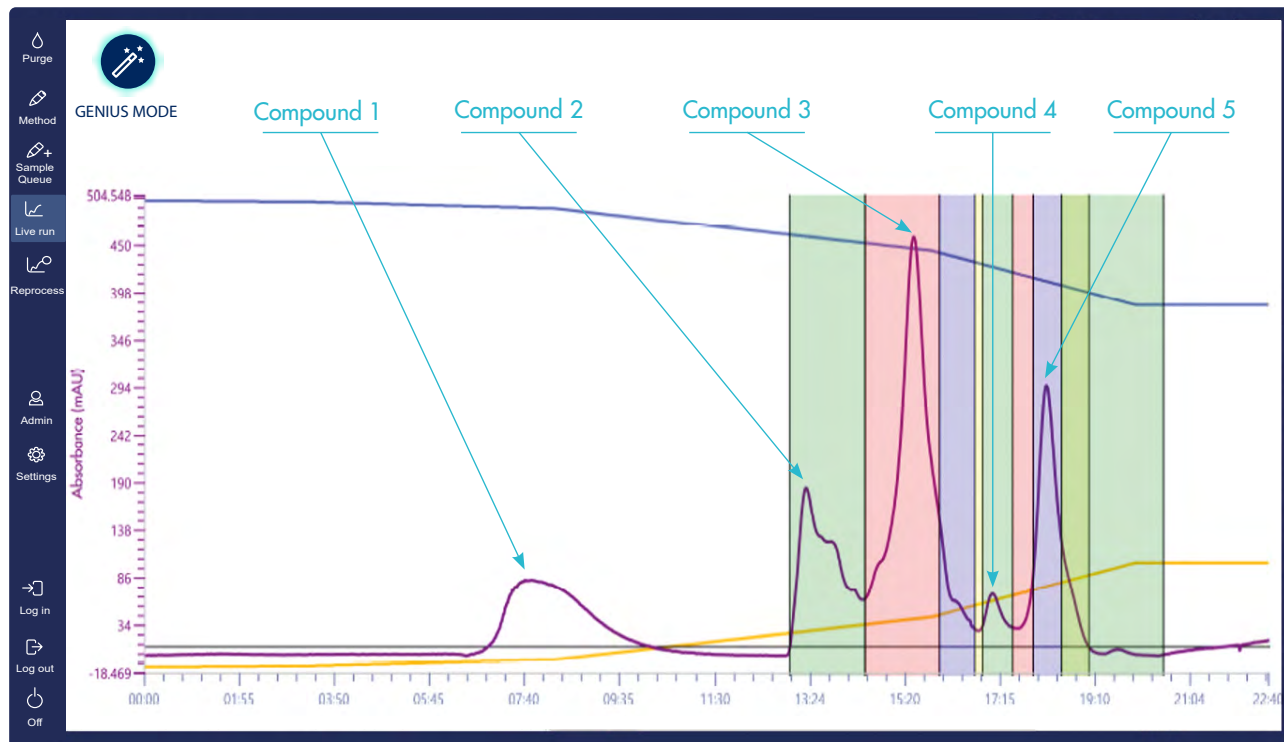
Pressure: 4 bar

Elution conditions:

| t (min) | A (%) | B (%) |
|---------|-------|-------|
| 00:00 | 98.9 | 1.1 |
| 03:27 | 98.6 | 1.4 |
| 08:17 | 97.3 | 2.7 |
| 15:52 | 88.4 | 11.6 |
| 20:00 | 77 | 23 |
| 26:13 | 77 | 23 |



puriFlash® 5.250
250 mL/min - 250 bar
Optimized for your
preparative purifications



puriFlash® 5.250

Small Organic molecules
 Impurity Identification
 Natural Products
 Peptides, Oligonucleotides
 Proteins, Bio-drugs
 Metabolite Isolation
 Trace Enrichment



Accuracy
& Repeatability

250
mL/min

up to
80mm i.d.
Col.

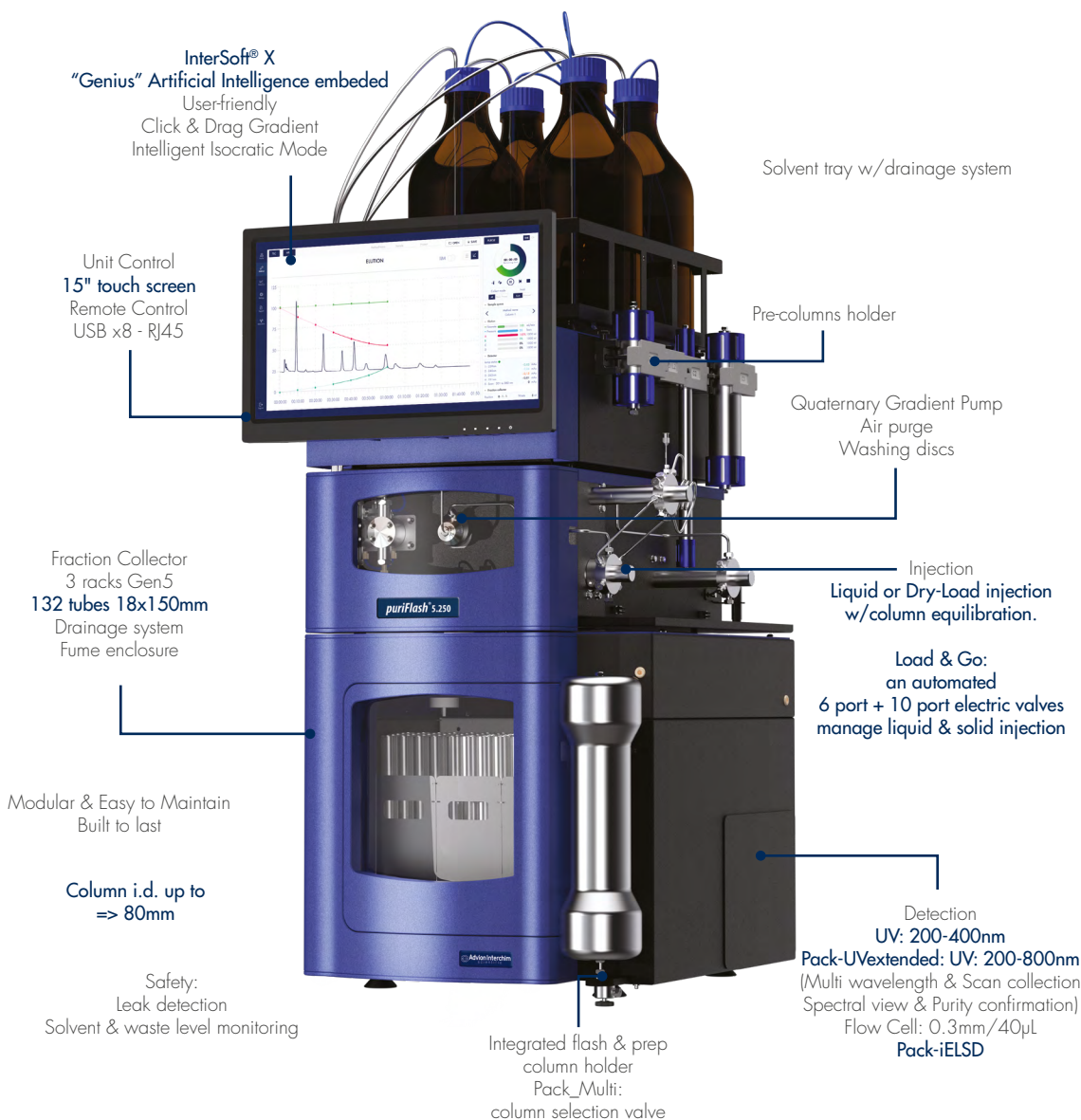
250
bar

Small but limitless

Maximum Versatility and Flexibility.

The system brings unique performance in all circumstances. It adapts to all needs from routine purification to complex mixtures, impurity separation, or trace enrichment.

It is continuously ready to start multiple purifications in normal or reverse phase, flash or prep.



Flash
& Go



Load
& Go



Boost
& Go

P/N : PFG5E0 (220 v)
 P/N : PFG5E1 (110 v)

Ultra High Performance Purification - puriFlash® 5.400-UV



puriFlash® 5.400-UV

- Small Organic molecules
- Impurity Identification
- Natural Products
- Peptides, Oligonucleotides
- Proteins, Bio-drugs
- Metabolite Isolation
- Trace Enrichment



Accuracy & Repeatability

125 ml/min

up to 60mm i.d. Col.

400 bar

For Ultra-Purification

Method development and purification of rare and high added value compounds. For method development to purification on the same instrument, the system offers more flexibility, and great time savings. It is compatible with a sub-2 micron column for maximum separating power.

InterSoft® X
"Genius" Artificial Intelligence embedded
User-friendly
Click & Drag Gradient
Intelligent Isocratic Mode

Unit Control
15" touch screen
Remote Control
USB x8 - RJ45

Fraction Collector
3 racks Gen5
132 tubes 18x150mm
Drainage system
Fume enclosure

Modular & Easy to Maintain
Built to last

Column i.d. up to
=> 60mm

Safety:
Leak detection
Solvent & waste level monitoring

Solvent tray w/drainage system

Quaternary Gradient Pump
Washing discs

Injection
Liquid or Dry-Load injection
w/column equilibration.

Load & Go:
an automated
6 port + 10 port electric valves
manage liquid injection

Detection
UV: 200-400nm
Pack-UVextended:
UV: 200-800nm
(Multi wavelength
& Scan collection)
Spectral view & Purity confirmation)
Flow Cell: 1.0mm/20µL

Integrated prep column holder



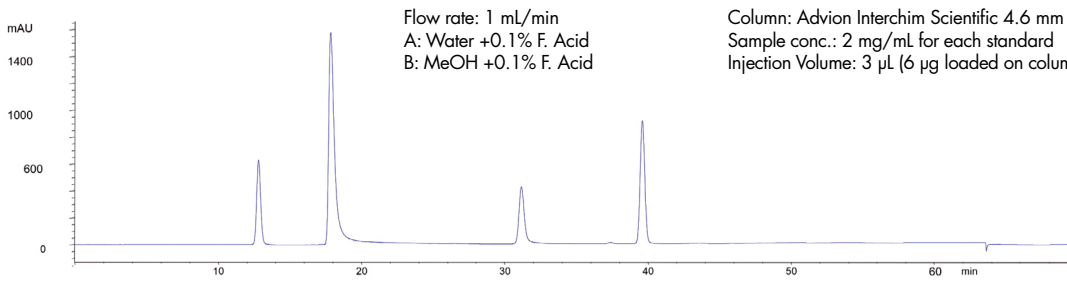
P/N : PFG5F0 (220 v)
P/N : PFG5F1 (110 v)



Purification Prep Ultra-prep characteristics

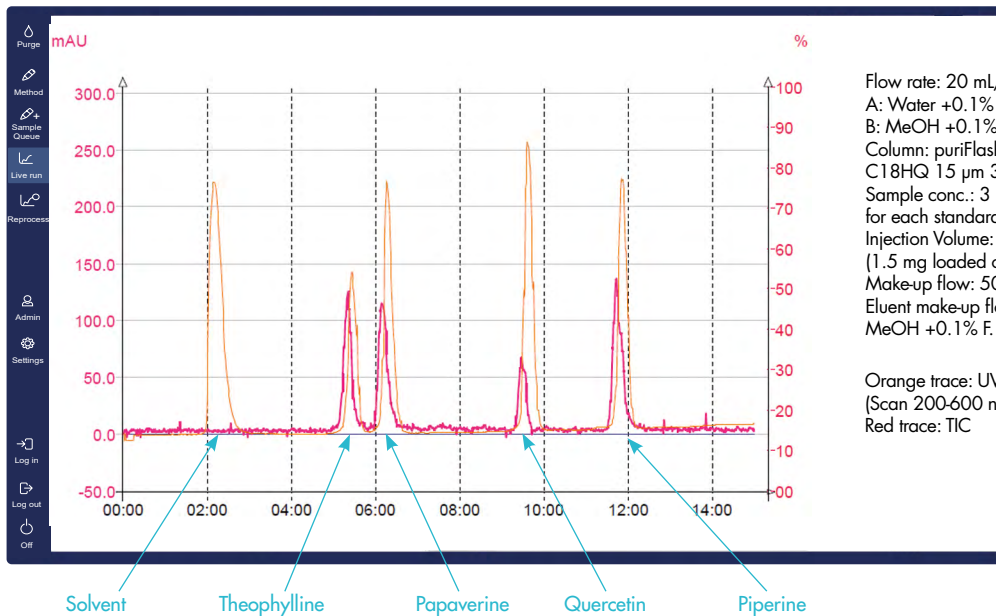
| | Preparative 5.250 | Ultra-Prep 5.400-UV |
|---|---|---|
| Pump | | |
| Flow rate | 250 mL/min | 125 mL/min |
| Max. pressure | 250 bar | 400 bar |
| Quaternary Gradient | yes | yes |
| Air purge | yes | no |
| Washing discs | yes | yes |
| Pump washing discs (pack) | pack-PWD | pack-PWD |
| Detector | | |
| UV: 200 - 400 nm multi wavelength & scan collection | yes | yes |
| UV: 200 - 800 nm multi wavelength & scan collection | pack-UVextended | pack-UVextended |
| Spectral view & purity confirmation | yes | yes |
| iELSD Detection (pack) | pack-iELSD | no |
| Injection | | |
| 4 port electrical valve | no | no |
| 6 port electrical valve w/loop | no | no |
| 6 port + 10 port electrical valves w/loop | yes | yes |
| Injection mode: liquid - Dry-Load | yes | no |
| Column Selection valve | | |
| 6 port electrical valve | pack-Multi | no |
| System Optimization | | |
| Tubing - after pump | 1/8" x 1.6 mm id | 0.5 & 0.75 mm |
| Flow cell: optical length / Volume | 0.3 mm/40 µL | 1.0 mm/20 µL |
| Column Holder | | |
| Integrated | yes | yes |
| Pre-column holder | yes | no |
| Fraction Collector | | |
| Regular Collector | 3 racks Gen5 132 tubes 18 x 150 mm | 3 racks Gen5 132 tubes 18 x 150 mm |
| Unit control | | |
| Touch screen 15" | yes | yes |
| USB | 8 | 8 |
| RJ45 | yes | yes |
| Software | | |
| Intersoft® X | yes | yes |
| Safety | | |
| Leak detection (pump, FC, iELSD, holders) | yes | yes |
| Solvent & waste level monitoring | yes | yes |
| Collector w/drainage system | yes | yes |
| RFID | yes | yes |
| Fume Enclosure | yes | yes |
| Size | | |
| | W: 15.75" - 40 cm D: 20.0" - 51 cm H: 29.5" - 75 cm | W: 15.75" - 40 cm D: 20.0" - 51 cm H: 29.5" - 75 cm |

HPLC analysis using standard gradient method



Gradient transfer method

UPFP-APCI/MS



| Original method (1) | | | |
|------------------------------------|------------|----------------------------------|------------|
| Original column geometry | | Original exp. Conditions | |
| Column length (L _i) | 250mm | Flow-rate (F _i) | 1000µL/min |
| Column diameter (d _{c1}) | 4.6mm | Inj. volume (V _{inj1}) | 20.0µL |
| Particle size (d _{p1}) | 10.0µm | | |
| Dwell volume (V _{d1}) | 1.0mL | | |
| Additional gradient information | | | |
| Suggested reconditioning step | 29min | | |
| Original gradient profile | | | |
| Step | time (min) | %A | %B |
| initial conditions | 0.00 | 60 | 40 |
| initial hold | 20.00 | 25 | 75 |
| 3 | 30.00 | 25 | 75 |
| 4 | 40.00 | 0 | 100 |
| 5 | 70.00 | 0 | 100 |

| Transferred method (2) | | | |
|--|------------|----------------------------------|--------------|
| Transferred column geometry | | Transferred exp. Conditions | |
| Column length (L _i) | 250mm | Flow-rate (F _i) | 21240 µL/min |
| Column diameter (d _{c1}) | 21.2mm | Inj. volume (V _{inj1}) | 424.8 µL |
| Particle size (d _{p1}) | 10.0µm | | |
| Dwell volume (V _{d1}) | 25.0mL | | |
| Additional gradient information | | | |
| Suggested reconditioning step | 29 min | | |
| Geometric transfer of the gradient profile | | | |
| Step | time (min) | %A | %B |
| initial conditions | 0.00 | 60 | 40 |
| initial hold | 19.82 | 25 | 75 |
| 3 | 29.82 | 25 | 75 |
| 4 | 39.82 | 0 | 100 |
| 5 | 69.82 | 0 | 100 |



puriFlash® 5.250
 250 mL/min - 250 bar
 Optimized for your preparative purifications



puriFlash® 535-XL

Small Organic molecules
 Impurity Identification
 Natural Products
 Peptides, Oligonucleotides
 Proteins, Bio-drugs
 Metabolite Isolation
 Trace Enrichment



Accuracy & Repeatability

400 ml/min

up to F1600

35 bar

Process - Kilo-Lab

Reliable and robust with significant loading capacity. Its reliability and robustness over time, as well as security features, are essential assets to make semi-continuous production effective with up to hundreds of grams of the compound of interest. Achieve production continuity on the same device independently of the scale-up factor.

InterSoft® X
 "Genius" Artificial Intelligence embedded
 User-friendly
 Click & Drag Gradient
 Intelligent Isocratic Mode

Solvent tray w/drainage system

Unit Control
 15" touch screen
 Remote Control
 USB x4 - RJ45

Fraction Collector
 2 long racks
 112 tubes 18x150mm
 Drainage system
 Fume enclosure

Easy to Maintain
 Built to last

Column i.d. up to
 => 100mm

Injection
 Liquid or Dry-Load injection
 w/column equilibration.

Quaternary Gradient Pump
 Air purge

Detection
 UV: 200-400nm
 (Multi wavelength & Scan collection
 Spectral view & Purity confirmation)
 Flow Cell: 0.3mm /40µl
 Pack-UVextended: UV: 200-800nm

Small footprint

Pack-ColHolder:
 Integrated flash column holder



P/N : PFXL02 (220 v)
 P/N : PFXL03 (110 v)



puriFlash® 5.015-XL

- Small Organic molecules
- Impurity Identification
- Natural Products
- Peptides, Oligonucleotides
- Proteins, Bio-drugs
- Metabolite Isolation
- Trace Enrichment



Accuracy & Repeatability

825 ml/min

up to 150mm i.d. Col.

15 bar

Process - Kilo-Lab

Reliability & robustness with significant loading capacity. Its reliability, its robustness over the time as well as its security features are the essential assets to make semi-continuous productions effective up to Kgs of compound of interest. Continuity of production on the same device independently of the scale-up factor.

InterSoft® X
"Genius" Artificial Intelligence embedded
User-friendly
Click & Drag Gradient
Intelligent Isocratic Mode

Solvent tray w/ drainage system

Unit Control
15" touch screen
Remote Control
USB x8 - RJ45

Quaternary Gradient Pump
Washing discs

Fraction Collector
3 racks Gen5
44 tubes 29.5x200mm
Drainage system
Fume enclosure

Detection
UV: 200-400nm
Pack-UVextended:
UV: 200-800nm
(Multi wavelength
& Scan collection
Spectral view
& Purity confirmation)
Flow Cell: 0.3mm/80µL

Modular & Easy to Maintain
Built to last

Column i.d. up to
=> 150mm

Safety:
Leak detection
Solvent & waste level monitoring

Pack-Process:
Integrated flash column holder
& pre-column holder



P/N : PFG5L0 (220 v)
P/N : PFG5L1 (110 v)



Purification Process characteristics

| | Flash Purification Process 535-XL | Flash Purification Process 5.015-XL |
|---|--|---|
| Pump | | |
| Flow rate | 400 mL/min | 825 mL/min |
| Max. pressure | 35 bar | 15 bar |
| Quaternary Gradient | yes | yes |
| Air purge | yes | no |
| Washing discs | no | yes |
| Pump washing discs (pack) | no | no |
| Detector | | |
| UV: 200 - 400 nm multi wavelength & scan collection | yes | yes |
| UV: 200 - 800 nm multi wavelength & scan collection | pack-UVextended | pack-UVextended |
| Spectral view & purity confirmation | yes | yes |
| iELSD Detection (pack) | no | no |
| Injection | | |
| 4 port electrical valve | no | no |
| 6 port electrical valve w/loop | no | no |
| 6 port + 10 port electrical valves w/loop | no | no |
| Injection mode: liquid - Dry-Load | yes | yes |
| Column Selection valve | | |
| 6 port electrical valve | no | no |
| System Optimization | | |
| Tubings - after pump | 1/8" x 1.6 mm id | 1/8" x 2.4 mm id |
| Flow cell: optical length / Volume | 0.3 mm/40 µL | 0.3 mm/80 µL |
| Column Holder | | |
| Integrated | pack-ColHolder | pack-Process |
| Pre-column holder | no | pack-Process |
| Fraction Collector | | |
| Regular Collector | 2 long racks 112 tubes 18 x 150 mm | 3 racks Gen5 42 tubes 29.5 x 200 mm |
| Unit control | | |
| Touch screen 15" | yes | yes |
| USB | 4 | 8 |
| RJ45 | yes | yes |
| Software | | |
| Intersoft® X | yes | yes |
| Safety | | |
| Leak detection (pump, FC, iELSD, holders) | no | yes (except holders) |
| Solvent tray w/drainage system | yes | yes |
| Collector w/drainage system | yes | yes |
| Solvent & waste level monitoring | no | yes |
| RFID | no | yes |
| Fume Enclosure | yes | yes |
| Size | | |
| | W: 14" - 35.5 cm D: 18.5" - 47 cm H: 30" - 77 cm | W: 15.75" - 40 cm D: 20.0" - 51 cm H: 29.5" - 75 cm |



puriFlash® 5.250P

- Small Organic molecules
- Impurity Identification
- Natural Products
- Peptides, Oligonucleotides
- Proteins, Bio-drugs
- Metabolite Isolation
- Trace Enrichment



Accuracy & Repeatability

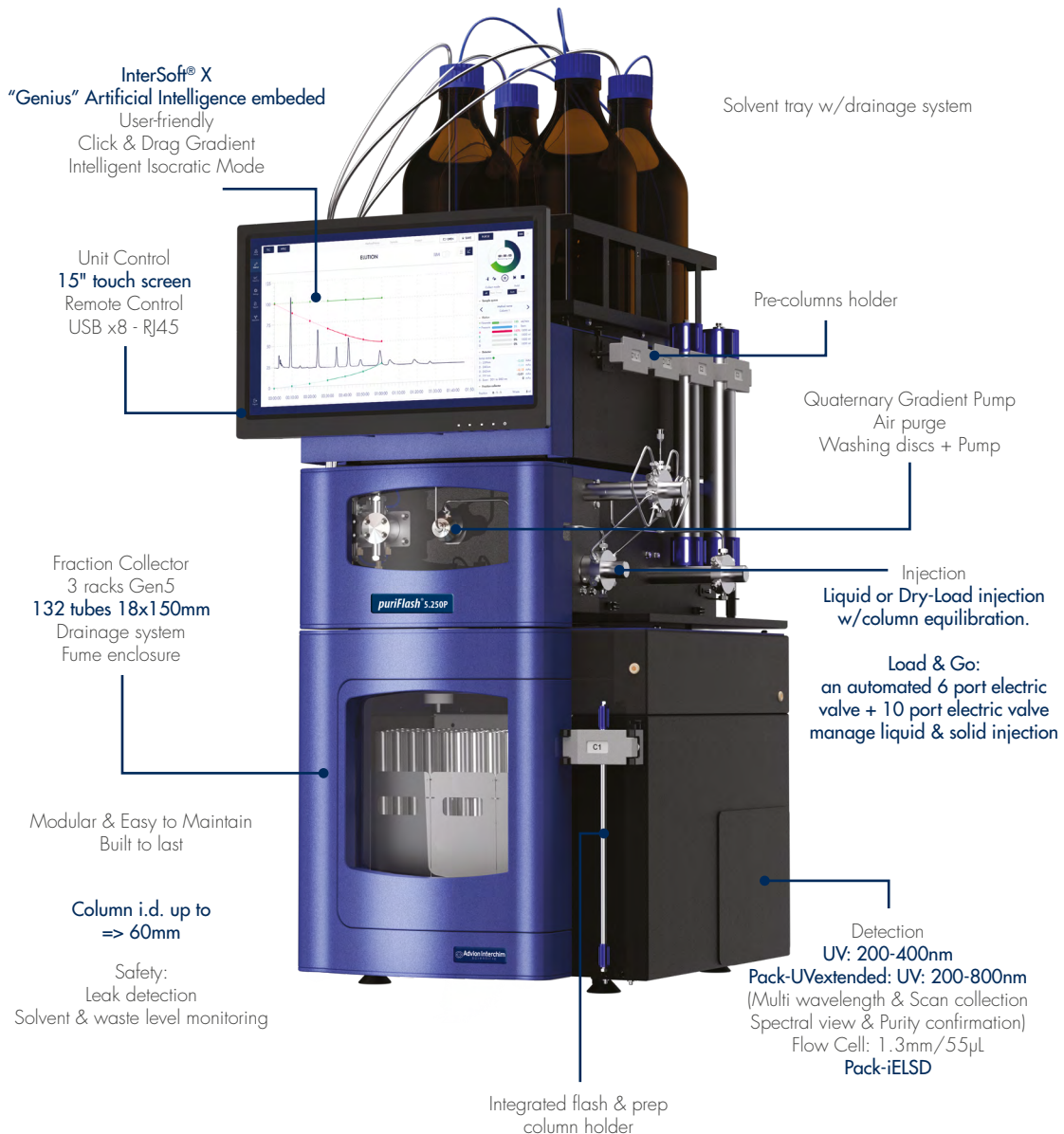
125 ml/min

up to 60mm i.d. Col.

250 bar

Purification of complex mixtures of peptides

Maximum efficiency.
Small particle size combined with low dead volume allows for separation of peptides with similar amino acid sequences.



P/N: PFG5Q0 (220v)
P/N: PFG5Q1 (110v)



LC PURIFICATION

Purification Peptides & Oligonucleotides characteristics



| | Peptides & Oligonucleotides PF-5.250P |
|---|---|
| Pump | |
| Flow rate | 125 mL/min |
| Max. pressure | 250 bar |
| Quaternary Gradient | yes |
| Air purge | yes |
| Washing discs | yes |
| Pump washing discs (pack) | yes |
| Detector | |
| UV: 200 - 400 nm multi wavelength & scan collection | yes |
| UV: 200 - 800 nm multi wavelength & scan collection | pack-UVextended |
| Spectral view & purity confirmation | yes |
| iELSD Detection (pack) | pack-iELSD |
| Injection | |
| 4 port electrical valve | no |
| 6 port electrical valve w/loop | no |
| 6 port + 10 port electrical valves w/loop | yes |
| Injection mode: liquid - Dry-Load | yes |
| Column Selection valve | |
| 6 port electrical valve | pack-Multi |
| System Optimization | |
| Tubing - after pump | peek 1/16" x 0.75 mm id |
| Flow cell: optical length / Volume | 1.3 mm/55 µL |
| Columns Holder | |
| Integrated | yes |
| Pre-column holder | yes |
| Fraction Collector | |
| Regular Collector | 3 racks Gen5 132 tubes 18 x 150 mm |
| Unit control | |
| Touch screen 15" | yes |
| USB | 8 |
| RJ45 | yes |
| Software | |
| Intersoft® X | yes |
| Safety | |
| Leak detection (pump, FC, iELSD, holders) | yes |
| Solvent tray w/drainage system | yes |
| Collector w/drainage system | yes |
| Solvent & waste level monitoring | yes |
| RFID | yes |
| Fume Enclosure | yes |
| Size | |
| | W: 15.75" - 40 cm D: 20.0" - 51 cm H: 29.5" - 75 cm |

CAN TFA AND MS DETECTION BE COMPATIBLE DURING A PURIFICATION?

1. Flash conditions

Device: puriFlash® 5.250P

Solvents:

A: Water +0.1% TFA

B: Acetonitrile +0.1% TFA

Column: PFB-15C18N-F0025

Flow rate: 15 mL/min

Injection mode: Liquid

Injection volume: 150 µL

Concentration: 20 mg/mL

Crude sample: 3 mg

Detection: UV 214 nm (purple)

Mass XIC1 235-241m/z (Dark red)

Mass XIC2 377-383m/z (Orange)

Mass XIC3 571-577m/z (Green)

MassTIC 220-1200m/z (Blue)

ESI Source

Pressure: 5 bar

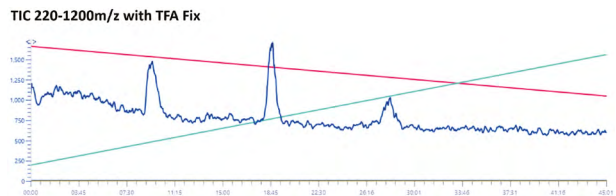
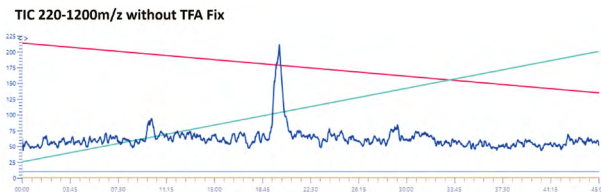
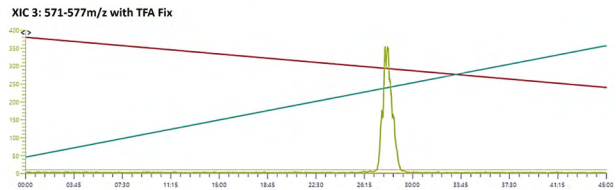
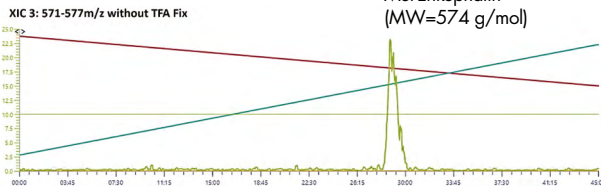
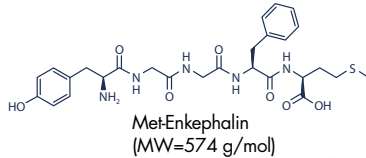
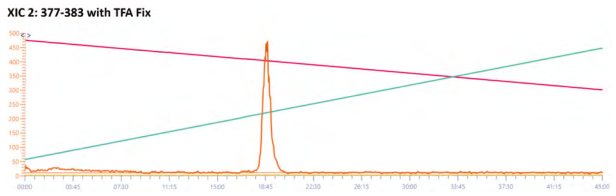
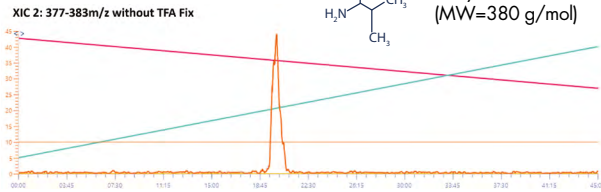
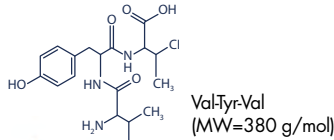
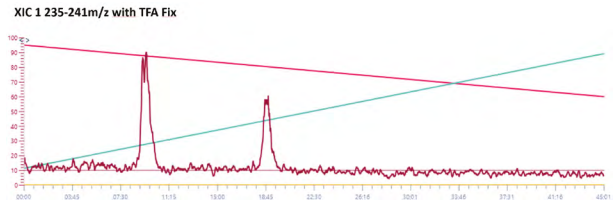
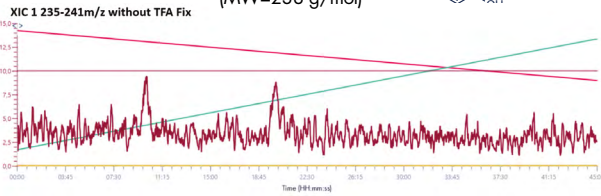
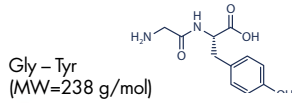
Solvent make-up and dilution:

Test 1: Isopropanol

Test 2: Solution of Propionic Acid
in Isopropanol (25/75) (TFA-Fix)

Elution conditions:

| t (min) | A (%) | B (%) |
|---------|-------|-------|
| 00:00 | 95 | 5 |
| 45:00 | 60 | 40 |



Conclusion

Mass detection is not completely compatible with TFA.

This trick can therefore be used to avoid having to redevelop new methods, and therefore allows a significant time saving.



TLC-FlashReader™

The TLC-FlashReader is an ultra compact and robust TLC plate reader with a camera and 3 different lamps: white light, 254 nm & 366 nm.

It satisfies users working in Research, Development, Quality Control and Process.

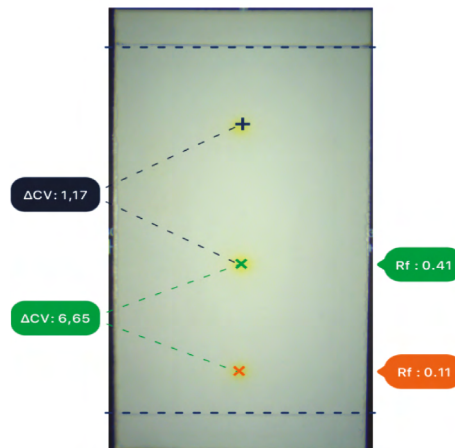
It is a multifunctional device that allows you to :

- View, archive and insert your TLC plates into your electronic laboratory notebook.
- Automatically transfer your TLC data (image, Rf, solvents, ΔCV) directly to the InterSoft X® software.

Need to archive TLC plates of your crude sample, your fractions collected after your purification or your reaction monitoring? The TLC-FlashReader will meet your needs.

The instrument has its own easy and intuitive software. The software has different algorithms for automatic recognition of compounds, solvent front and deposit line. The software saves the user time and provides accurate results.

- Ultra compact module (Size: W 17 cm x D 22 cm x H 31 cm)
- Illumination with white light, UV 254 nm & UV 366 nm
- Compatible with aluminium or glass TLC plates up to 8.5 cm wide and 12.5 cm high
- Controlled by TLC-FlashReader software
- Visualization and archiving of TLC plates
- Automatic recognition of compounds, deposit line and solvent front
- Automatic calculation of Rf and ΔCV
- Automatic transfer of images, Rf, solvent name and %, ΔCV to Genius
- Can be used in stand alone mode with an external computer or coupled to the puriFlash® Gen5.
- Automatic lamp shut off when the drawer is opened to protect you from UV radiation
- 2 year warranty excluding wear parts



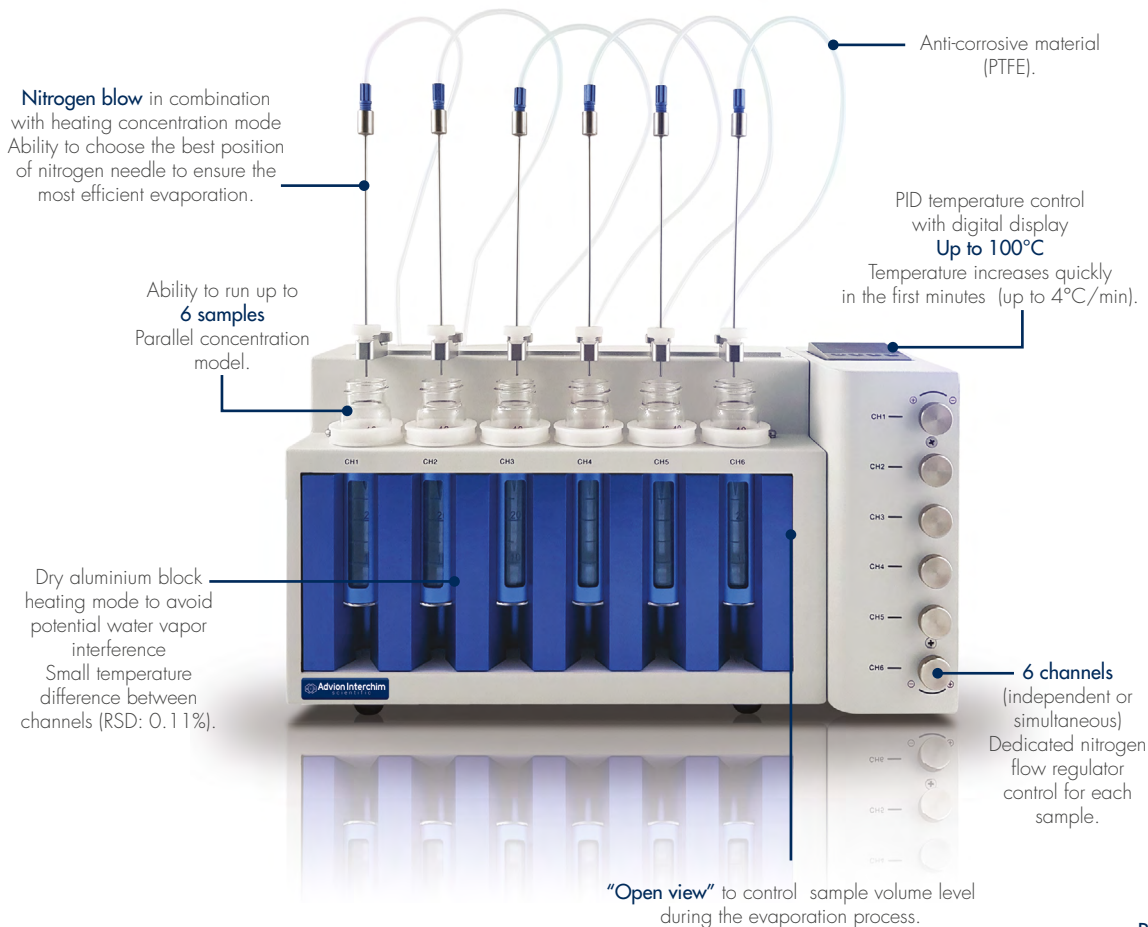
P/N: BKZY00 (220 v)
P/N: BKZY01 (110 v)



puriVap-6™

Simple & Smart - 6 positions

- 6 channels to run up to 6 samples (independent or simultaneous)
- Sample volumes from 2 mL up to 60 mL
- PID temperature control with digital display up to 100°C
- Temperature increases quickly in the first minutes (up to 4°C/min)
- Dedicated nitrogen flow regulator control for each sample
- Nitrogen blow in combination with heating concentration mode
- Ability to choose the best position of nitrogen needles to ensure the most efficient evaporation
- Anti-corrosive material (PTFE)
- "Open view" to control the sample volume level during the evaporation process
- Dry aluminium block heating mode to avoid potential water vapor interference
- Small temperature difference between channels (RSD: 0.11%)
- Low gas consumption (nitrogen gas supply: 1-2 bar max | flow rate: 7-8 L/min)



P/N : AWZ5R0



puriFlash® XS-VAP

YOUR LABORATORY EVAPORATOR.

Xtra compact. Xtra intuitive.
Xtra efficient. Xtra evaporation.

Evaporation & Concentration of your samples

With the puriFlash® XS-Vap, the concentration of your samples will no longer be a constraint! Integrating innovative technologies, evaporation times and gas consumption are reduced. Our evaporator is controlled by ultra-intuitive software to guarantee working comfort and time savings.

Its operation is simple: place your sample tubes to be concentrated in the unit, start the evaporation process and trust our needle height adjustment technology.

Within minutes, your solvent is evaporated and your compounds are ready for analysis.

The puriFlash® XS-Vap evaporator is at your side from start to finish during your concentrations/evaporations



Whatever your field of activity (Research, Development, Quality Control, Process), the puriFlash® XS-Vap will become an essential instrument in your laboratory. The puriFlash® XS-Vap is designed to be much more than a simple solvent evaporator! Thanks to the height adjustment of the needles, the gas consumption is drastically reduced and the evaporation speed increases without losing your molecules.



PLUG & PLAY: Plug in. Use.

Take advantage of the many features of your solvent evaporator without delay.

The puriFlash® XS-Vap can be up and running in minutes, making your work easier and saving you time every day.



How to check the evaporation process?

The whole device is translucent, allowing you to view the samples during the evaporation process and to adjust the needle position according to the solvent level in the tubes.

Technical Specifications

- **Evaporation capacity:**
Up to 90 samples in parallel.
- **Sample volume:**
From a few milliliters to 250 mL per position.
- **Gas consumption:**
Use of nitrogen or compressed air to supply the device at a pressure of 1-3 bar.
Consumption is less than 1L/min per position.
- **Heating temperature:**
Ambient up to 90°C
- **Needle adjustment:**
The level of the needles is manually adjustable according to the volume and the evaporation speed of the solvent.
- **Lights:**
Different lights visually indicate the stage of operation of the device.
- **Control software:**
Intuitive control software integrated into a touch screen control.
- **Compatibility:**
The puriFlash® XS-Vap is compatible with all types of solvents.
Our puriFlash® Gen 5, Gen 4 and XS racks are compatible with the device allowing direct evaporation of the tubes collected in the rack.
- **Tube dimensions:**
Vial: 2 mL (12x32 mm); 4 mL (15x45 mm); 8 mL (17x60 mm); Eppendorf 2 mL;
Tube: 13x100 mm; 16x100 mm; 16x150 mm; 18x150 mm
Glasstube: 250 mL with dry end-point; 250 mL with 1 mL end-point
- **Dimension & Weight:**
Width 37 cm x Depth 40 cm x Height 60 cm - Weight: 35 kg



Certified
CE & UL

P/N: EVAA00 (220 v)
P/N: EVAA01 (110 v)



puriFlash® R-VAP

Evaporation & Concentration of your samples

With the puriFlash® R-Vap, concentrating your samples is a snap!

With its robust and versatile technology, the puriFlash® R-Vap gives you maximum flexibility by allowing you to evaporate your solvents in flasks up to 3L.

Its two-step operation is extremely simple and intuitive:

- Place your sample to be concentrated in the flask,
- Start the vacuum evaporation process.

Rely on its undoubtable efficiency! In a few moments, your solvent is evaporated and collected by condensation and your sample is ready for analysis.

The puriFlash® R-Vap will also prove to be the instrument of choice for processing your fractions collected by our purification systems.

Benefit from all the high quality requirements of Advion Interchim Scientific with this rotary evaporator as compact as its price. A laboratory essential that will be with you every day, for a very long time.



puriFlash® R-Vap

| Part number | Description |
|-------------|--|
| REAA10 | puriFlash® R-Vap Manual Lift Vertical Condenser 220-240V |
| REAA11 | puriFlash® R-Vap Manual Lift Vertical Condenser 110-120V |

Pack puriFlash® R-vap & Vaccum pump

| Part number | Description |
|-------------|--|
| REAA00-KIT | Kit puriFlash® R-Vap Manual lift (REAA10) + Pump P-020 (VPAA10) 220-240V |
| REAA01-KIT | Kit puriFlash® R-Vap Manual lift (REAA11) + Pump P-020 (VPAA11) 110-120V |



SCAN ME



puriFlash® R-VAP

Rotary evaporator

Main Unit - Technical Specifications

| | |
|--|--|
| Flask capacity | Up to 3L |
| Rotation speed range | 20-300 RPM |
| Display | LCD |
| Rotation | Clockwise / Counterclockwise |
| Lift mode | Manual |
| Vertical adjustment | 160mm |
| Immersion angle | 0° to 60° |
| Condenser column | Vertical type - 1.200 cm ² (optional 1.500cm ²) |
| Glass grade | Borosilicate glass material |
| Evaporation sample flask - connection size | 29/32 |
| Receiving waste flask - connection size | 35/20 |
| Seal | FKM/PTFE |
| Weight | 15Kg |
| Dimensions (WxDxH) - with glass | 51x43.5x81cm |
| Motor power | 40W |
| Power supply / Frequency | 230V ± 10% - 50/60Hz ± 5% 110V ± 10% - 50/60Hz ± 5% |
| Fuse | 5A |
| Approval | CE EN 61326-1:2013 2014/35/EC 2014/30/EC RoHS Directive 2011/65/EC |



Heating bath

Heating Water Bath - Technical Specifications

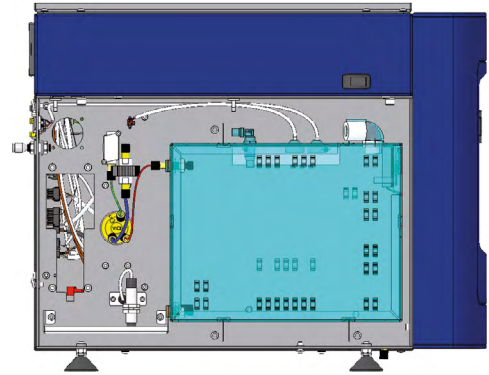
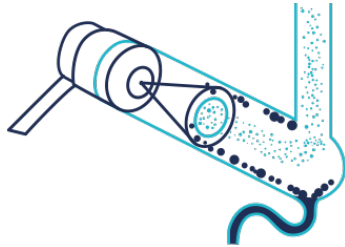
| | |
|-----------------------------------|--|
| Temperature range | Ambient to 230°C |
| Temperature control mode | PID Digital display |
| Timer | yes |
| Overheat cut-off protection temp. | yes |
| Temperature accuracy | ± 1°C water - ± 2°C oil |
| Volume capacity | 5L |
| Bath material | 304 Stainless Steel PTFE coated |
| Weight | 3.6Kg |
| Dimensions (WxDxH): | 38x29x22.5cm |
| Heating power | 1300W |
| Power supply / Frequency | 230V ± 10% - 50/60Hz ± 5% 110V ± 10% - 50/60Hz ± 5% |
| Fuse | 10A |
| Approval | CE EN 61326-1:2013 2014/35/EC 2014/30/EC RoHS Directive 2011/65/EC |





Secure your purification by a Universal Detector

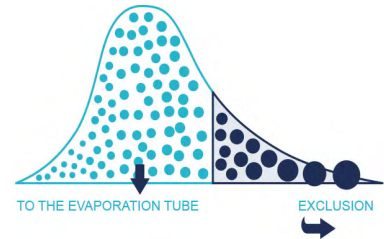
- Even non-chromophores are now visible
- Specifically developed for purification as a mass response detector
- Full control of the split and the inlet flow
- True purification nebulizer design: no clogging
- Large dynamic range: mg up to hundred g
- Easy access & maintenance



Optimized **Low Temperature** Technology.
Quicker droplets drying at lower temperature.
Preserves the integrity of termo-sensitive compounds.

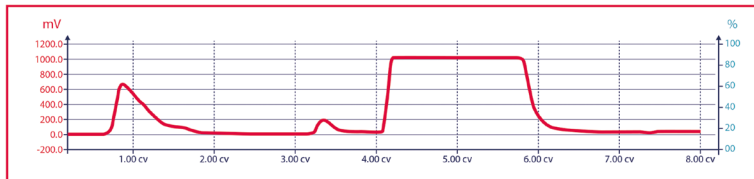
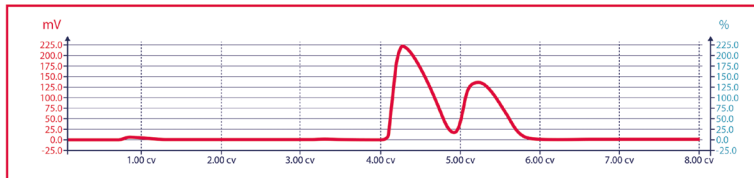
Low Temperature Technology:

This technology provides greater sensitivity with both the nebulizer that enables droplet selection and an effective photomultiplier. With this patented nebulizer technology, the droplets dry faster at low temperatures, providing appropriate signal intensities for semi-volatile compounds. This technology requires no additional peripherals, such as a nebulizer with heating system (spray chamber) or an evaporation tube (Peltier cooling) that can degrade the heat-sensitive compounds.

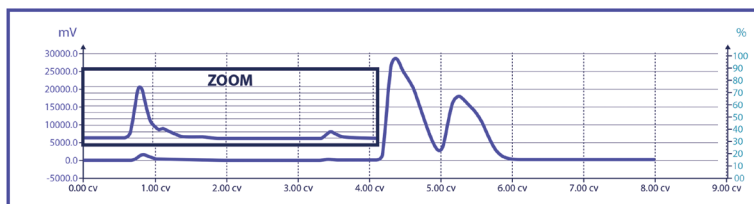


Dynamic Gain SAGA:

SAGA adapts the gain to avoid saturation while continuing to detect small quantities of products. ELSD becomes unsaturable without impact on sensitivity.



Now, with Advion Interchim Scientific SAGA



- Detection: high sensitivity photodiode
- Source: LED (470 nm)
- Ambient temperature to 100°C
- Dynamic Split: 40 µL/min sample in ELSD
- Gas: 1-1.5 L/min - 1 bar



LC PURIFICATION

puriFlash® AS-1

puriFlash® AS-1

Autosampler for preparative liquid chromatography

Injection volume:
500 µl to 50 mL

Liquid injection
with column equilibration.

Load & Go:
Automated injection,
6-way or 10-way electric valve

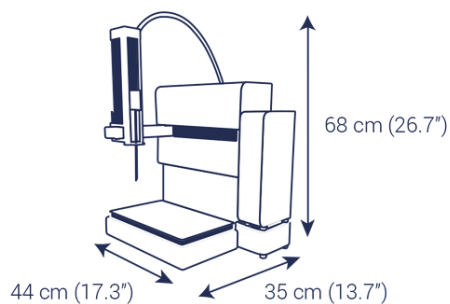


- Flat tip needle

Mode of operation:

- Sample injection
- Washing cycles: solvent lines and needle
- Injection bracketing

1 rack/slot for different capacities of test tubes
bottles up to 250 mL and custom racks



Poids : 12 kg

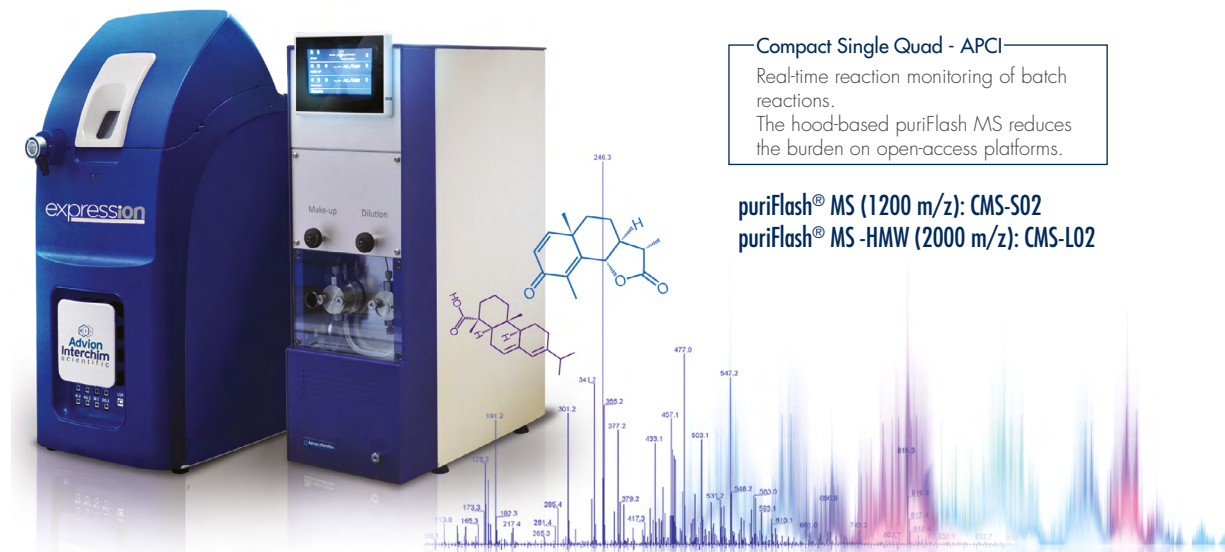
P/N : LO8850



Mass triggered fraction collection for NP & RP Flash Purification & prep-LC

Unique design dynamic splitter & dilution:

- High-speed work with all columns sizes without generating backpressure
- Integrated post-split dilution to adjust the concentrations used in the MS source (no concentration limit - no signal saturation)
- Normal & Reverse Phase
- Intelligent control of the puriFlash® system
- Normalized Scale of MS, UV, ELSD signals (6 acquisition signals)



Compact Single Quad - APCI

Real-time reaction monitoring of batch reactions.
The hood-based puriFlash MS reduces the burden on open-access platforms.

puriFlash® MS (1200 m/z): CMS-S02
puriFlash® MS -HMW (2000 m/z): CMS-L02

expression^S
CMS

expression^L
CMS

| | puriFlash® MS for small molecules, synthetic organic chemists. Upgraded specs for pos/neg switching, faster scanning & higher flow rate | puriFlash® MS-HMW for large molecules - peptide synthesis, polymer chemistry & natural products |
|---|--|--|
| Sources | APCI - APCI/ASAP - ESI | APCI - APCI/ASAP - ESI |
| Patented API | Orthogonal ion sampling from heated capillary allows for small single turbo pump. | Orthogonal ion sampling from heated capillary allows for small single turbo pump. |
| Positive/Negative Ionization | Simultaneous analysis | Simultaneous analysis |
| Flow rate range ESI | 10 µL/min - 1 mL/min | 10 µL/min - 1 mL/min |
| Flow rate range APCI | 10 µL/min - 2 mL/min | 10 µL/min - 2 mL/min |
| Mass range (m/z) | 10 to 1 200 | 10 to 2 000 |
| Scan rate (m/z-units per second) | 10 000 | 10 000 |
| Resolution (m/z-units FWHM) | 0.5 - 0.7 | 0.5 - 0.7 |
| Sensitivity (SIM - S/N 10 pg Reserpine, FIA 5 µL injection at 100 µL/min) | 100:1 | 100:1 |
| Accuracy (m/z) | 0.1 | 0.1 |
| Stability (m/z-units per 24 hour period: 18 - 24°C) | 0.1 | 0.1 |



LC PURIFICATION

puriFlash® Generation 5 - Accessories

| P/N | Description | Cond. | PF-XS 520Plus | PF- 535-XL | PF- 5.020 | PF- 5.050 | PF- 5.015-XL | PF- 5.250 | PF- 5.250P | PF- 5.400-UV |
|---------------------------|---|--------|------------------|---------------|--------------|--------------|-----------------|--------------|---------------|-----------------|
| Detector | | | | | | | | | | |
| FJ6720 | Manometer ELSD | 1 u | | | x | x | | x | x | |
| B4VBKO | Manometer MS | 1 u | | | x | x | | x | x | |
| 1H3490 | Compressor for integrated ELSD without quiet cover | 1 u | | | x | x | | x | x | |
| Valves | | | | | | | | | | |
| AYHDV0 | Purge valve + kit (for Flash configuration) for PF-Gen5 | 1 u | | | x | x | | x | | |
| B4W2P0 | Purge valve + kit (for Flash configuration) for PF-5.015-XL | 1 u | | | | | x | | | |
| AYHDW0 | Purge valve + kit (for Prep configuration) for PF-Gen5 | 1 u | | | | x | | x | | |
| BX5KP0 | 6 ways manual valve + kit | 1 u | x | | | | | | | |
| Column holder | | | | | | | | | | |
| AYHDX0 | Integrated column holder for F0800 Flash column + fitting | 1 u | | | x | x | | x | | |
| AYHDY0 | Integrated column holder for 50 mm ID Prep column + fittings | 1 u | | | | x | | x | x | |
| BWIS00 | Integrated column holder for 50 mm ID Prep column + fittings | 1 u | | | | | | | | x |
| BX7HF0 | Stand alone for Flash configuration + kit (up to F3000 format) | 1 u | x | x | x | x | x | x | | |
| DZ5201 | Luer connections kit for large columns (F0800,F1600 & F3000 format) | 1 u | x | x | x | x | x | x | x | |
| LV8210 | Stand alone for Prep configuration + kit | 1 u | | | | x | | x | x | x |
| B4WID0 | Semi-Prep and Prep columns adaptation kit for PF-5.050 | 1 u | | | | x | | | | |
| Fraction Collector | | | | | | | | | | |
| AYHDZ0 | Extractor with 2 extraction tubes + kit (for PF-Gen5) | 1 u | | | x | x | x | x | x | x |
| 1R8570 | Extractor with 2 extraction tubes + kit (for PF-XS520Plus) | 1 u | x | x | | | | | | |
| BS4YF0 | Extraction tube + kit-V2 (for PF-Gen5) | 1 u | | | x | x | x | x | x | x |
| BS4YG0 | Extraction tube + kit-V2 (for PF-XS520Plus & PF-535-XL) | 1 u | x | x | | | | | | |
| 1R8580 | 13 x 73 mm rack (for PF-XS520Plus) | 1 u | x | x | | | | | | |
| 1R8590 | 13 x 100 mm rack (for PF-XS520Plus) | 1 u | x | x | | | | | | |
| 1R8600 | 16 x 150 mm rack (for PF-XS520Plus) | 1 u | x | x | | | | | | |
| 1R8610 | 18 x 150 mm rack (for PF-XS520Plus) | 1 u | x | x | | | | | | |
| 1R8620 | 21 x 150 mm rack (for PF-XS520Plus) | 1 u | x | x | | | | | | |
| 1R8630 | 25 x 150 mm rack (for PF-XS520Plus) | 1 u | x | x | | | | | | |
| 1R8640 | 28 x 150 mm rack (for PF-XS520Plus) | 1 u | x | x | | | | | | |
| 1R8650 | 29,5 x 200 mm rack (for PF-XS520Plus) | 1 u | x | x | | | | | | |
| 1R8660 | Rack for 250 mL Schott bottles (for PF-XS520Plus) | 1 u | x | x | | | | | | |
| B361D0 | Funnel rack (for PF-XS520Plus) | 1 u | x | x | | | | | | |
| AYHE10 | 13 x 73 mm rack (for PF-Gen5) 56 tubes | 1 u | | | x | x | | x | x | x |
| AYHE30 | 13 x 100 mm rack (for PF-Gen5) 56 tubes | 1 u | | | x | x | | x | x | x |
| AYHE40 | 16 x 150 mm rack (for PF-Gen5) 44 tubes | 1 u | | | x | x | x | x | x | x |
| AYHE50 | 18 x 150 mm rack (for PF-Gen5) 44 tubes | 1 u | | | x | x | x | x | x | x |
| B30ST0 | 18 x 180 mm rack (for PF-Gen5) 44 tubes | 1 u | | | x | x | x | x | x | x |
| AYHE60 | 21 x 150 mm rack (for PF-Gen5) 27 tubes | 1 u | | | x | x | x | x | x | x |
| AYHE70 | 25 x 150 mm rack (for PF-Gen5) 16 tubes | 1 u | | | x | x | x | x | x | x |
| AYHE80 | 28 x 150 mm rack (for PF-Gen5) 14 tubes | 1 u | | | x | x | x | x | x | x |
| AYHE90 | 29,5 x 200 mm rack (for PF-Gen5) 14 tubes | 1 u | | | x | x | x | x | x | x |
| AYHEA0 | Rack for 250 mL Schott bottles (for PF-Gen5) 3 bottles | 1 u | | | x | x | x | x | x | x |
| AYHE00 | Funnel rack (for PF-Gen5) | 1 u | | | x | x | x | x | x | x |
| BX5KY0 | Bottle tray (Gen5) | 1 u | | | x | x | x | x | x | x |
| FI201A | Tygon tubing SE-200 (OD 14,3 mm; ID : 9,5 mm), 15 meters | 1 u | | | x | x | x | x | x | x |
| BH3901 | Tubes 13 x 100 mm | 1000 u | x | x | x | x | | x | x | x |
| BX5400 | Tubes 16 x 150 mm | 1000 u | x | x | x | x | x | x | x | x |
| AW3842 | Tubes 18 x 150 mm | 500 u | x | x | x | x | x | x | x | x |
| 1Q5350 | Tubes 18 x 180 mm | 1000 u | x | x | x | x | x | x | x | x |
| FL1120 | Tubes 21 x 150 mm | 500 u | x | x | x | x | x | x | x | x |
| BH3911 | Tubes 25 x 150 mm | 500 u | x | x | x | x | x | x | x | x |
| DT8250 | Tubes 29,5 x 200 mm | 50 u | x | x | x | x | x | x | x | x |
| Unit Control | | | | | | | | | | |
| DV4120 | Keyboard AZERTY | 1 u | x | x | x | x | x | x | x | x |
| LO4300 | Keyboard QWERTY | 1 u | x | x | x | x | x | x | x | x |
| OA8280 | Premium stylus | 1 u | x | x | x | x | x | x | x | x |
| Safety solvent | | | | | | | | | | |
| B0DAN0 | Safety solvent caps kit - 4 units (for PF-Gen5 except PF-5.015-XL) | 1 u | | | x | x | | x | x | x |
| B1S560 | Safety solvent caps kit - tubing 3/16" - 4 units (for PF-5.015-XL) | 1 u | | | | | x | | | |



| P/N | Description | Cond. | PF-XS 520Plus | PF- 535-XL | PF- 5.020 | PF- 5.050 | PF- 5.015-XL | PF- 5.250 | PF- 5.250P | PF- 5.400-UV |
|---------------------------|--|-------|------------------|---------------|--------------|--------------|-----------------|--------------|---------------|-----------------|
| B1SUJ0 | Safety waste cap with container 5L + filter (for PF-Gen5) | 1 u | | | x | x | | x | x | x |
| B1SUK0 | Safety waste cap with container 20L + filter (for PF-Gen5) | 1 u | | | x | x | x | x | x | x |
| DV2760 | Safety solvent caps kit - 4 units (for PF-Gen4, PF-XS520Plus) | 1 u | x | | | | | | | |
| IO6930 | Safety waste cap with container 5L + filter (for PF-Gen4, PF-XS520Plus & PF-535-XL) | 1 u | x | x | | | | | | |
| JO4500 | Safety waste cap with container 20L + filter (for PF-Gen4, PF-XS520Plus & PF-535-XL) | 1 u | x | x | | | | | | |
| JO1620 | Safety solvent cap - tubing 3/16" (for PF-535-XL) | 1 u | | x | | | | | | |
| Loop Injection | | | | | | | | | | |
| AYHEJ0 | 100 µL stainless steel Loop with RFID tag | 1 u | | | | x | | x | x | |
| AYHEK0 | 250 µL stainless steel Loop with RFID tag | 1 u | | | | x | | x | x | |
| AYHEL0 | 500 µL stainless steel Loop with RFID tag | 1 u | | | | x | | x | x | |
| AYHET0 | 1 mL stainless steel Loop with RFID tag | 1 u | | | | x | | x | x | |
| AYHEU0 | 2 mL stainless steel Loop with RFID tag | 1 u | | | | x | | x | x | |
| AYHEV0 | 5 mL stainless steel Loop with RFID tag | 1 u | | | | x | | x | x | |
| AYHEW0 | 10 mL stainless steel Loop with RFID tag | 1 u | | | | x | | x | x | |
| AYHEX0 | 20 mL stainless steel Loop with RFID tag | 1 u | | | | x | | x | x | |
| AYHEY0 | 40 mL stainless steel Loop with RFID tag | 1 u | | | | x | | x | x | |
| AYHEZ0 | 50 mL stainless steel Loop with RFID tag | 1 u | | | | x | | x | x | |
| BWIRQ0 | 10 µL stainless steel Loop with RFID tag | 1 u | | | | | | | | x |
| PFAJD0 | 20 µL stainless steel Loop with RFID tag | 1 u | | | | | | | | x |
| BWIRRO | 50 µL stainless steel Loop with RFID tag | 1 u | | | | | | | | x |
| BWIRSO | 100 µL stainless steel Loop with RFID tag | 1 u | | | | | | | | x |
| BWIRTO | 250 µL stainless steel Loop with RFID tag | 1 u | | | | | | | | x |
| BWIRU0 | 500 µL stainless steel Loop with RFID tag | 1 u | | | | | | | | x |
| BWIRVO | 1 mL stainless steel Loop with RFID tag | 1 u | | | | | | | | x |
| PFAJEO | 2 mL stainless steel Loop with RFID tag | 1 u | | | | | | | | x |
| BWIRW0 | 5 mL stainless steel Loop with RFID tag | 1 u | | | | | | | | x |
| BWIRX0 | 10 mL stainless steel Loop with RFID tag | 1 u | | | | | | | | x |
| BWIRY0 | 20 mL stainless steel Loop with RFID tag | 1 u | | | | | | | | x |
| Others accessories | | | | | | | | | | |
| DZ7360 | Ballasting kit for 1/8" tubing | 5 u | x | | x | x | | x | x | x |
| DZ7361 | Ballasting for 1/8" tubing | 1 u | x | | x | x | | x | x | x |
| FV1290 | Ballasting kit for 3/16" and 1/8" tubing | 5 u | | x | | | | | | |
| B4VBPO | Ballasting for 3/16" tubing | 5 u | | | | | x | | | |
| B4VBP1 | Ballasting for 3/16" tubing | 1 u | | | | | x | | | |
| B2JCJ0 | Magic box Flash (tool box) | 1 u | x | | | | | | | |
| B4WHZ0 | Magic box Flash (tool box) | 1 u | | x | | | | | | |
| AXF7I0 | Magic box Flash (tool box) | 1 u | | | x | | | | | |
| AXF7L0 | Magic box Flash (tool box) | 1 u | | | | | | x | | |
| AXF7P0 | Magic box Flash (tool box) | 1 u | | | | | | | x | |
| AXF7S0 | Magic box Flash (tool box) | 1 u | | | | | x | | | |
| AXF7T0 | Magic box Flash (tool box) | 1 u | | | | x | | | | |
| AXF7Q0 | Magic box Flash (tool box) | 1 u | | | | | | | | x |
| IO2360 | Back pressure regulator 20psi + kit | 1 u | x | x | x | x | | x | | |
| FV1160 | Adaptation kit for F0800 & F1600 format column | 1 u | x | x | | | | | | |
| OC1570 | Serial communication cable male/female (3 meters) | 1 u | x | x | | | | | | |
| OC1690 | Serial communication cable female/female (3 meters) | 1 u | x | x | | | | | | |
| AYHF20 | Trolley | 1 u | x | x | x | x | x | x | x | x |
| PHONE0 | Smartphone for TLC to Flash & Prep application | 1 u | x | x | x | x | x | x | x | |
| TABLE0 | Tablet for TLC to Flash & Prep application | 1 u | x | x | x | x | x | x | x | |
| BFXLX0 | ESD protection kit | 1 u | | x | | | x | | | |
| B1STZ0 | Gen 5 demo kit consumables (with 4 compounds) | 1 u | | | x | x | x | x | x | |
| B2ZJ10 | Gen 5 demo kit consumables (without 4 compounds) | 1 u | | | x | x | x | x | x | |
| DV5990 | Phthalates sample 15 mL | 1 u | | | | | | | | |
| DV5991 | Phthalates sample 5 mL | 1 u | | | | | | | | |
| 1C6470 | Apolaire C18 sample | 1 u | | | | | | | | |
| 1N3640 | Sample kit puriFlash MS (PF-15SIHP-F0025 + natural products mix) | 1 u | | | | | | | | |
| BOE3S0 | Nano ELSD qualification kit | 1 u | | | | | | | | |
| BXFX310 | Sample kit puriFlash | 1 u | | | | | | | | |

LC PURIFICATION

puriFlash® Generation 5 - Wear parts

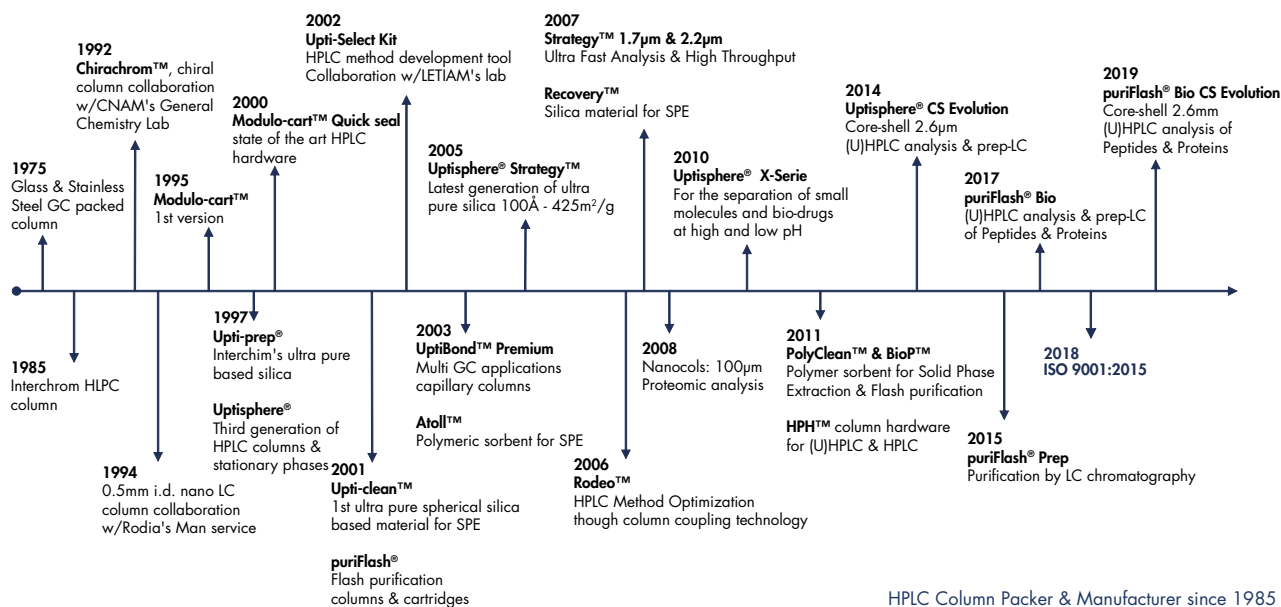
| Picture | P/N | Cond. | Qty | | PF- XS520+ | PF- XS520 ULTRA | PF- 535XL | PF- 5020 | PF- 5050 | PF- 5250 | PF- 5015XL | PF- 5250P | PF- 5400-UV |
|--|--------|-------|-----|--|---------------|-----------------------|--------------|-------------|-------------|-------------|---------------|--------------|----------------|
|  | GV1710 | 10 u | 1 | PEEK 1/4"-28 Long Nut For 1/8" Tubing (for GV1690) | x | x | x | x | x | x | x | x | x |
|  | GV1700 | 10 u | 1 | PEEK 1/4"-28 Short Nut For 1/8" Tubing (for GV1690) | x | x | x | x | x | x | x | x | x |
|  | GV1690 | 10 u | 2 | ETFE Ferrule with Stainless Steel Lock Ring for 1/8" tubing | x | x | x | x | x | x | x | x | x |
|  | 1B4260 | 10 u | 1 | Superflangeless male nut 1/16" Peek | | | | | | | | x | |
|  | 1B4250 | 10 u | 2 | ETFE ferrule with stainless steel lock ring for 1/16" TUBING | | | | | | | | x | |
|  | JO8520 | 1 u | 10 | PEEK 5/16"-24 Nut +ETFE Ferrule for 3/16" Tubing | | | x | | | | | x | |
|  | PFS740 | 1 u | 2 | Adapter PEEK Luer Lock M to 1/4"-28 F | x | x | x | x | x | x | x | x | |
|  | PFAFA0 | 2 u | 1 | SP-1/4-28 Male to Luer Lock Male ID 2.4 mm | x | x | x | | | | | | |
|  | GV1680 | 2 u | 1 | Adapter Stainless Steel Luer Lock F to 1/4"-28 M | x | x | x | | | | | | |
|  | PFA1D0 | 1 u | 1 | SP-Adapter 1/4" 28 Male-Luer Male ID 1.6 mm | | | | x | x | x | x | x | |
|  | U86322 | 1 u | 2 | Adapter 1/4"-28 F - Luer lock F | | | x | x | x | x | x | x | |
|  | GV1730 | 10 u | 1 | Stainless Steel Nut for 1/8" tubing | | | | | x | x | | x | |
|  | GV1720 | 10 u | 1 | Stainless Steel Ferrule for 1/8" tubing | | | | | x | x | | x | |
|  | 1A2510 | 10 u | 1 | SP Stainless Steel Nut for 1/16" TUBING | | | | | | | | x | x |
|  | 1A2520 | 10 u | 1 | SP Stainless Steel ferrule for 1/16" TUBING | | | | | | | | x | x |
|  | AYQKF4 | 1 u | 6 | Prep adapter 10-32 Male to 5/16-24 Female | | | | | | x | | x | |
|  | HO2560 | 1 u | 1 | Stainless Steel adapter for injection | | | | | x | x | | x | |
|  | 181951 | 1 u | 1 | Stainless Steel adapter for injection | | | | | | | | | x |
|  | 163743 | 1 u | 2 | Stainless steel union 1/8" VALDO | | | | | | x | | x | |
|  | NR0860 | 1 u | 2 | SP union volume mort 1/16" -1/16" peek seul | | | | | | | | | x |
|  | 468452 | 10 u | 1 | Raccord male universel 1/16" Peek uptisur | | | | | | | | | x |
|  | 1D3910 | 1 m | 2 | Spring for 1/8" OD tubing | x | x | x | x | x | | | x | x |
|  | B4S500 | 1 m | 1 | Spring for 3/16" OD tubing | | | x | | | | x | | |
|  | AXG612 | 3 m | 1 | PTFE Tubing ESD Black 1.59 mm x 3.18 mm | x | x | | | | | | | |
|  | AXG614 | 10 m | 1 | PTFE Tubing ESD Black 1.5 x 3.18 mm | | | x | | | | | | |
|  | 7A1771 | 10 m | 1 | PTFE Tubing ESD Black 2.38 x 3.18 mm | | | x | | | | x | | |
|  | 7A1772 | 1.5 m | 4 | PTFE Tubing ESD Black 2.38 x 3.18 mm | x | x | | | | | | | |
|  | 7A1761 | 10 m | 1 | PTFE Tubing ESD Black 3.18 x 4.76 mm | | | | | | | x | | |



| Picture | P/N | Cond. | Qty | | PF- XS520+ | PF- XS520 ULTRA | PF- 535XL | PF- 5020 | PF- 5050 | PF- 5250 | PF- 5015XL | PF- 5250P | PF- 5400-UV |
|---------|--------|-------|-----|---|---------------|-----------------------|--------------|-------------|-------------|-------------|---------------|--------------|----------------|
| | 7A1762 | 1.5 m | 4 | PTFE Tubing ESD Black 3.18 x 4.76 mm | | | x | | | | | | |
| | LO4703 | 5 m | 1 | ETFE Blue Tubing 1/8" OD - 1.6 mm ID | | | | x | x | x | x | x | x |
| | LO4690 | 1.5 m | 1 | ETFE Extruded Special Metric 2.4 mm ID 3.175 mm OD Blue Dark Opaque | | | | x | x | x | x | x | x |
| | AS2W32 | 1.5 m | 1 | ETFE Extruded Special Metric 2.4 mm ID 3.175 mm OD Red Opaque | | | | x | x | x | x | x | x |
| | AS2W42 | 1.5 m | 1 | ETFE Extruded Special Metric 2.4 mm ID 3.175 mm OD Green Opaque | | | | x | x | x | x | x | x |
| | AS2W52 | 1.5 m | 1 | ETFE Extruded Special Metric 2.4 mm ID 3.175 mm OD Yellow Opaque | | | | x | x | x | x | x | x |
| | AXEMO1 | 1.5 m | 1 | ETFE Extruded Special Metric 1.6 mm Mm 3.175 mm Translucent Red | | | | x | x | x | x | x | x |
| | AXEMP1 | 1.5 m | 1 | ETFE Extruded Special Metric 1.6 mm Mm 3.175 mm Translucent Green | | | | x | x | x | x | x | x |
| | AXEMQ1 | 1.5 m | 1 | ETFE Extruded Special Metric 1.6 mm Mm 3.175 mm Translucent Yellow | | | | x | x | x | x | x | x |
| | AS2IG1 | 1.5 m | 1 | ETFE Extruded Special Metric 1.6 mm Mm 3.175 mm Translucent Dark Blue | | | | x | x | x | x | x | x |
| | U86654 | 1.5 m | 1 | SE-Tubing ETFE 1/8" OD - 1.6 mm | | | | x | x | x | x | x | x |
| | 803770 | 3 m | 1 | PEEK Tubing 1/8" OD - 1.6 mm ID | | | | | | x | | | |
| | 767140 | 3 m | 1 | Tube PEEK 1/16" 0,75 mm ID | | | | | | | | x | |
| | 676940 | 3 m | 1 | Tube PEEK 1/8" 0,75 mm ID | | | | | | | | x | |
| | 767140 | 3 m | 1 | Tube PEEK 1/16" x 0,75 mm (0.030") | | | | | | | | | x |
| | 767130 | 3 m | 1 | Tube PEEK 1/16" x 0.50 mm (0.020") | | | | | | | | | x |
| | 177893 | 3 m | 1 | Tube INOX 1/16" x 0.75 mm (0.030") | | | | | | | | | x |
| | 186243 | 3 m | 1 | Tube INOX 1/16" x 0.50 mm (0.020") | | | | | | | | | x |
| | PFS920 | 1 u | 1 | SP-clapet - IIB89 | X | X | X | X | X | | | | |
| | PFS930 | 1 u | 1 | SP-clapet - IIB88 | X | X | X | X | X | X | | X | |
| | PFAJ50 | 1 u | 1 | SP-clapet 6,9 mm - BP000742 | | | | | | | | | X |
| | PFS940 | 1 u | 1 | SP-joint piston - IID36 | X | X | X | X | X | X | | X | |
| | PFAJU0 | 1 u | 1 | SP-joint 6,4 mm - BP000061 | | | | | | | | | X |



Advion Interchim Scientific Technologies



Silicas for (U)HPLC, LC-Preparative & Flash Columns

Uptisphere® CS Evolution

Core Shell columns for fast & highly efficient identification & quantification of small molecules.

Uptisphere® Strategy™

(U)HPLC, Analytical & Prep LC Columns with high surface area for identification, quantification & purification of small molecules & pharma compounds.

Uptisphere® 120 Å

HPLC & Prep LC Columns for the identification, quantification of small molecules & pharma compounds.

puriFlash®

Analytical, Prep LC & Flash columns with High Load-ability for routine analysis & easy transfer to purification of small organic molecules in pharma applications.

puriFlash® Bio

(U)HPLC, Analytical, Prep LC & Flash columns for the identification, quantification & purification of Peptides, Polypeptides & Proteins at high & low pH.

Uptisphere® Bio

X-serie™ Uptisphere® 300Å Uptisphere® TP

HPLC & prep LC columns for the identification, quantification of Proteins, Peptides & Polypeptides at high & low pH.





Our silica technologies from Advion Interchim Scientific

All Advion Interchim Scientific Uptisphere® silicas (120 Å, CS Evolution, Strategy™, puriFlash® & puriFlash® Bio) follow rigorous and innovative manufacturing processes. Base silicas are produced in ceramic reactors from standard particles for purification are totally free of all traces of metals for analysis. Each of the different synthesis steps are strictly controlled.

This rigour leads to extremely mechanically stable particles. The particle size and porosity distributions as well as the specific surface areas are perfectly defined and reproducible.

Our puriFlash® & puriFlash® Bio silicas are specifically designed to meet the requirements of preparative liquid chromatography. They combine quality and cost effectiveness.

Our silicas have three major advantages:

1. A perfect control of the surface state.
We physically or chemically modify the surface of the silica to choose the type, the amount of silanols or the overall surface energy according to the objective to be achieved.
2. Cylindrical pores.
The quantity of free silanols and their excellent accessibility enable acquisition of a homogeneous and particularly dense functionalization (grafting). This results in very good loading capacity and stability of these stationary phases under aggressive mobile phase conditions such as basic buffers.
3. High mechanical stability.
Our stationary phases can withstand multiple packings and de-packings without damaging the integrity of the substrate. They are the tool of choice for preparative chromatography.

Modified silicas

The Laboratoire d'Etude des Techniques et des Instruments d'Analyse Moléculaire (LETIAM), a constituent unit of the analytical chemistry group of Paris Sud located at the IUT of Orsay, played a fundamental role in our vision, which led to the development of our stationary phases.

The laboratory of Sciences and Separative Methods - (SMS) of the Institute of Research in Fine Organic Chemistry - (IRCOF) has also helped in our development process with their innovative synthesis schemes for the modification of our "Core-Shell" silicas Uptisphere® CS Evolution.

Today, we offer about 50 selectivities to meet the needs of analysts and chemists for the identification, quantification and purification of small organic molecules, peptides and proteins.

Silica base: standard Pure & Ultra Pure (99.995%)

Particles: irregular, granular, spherical

Particle Size:

1.7 µm [+/- 0.1]
 2.2 µm [+/- 0.15]
 2.5 - 2.6 µm [+/- 0.1]
 3 - 3.5 µm [+/- 0.2]
 5 µm [+/- 0.3]
 10 µm [+/- 1.0]
 15 µm [+/- 2.0]
 25 - 30 µm [+/- 5]
 50 µm [+/- 10]

Surface / Pore Size:

60Å [+/- 10] / 500 m²/g [+/- 50]
 85Å [+/- 5] / 130 m²/g [+/- 25]
 100Å [+/- 15] / 425 m²/g [+/- 40]
 120Å [+/- 15] / 320 m²/g [+/- 40]
 130Å [+/- 15] / 300 m²/g [+/- 40]
 200Å [+/- 15] / 150 m²/g [+/- 40]
 220Å [+/- 15] / 200 m²/g [+/- 40]
 300Å [+/- 40] / 100 m²/g [+/- 20]

Metal Traces: Pure standard < 500 ppm - Ultra Pure < 10 ppm [Fe < 1 ppm]

pH Stability: depending on the physical and / or chemical modification



LC PURIFICATION

Advion Interchim Scientific stationary phases selection guide

| Name | AIS code | USP Code | Ø Pore | Surface | Particle size (µm) | | | | | | µm | Bonding | Type | % C | End-Capping |
|---|------------|----------|--------|-----------------------|--------------------|----|----|----|-----|-----|---------|--|------------------|-------|------------------|
| | | | | | 5 | 10 | 15 | 20 | 30 | 50 | | | | | |
| Flash & Prep columns for small organic molecules | | | | | | | | | | | | | | | |
| Uptisphere® Strategy™ | C18-3 | L1 | 100 Å | 425 m ² /g | x | x | x | | | | | C18 - octadecyl | Mono-functional | 22.0% | Multi step |
| Uptisphere® Strategy™ | C18-HQ | L1 | 100 Å | 425 m ² /g | x | x | x | | | | | C18 - octadecyl | Mono-functional | 19.0% | Multi step |
| Uptisphere® Strategy™ | C18-RP | L1 | 100 Å | 425 m ² /g | x | x | x | | | | | C18 - octadecyl | Mono-functional | 16.0% | Multi step Mixte |
| Uptisphere® Strategy™ | PHC4 | L11 | 100 Å | 300 m ² /g | x | x | x | | | | | Phenyl - Butyl | Mono-functional | 12.0% | One step |
| Uptisphere® Strategy™ | HILIC- HIT | L3 | 100 Å | 425 m ² /g | x | x | x | | | | | Proprietary | Proprietary | | Proprietary |
| Uptisphere® Strategy™ | HILIC-HIA | | 100 Å | 300 m ² /g | x | x | x | | | | | Proprietary | Proprietary | | Proprietary |
| Uptisphere® Strategy™ | SI | L3 | 100 Å | 425 m ² /g | x | x | | | | | | Ultra pure silica | | | No |
| Uptisphere® | C18-NEC | L1 | 120 Å | 320 m ² /g | x | x | x | | | | | C18 - octadecyl | Mono-functional | 16.0% | No |
| Uptisphere® | CN | L10 | 120 Å | 320 m ² /g | x | x | | | | | | CN - cyano | Mono-functional | 8.0% | One step |
| puriFlash® Prep | C18-XS | L1 | 100 Å | 300 m ² /g | x | x | x | | x | | | C18 - octadecyl | Mono-functional | 17.0% | Multi-step |
| puriFlash® Prep | C18-HP | L1 | 100 Å | 300 m ² /g | x | x | x | | x | x | | C18 - octadecyl | Mono-functional | 16.5% | One-step |
| puriFlash® Prep | C18-AQ | L1 | 100 Å | 300 m ² /g | x | x | x | | x | | | C18 - octadecyl | Mono-functional | 14.0% | Mixte |
| puriFlash® Prep | RP-AQ | L7 | 60 Å | 500 m ² /g | | | x | | x | | | RP-alkyl | Mono-functional | 6.0% | Mixte |
| puriFlash® Prep | Diol | L20 | 60 Å | 500 m ² /g | (x) | x | x | | x | x | | Diol | Mono-functional | | No |
| puriFlash® Prep | SIHP | L3 | 60 Å | 500 m ² /g | x | x | x | | x | x | | Silica, HP grade | | | No |
| puriFlash® Prep | NH2 | L8 | 100 Å | 300 m ² /g | x | x | x | | x | x | | NH2 - amino | Mono-functional | 4.0% | One-step |
| puriFlash® | IR-C18 | L1 | 60 Å | 450 m ² /g | | | | | (x) | | | C18 - octadecyl | Mono-functional | 20.0% | One-step |
| puriFlash® | MM1 | L44 | 100 Å | 400 m ² /g | | | | | | x | | RP/SCX | Mono-functional | | One-step |
| puriFlash® | CN | L10 | 60 Å | 500 m ² /g | | | x | | | x | | CN - cyano | Mono-functional | 5.0% | One-step |
| puriFlash® | SIHC | L3 | 60 Å | 680 m ² /g | | | x | | (x) | x | | Silica, HC grade | | | No |
| puriFlash® | IR-SI | L3 | 60 Å | 450 m ² /g | | | | | (x) | (x) | | Irregular silica | | | No |
| puriFlash® | SI-AGNO3 | | 60 Å | 500 m ² /g | | | | | | x | | Silica, AgNO3 coated | | | No |
| puriFlash® | NH2HC | L8 | 60 Å | 680 m ² /g | | | | | | x | | NH2 - amino | Poly-fonctionnel | 4.0% | No |
| puriFlash® | SCX | L50 | 100 Å | 400 m ² /g | | | | | | x | | Strong Cation Exchanger | Mono-functional | | No |
| puriFlash® | SAX | L14 | 60 Å | 500 m ² /g | | | | | | x | | Strong Cation Exchanger | Mono-functional | | No |
| puriFlash® | X | | 100 Å | 800 m ² /g | | | | | | | 40 | PSDVB | | | No |
| puriFlash® | P6 | | 60 Å | | | | | | | | 100 | Polyamide-6 | | | No |
| puriFlash® | ALN | | 60 Å | 200 m ² /g | | | | | | | 32/63 | Neutral alumina | | | No |
| puriFlash® | ALB | | 60 Å | 200 m ² /g | | | | | | | 32/63 | Basic alumina | | | No |
| puriFlash® | AC | | | | | | | | | | 420/840 | Activated carbon | | | No |
| Daicel® | IA | | | | | | | | | | 20 | Amylose tris (3.5-dimethylphenylcarbamate) | | | No |
| Daicel® | IC | | | | | | | | | | 20 | Cellulose tris (3.5-dichlorophenylcarbamate) | | | No |
| Daicel® | ID | | | | | | | | | | 20 | Amylose Tris (3-Chlorophenylcarbamate) | | | No |
| Daicel® | OD-I | | | | | | | | | | 20 | Cellulose tris (3.5-dimethylphenylcarbamate) | | | No |

Advion Interchim Scientific stationary phases selection guide

| pH stability | Mode | Application |
|--------------|---------------------------------|--|
| 1.0 - 12 | Reverse | The high bonding density of C18-3 facilitates a strong separation of non polar compounds. Multi-step bonding technology guarantees a fully end-capped phase, stable under basic pH conditions. C18-3 is an excellent phase for the separation of basic drugs at up to pH : 12. |
| 1.0 - 10 | Reverse | This utility phase serves many pharmaceutical applications. Its 425 m ² /g surface area is providing excellent loading capacity. |
| 1.5 - 8.0 | Reverse | Suitable for mid & non polar compounds separation. RP shows excellent mechanical stability that makes it an excellent tool for purification under acidic or basic conditions. |
| 1.5 - 7.5 | Reverse | Very selective for compounds with aromatic cycles and mid-polar compounds. |
| 1.5 - 7.0 | Hilic | Aqueous normal phase separation (ANP) of water-soluble compounds. Typical mobile phase: water / ACN (> 70%). ANP is an excellent alternative to RP purification for highly polar compounds. |
| 2.0 - 7.0 | Hilic | Aqueous normal phase separation (ANP) of water-soluble compounds. Typical mobile phase: water / ACN (> 70%). ANP is an excellent alternative to RP purification for highly polar compounds. |
| 1.5 - 7.0 | Normal | Non-ionic, polar organic compounds. |
| 1.5 - 6.5 | Reverse | NEC strongly retains the polar and mid-polar compounds. It overcomes peak tailing with compounds that contain chains and /or carbon cycles combined with numerous polar groups and/or basic in character. |
| 2.0 - 7.0 | Reverse / Normal | CN functional groups can be used either in normal phase to purify polar compounds or in reversed phase for mid-polar compounds. |
| 1.0 - 10.0 | Reverse | The proprietary multi-step bonding technology guarantees a fully end-capped phase, stable under basic pH conditions up to pH: 10. It's an excellent phase for the integral purification of basic drugs. |
| 1.5 - 7.5 | Reverse | Serves many pharmaceutical applications. Excellent choice for routine purification in reverse phase mode. |
| 2.0 - 7.5 | Reverse | The bonding chemistry allows to start gradient with 100% of water. Suitable for the purification of mid and non polar compounds. |
| 2.0 - 7.5 | Reverse | The bonding chemistry allows to start gradient with 100% of water. Suitable for the purification of high and mid polar compounds. Compare to C18, peaks are eluted earlier from the beginning of the gradient. |
| 1.5 - 6.5 | Normal | The diol fonction globally provides a neutral surface onto the silica. It leads to greater separation of basic compounds by normal phase vs. regular silica. |
| 1.5 - 6.5 | Normal | Non-ionic, polar organic compounds. |
| 2.0 - 6.5 | Reverse / Normal / Ion Exchange | Can be either weak anion exchangers for strong acids, or polar media that can interact with OH, NH, SH ... |
| 1.5 - 7.0 | Reverse | Serves a broad-ship of purification requirements of non polar compounds. |
| 1.0 - 7.5 | Reverse / Ion Exchange | Ion exchange and hydrophobic chains are bonded onto the surface of silica providing unique selectivity. Compounds that possess basic functionality are retained by ion exchange functionality. Passing an organic solvent will elute hydrophobic compounds. |
| 1.5 - 7.5 | Reverse / Normal | CN functional groups can be used either in normal phase to purify polar compounds or in reversed phase for mid-polar compounds. |
| 1.5 - 6.5 | Normal | Non-ionic, polar organic compounds. |
| 1.5 - 6.5 | Normal | Non-ionic, polar organic compounds. |
| 1.5 - 6.5 | | purification of stereo-isomers compounds. |
| 1.5 - 6.5 | Reverse / Normal / Ion Exchange | Can be either weak anion exchangers for strong acids, or polar media that can interact with OH, NH, SH ... |
| 1.0 - 7.5 | Ion Exchange | Strong cation exchange (SCX) contains sulfonic acid used to purify weak basic compounds which have one or more positive charges. |
| 1.0 - 7.5 | Ion Exchange | Strong anion exchange (SAX) contains quaternary amine used to purify weak acid compounds which have one or more negative charges. |
| 1.0 - 13 | Reverse | <p>Universal polymer with high surface area designed to purify a broad range of hydrophobic compounds through a variety of matrices in a pH range from 1 to 14.</p> <p>Exhibits a constant selectivity toward flavones, chalkones, anthraquinones, aromatic nitro compounds, DNP amino acids, phenols, carbonic acids, acid amides, sulphonic acids and amides of sulphonic acids as well as towards amines and quinones.</p> <p>Natural products , Essential oils, Antibiotics, Vitamins, Alkaloids, ...</p> <p>Plant extraction, organic solvent purification, Alkaloids,...</p> <p>Decolorization.</p> <p>Chiral compounds by normal & reversed phase such as Bupivacaine, Indapamide, suprofern, ...</p> <p>Chiral compounds by normal & reversed phase such as Econazole, Indoprofen, 5-Fluoro-1 (tetrahydro-2-furyl) uracil ...</p> <p>Chiral compounds by normal & reversed phase such as (±)-Hydrobenzoin, Sulconazole, Tropic acid, ...</p> <p>Chiral compounds by normal & reversed phase such as 2-Bromomethyl-1,4-benzodioxane, pindolol, Troger's Base, ...</p> |

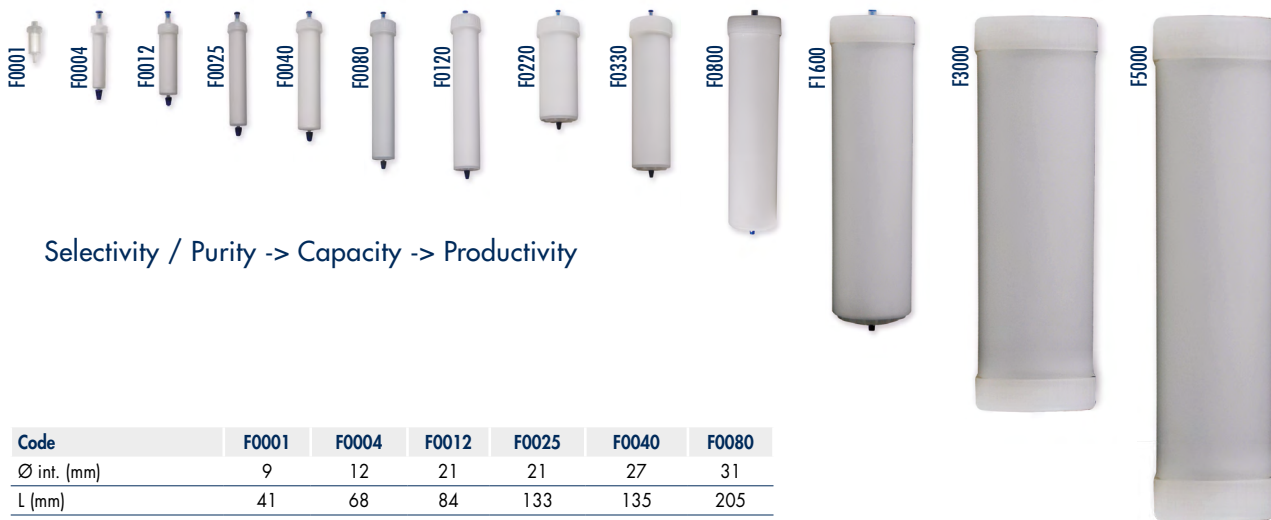
Flash columns

We offer more than 35 selections for the purification of small & bio-molecules.

Our Ultra Pure Spherical Silica combined with our chemistry establishes optimized sample recovery and makes the transfer from analytical to purification easier.

Advion Interchim Scientific® Genius allows an easy transfer from any TLC or analytical data from any columns to a "ready-to-go" and safe gradient purification method.

RFID Traceability.



Selectivity / Purity -> Capacity -> Productivity

| Code | F0001 | F0004 | F0012 | F0025 | F0040 | F0080 |
|-----------------------------|--------|--------|---------|---------|---------|----------|
| Ø int. (mm) | 9 | 12 | 21 | 21 | 27 | 31 |
| L (mm) | 41 | 68 | 84 | 133 | 135 | 205 |
| Bed length (mm) | 26 | 53 | 65 | 113 | 114 | 185 |
| CV ₀ (mL) | 1.2 | 5 | 19 | 32 | 48 | 102 |
| Flowrate - Typical (mL/min) | 2.5 | 5 | 1 | 15 | 26 | 34 |
| Flowrate - Range (mL/min) | 1 - 10 | 5 - 20 | 15 - 50 | 15 - 50 | 20 - 70 | 30 - 100 |
| Max Pressure (bar) | 7 | 22 | 22 | 22 | 20 | 20 |

| Code | F0120 | F0220 | F0330 | F0800 | F1600 | F3000 | F5000 |
|-----------------------------|----------|----------|----------|-----------|-----------|---------|---------|
| Ø int. (mm) | 36 | 60 | 60 | 78 | 104 | 127.5 | 127.5 |
| L (mm) | 224 | 153 | 226 | 341 | 385 | 514 | 770 |
| Bed length (mm) | 202 | 127 | 200 | 314 | 353 | 400 | 660 |
| CV ₀ (mL) | 153 | 269 | 405 | 1 078 | 2 170 | 4100 | 6700 |
| Flowrate - Typical (mL/min) | 46 | 127 | 127 | 216 | 383 | 550 | 550 |
| Flowrate - Range (mL/min) | 40 - 150 | 80 - 300 | 80 - 300 | 150 - 300 | 200 - 500 | 320-680 | 320-680 |
| Max Pressure (bar) | 20 | 20 | 20 | 7 | 7 | 7 | 7 |



LC Preparative columns

Preparative columns range from 10.0 to 50.8 mm i.d for the purification of samples ranging from 0.5 mg to 1 gram.

Column tubing & column packing

The tube polishing value (Ra) has a fundamental importance in preparative chromatography.

A primary reason for broad peaks and low efficiency is the utilization of poor quality tubing.

Molecules in the center of the mobile phase stream can move faster than molecules closer to the wall due to friction against the tubing inner surface. The lower the Ra value, the smoother the surface and the less the "drag" in the tubing will place upon a given separation. All columns have extremely smooth inner surface (typically 8 μ inch of Ra) to considerably reduce drag issues and keep the column efficiency.



Sample dispersion

The loading of sample onto a preparative column requires stringent management to provide quality separations. Column overloading results in a poor retention of pure fractions and therefore particular attention needs to be placed upon selecting the appropriate column dimension and properties of the stationary phase. In addition, careful sample introduction control into the column is necessary to get a homogeneous sample dispersion through the sorbent bead head.

Typically, sample enters a preparative column through a 1/16" fitting; poor sample loading will lead to overloading some areas of the stationary phase whilst other areas will be underloaded. In addition to a dramatic loss in capacity there will also be a high potential to prematurely clog the the column head and thus rapidly reducing the column life. To avoid this problem, Advion Interchim Scientific's Modulo-cart Preparative columns are outfitted with a sample distributor.

Solid Sample

Dry injection



Allows large sample amounts

High pressure dry-load



Dry-load columns for solid deposits allow the injection of an insoluble (or soluble) raw sample in the mobile phase. Compared to liquid injection, the solid deposit avoids the diffusion of the raw sample in the purification column. It improves resolution, efficiency and purity of the products collected.

The solid deposit can be made with silica, C18 or Celite. Unlike open cartridges, it does not require the use of a piston or specific adapters.

The max. pressure is 2x the standard solid deposit cartridges.

They are compatible with the use of Interchim® 15 µm puriFlash® columns and with all purification systems.

puriFlash® Dry-Load

| Nature | Type | Format | P/N | Qty |
|---------------------------------------|---------------|--------|--------------------|------|
| puriFlash® Dry-Load | Empty | F0004 | PF-DLE-F0004 | 20 u |
| | | F0012 | PF-DLE-F0012 | 20 u |
| | | F0025 | PF-DLE-F0025 | 20 u |
| | | F0040 | PF-DLE-F0040 | 20 u |
| | | F0060 | PF-DLE-F0060 | 10 u |
| | | F0080 | PF-DLE-F0080 | 5 u |
| | | F0100 | PF-DLE-F0100 | 5 u |
| | | F0120 | PF-DLE-F0120 | 5 u |
| | | F0220 | PF-DLE-F0220 | 5 u |
| | | F0330 | PF-DLE-F0330 | 5 u |
| puriFlash® Dry-Load - Tightening tool | | | JV0470 | 1 u |
| puriFlash® Dry-Load | SILICA HC 80% | F0004 | PF-DLE-F0004 | 20 u |
| | | F0012 | PF-DLE-F0012 | 20 u |
| | | F0025 | PF-DLE-F0025 | 20 u |
| | | F0040 | PF-DLE-F0040 | 20 u |
| puriFlash® Dry-Load | SILICA HC 50% | F0004 | PF-DLSIHC05-F0004 | 20 u |
| | | F0012 | PF-DLSIHC05-F0012 | 20 u |
| | | F0025 | PF-DLSIHC05-F0025 | 20 u |
| | | F0040 | PF-DLSIHC05-F0040 | 20 u |
| puriFlash® Dry-Load | CELITE 80% | F0004 | PF-DLCET08-F0004 | 20 u |
| | | F0012 | PF-DLCET08-F0012 | 20 u |
| | | F0025 | PF-DLCET08-F0025 | 20 u |
| | | F0040 | PF-DLCET08-F0040 | 20 u |
| puriFlash® Dry-Load | C18 STD 80% | F0004 | PF-DLIRC1808-F0004 | 5 u |
| | | F0012 | PF-DLIRC1808-F0012 | 5 u |
| | | F0025 | PF-DLIRC1808-F0025 | 5 u |
| | | F0040 | PF-DLIRC1808-F0040 | 5 u |
| puriFlash® Dry-Load | C18 STD 50% | F0004 | PF-DLIRC1805-F0004 | 5 u |
| | | F0012 | PF-DLIRC1805-F0012 | 5 u |
| | | F0025 | PF-DLIRC1805-F0025 | 5 u |
| | | F0040 | PF-DLIRC1805-F0040 | 5 u |

High-Pressure Dry-Load

| Nature | Type | Format | P/N | Qty |
|---------------------------------------|-------|---------------|--------|-----|
| puriFlash® HP Dry-Load | Empty | 50 x 21.2 mm | OA0320 | 1 u |
| | | 75 x 21.2 mm | OA0330 | 1 u |
| | | 100 x 21.2 mm | 7A1870 | 1 u |
| | | 50 x 30 mm | OA0340 | 1 u |
| | | 75 x 30 mm | OA0350 | 1 u |
| | | 100 x 30 mm | 7A1880 | 1 u |
| puriFlash® Dry-Load - Tightening tool | | | | |
| Spanner wrench for 21.2 mm ID | | | 7A1590 | 1 u |
| Spanner wrench for 30 mm ID | | | 7A1610 | 1 u |
| Replacement frit | | | | |
| Replacement frit for 21.2 mm ID | | | OA2100 | 1 u |
| Replacement frit for 30 mm ID | | | OA2110 | 1 u |





Normal phase
puriFlash® IR-SI

| Flash columns | 20 µm | Qty | 50 µm | Qty |
|---------------|---------------|------|---------------|------|
| F0004 | IR-20SI-F0004 | 40 u | IR-50SI-F0004 | 40 u |
| F0012 | IR-20SI-F0012 | 30 u | IR-50SI-F0012 | 30 u |
| F0025 | IR-20SI-F0025 | 25 u | IR-50SI-F0025 | 25 u |
| F0040 | IR-20SI-F0040 | 20 u | IR-50SI-F0040 | 20 u |
| F0080 | IR-20SI-F0080 | 10 u | IR-50SI-F0080 | 10 u |
| F0120 | IR-20SI-F0120 | 8 u | IR-50SI-F0120 | 8 u |
| F0220 | IR-20SI-F0220 | 4 u | IR-50SI-F0220 | 4 u |
| F0330 | IR-20SI-F0330 | 4 u | IR-50SI-F0330 | 4 u |
| F0800 | IR-20SI-F0800 | 1 u | IR-50SI-F0800 | 1 u |
| F1600 | IR-20SI-F1600 | 1 u | IR-50SI-F1600 | 1 u |
| F3000 | IR-30SI-F3000 | 1 u | IR-50SI-F3000 | 1 u |
| F5000 | --- | --- | IR-50SI-F5000 | 1 u |

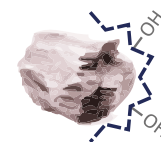
puriFlash® IR-SI - Jumbo pack

| Flash columns | 20 µm | Qty | 50 µm | Qty |
|---------------|-----------------|-------|-----------------|-------|
| F0004 | IR-20SIJP-F0004 | 160 u | IR-50SIJP-F0004 | 400 u |
| F0012 | IR-20SIJP-F0012 | 120 u | IR-50SIJP-F0012 | 300 u |
| F0025 | IR-20SIJP-F0025 | 100 u | IR-50SIJP-F0025 | 250 u |
| F0040 | IR-20SIJP-F0040 | 80 u | IR-50SIJP-F0040 | 200 u |
| F0080 | IR-20SIJP-F0080 | 40 u | IR-50SIJP-F0080 | 100 u |
| F0120 | IR-20SIJP-F0120 | 32 u | IR-50SIJP-F0120 | 80 u |
| F0220 | IR-20SIJP-F0220 | 16 u | IR-50SIJP-F0220 | 40 u |
| F0330 | IR-20SIJP-F0330 | 16 u | IR-50SIJP-F0330 | 40 u |
| F0800 | --- | --- | IR-50SIJP-F0800 | 10 u |
| F1600 | --- | --- | IR-50SIJP-F1600 | 10 u |

Notes: influence of water content of silica.
The water contents are different between the silica gels used to make the TLC plates and the same materials used to make the spherical silica gels for purification
Flash: Silica gel for TLC = 6 - 6.5%
Spherical silica gel for Flash <or = 2.0%

puriFlash® SI-HP

| Flash columns | 15 µm | Qty | 30 µm | Qty | 50 µm | Qty |
|---------------|-----------------|------|-----------------|------|-----------------|------|
| F0001 | SC-15SIHP-F0001 | 50 u | --- | --- | --- | --- |
| F0004 | PF-15SIHP-F0004 | 20 u | PF-30SIHP-F0004 | 40 u | PF-50SIHP-F0004 | 40 u |
| F0012 | PF-15SIHP-F0012 | 20 u | PF-30SIHP-F0012 | 30 u | PF-50SIHP-F0012 | 30 u |
| F0025 | PF-15SIHP-F0025 | 12 u | PF-30SIHP-F0025 | 25 u | PF-50SIHP-F0025 | 25 u |
| F0040 | PF-15SIHP-F0040 | 12 u | PF-30SIHP-F0040 | 20 u | PF-50SIHP-F0040 | 20 u |
| F0080 | PF-15SIHP-F0080 | 4 u | PF-30SIHP-F0080 | 10 u | PF-50SIHP-F0080 | 10 u |
| F0120 | PF-15SIHP-F0120 | 4 u | PF-30SIHP-F0120 | 8 u | PF-50SIHP-F0120 | 8 u |
| F0220 | PF-15SIHP-F0220 | 2 u | PF-30SIHP-F0220 | 4 u | PF-50SIHP-F0220 | 4 u |
| F0330 | PF-15SIHP-F0330 | 2 u | PF-30SIHP-F0330 | 4 u | PF-50SIHP-F0330 | 4 u |
| F0800 | --- | --- | PF-30SIHP-F0800 | 1 u | PF-50SIHP-F0800 | 1 u |
| F1600 | --- | --- | PF-30SIHP-F1600 | 1 u | PF-50SIHP-F1600 | 1 u |
| F3000 | --- | --- | 30SIHP-F3000 | 1 u | 50SIHP-F3000 | 1 u |



puriFlash® IR-SI
60 Å - 450 m²/g
20 & 40/63 µm
pH stability: 1.5 to 6.5
Economical

APPLICATION AREA

HPLC ○
PrepLC ○
Flash ●

Single use columns
General application:
Non-ionic & polar organic molecules



puriFlash® SI-HP
60 Å - 500 m²/g
5, 10, 15, 30 & 50 µm
pH stability: 1.5 to 6.5
High efficiency

APPLICATION AREA

HPLC ●
PrepLC ●
Flash ●

Single use columns
General application:
Non-ionic & polar organic molecules





puriFlash® SI-HP- Jumbo pack

| Flash columns | 15 µm | Qty | 30 µm | Qty | 50 µm | Qty |
|---------------|--------------------|------|--------------------|-------|--------------------|-------|
| F0004 | PF-15SIHP:JP-F0004 | 80 u | PF-30SIHP:JP-F0004 | 160 u | PF-50SIHP:JP-F0004 | 160 u |
| F0012 | PF-15SIHP:JP-F0012 | 80 u | PF-30SIHP:JP-F0012 | 120 u | PF-50SIHP:JP-F0012 | 120 u |
| F0025 | PF-15SIHP:JP-F0025 | 48 u | PF-30SIHP:JP-F0025 | 100 u | PF-50SIHP:JP-F0025 | 100 u |
| F0040 | PF-15SIHP:JP-F0040 | 48 u | PF-30SIHP:JP-F0040 | 80 u | PF-50SIHP:JP-F0040 | 80 u |
| F0080 | PF-15SIHP:JP-F0080 | 32 u | PF-30SIHP:JP-F0080 | 40 u | PF-50SIHP:JP-F0080 | 40 u |
| F0120 | PF-15SIHP:JP-F0120 | 32 u | PF-30SIHP:JP-F0120 | 32 u | PF-50SIHP:JP-F0120 | 32 u |
| F0220 | PF-15SIHP:JP-F0220 | 8 u | PF-30SIHP:JP-F0220 | 16 u | PF-50SIHP:JP-F0220 | 16 u |
| F0330 | PF-15SIHP:JP-F0330 | 8 u | PF-30SIHP:JP-F0330 | 16 u | PF-50SIHP:JP-F0330 | 16 u |
| F0800 | --- | --- | PF-30SIHP:JP-F0800 | 4 u | PF-50SIHP:JP-F0800 | 4 u |
| F1600 | --- | --- | PF-30SIHP:JP-F1600 | 4 u | PF-50SIHP:JP-F1600 | 4 u |

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|-----------------|-----|------------------|-----|------------------|-----|
| 250 x 4.6 mm | PF5SIHP-250/P46 | 1 u | PF10SIHP-250/P46 | 1 u | PF15SIHP-250/P46 | 1 u |
| 150 x 10.0 mm | PF5SIHP-150/100 | 1 u | PF10SIHP-150/100 | 1 u | PF15SIHP-150/100 | 1 u |
| 250 x 10.0 mm | PF5SIHP-250/100 | 1 u | PF10SIHP-250/100 | 1 u | PF15SIHP-250/100 | 1 u |
| 50 x 21.2 mm | PF5SIHP-050/212 | 1 u | PF10SIHP-050/212 | 1 u | PF15SIHP-050/212 | 1 u |
| 100 x 21.2 mm | PF5SIHP-100/212 | 1 u | PF10SIHP-100/212 | 1 u | PF15SIHP-100/212 | 1 u |
| 150 x 21.2 mm | PF5SIHP-150/212 | 1 u | PF10SIHP-150/212 | 1 u | PF15SIHP-150/212 | 1 u |
| 250 x 21.2 mm | PF5SIHP-250/212 | 1 u | PF10SIHP-250/212 | 1 u | PF15SIHP-250/212 | 1 u |
| 50 x 30.0 mm | PF5SIHP-050/300 | 1 u | PF10SIHP-050/300 | 1 u | PF15SIHP-050/300 | 1 u |
| 100 x 30.0 mm | PF5SIHP-100/300 | 1 u | PF10SIHP-100/300 | 1 u | PF15SIHP-100/300 | 1 u |
| 150 x 30.0 mm | PF5SIHP-150/300 | 1 u | PF10SIHP-150/300 | 1 u | PF15SIHP-150/300 | 1 u |
| 250 x 30.0 mm | PF5SIHP-250/300 | 1 u | PF10SIHP-250/300 | 1 u | PF15SIHP-250/300 | 1 u |
| 50 x 50.0 mm | PF5SIHP-050/500 | 1 u | PF10SIHP-050/500 | 1 u | PF15SIHP-050/500 | 1 u |
| 250 x 50.0 mm | PF5SIHP-250/500 | 1 u | PF10SIHP-250/500 | 1 u | PF15SIHP-250/500 | 1 u |

Notes: influence of water content of silica.

The water contents are different between the silica gels used to make the TLC plates and the same materials used to make the spherical silica gels for purification

Flash:Silica gel for TLC = 6 - 6.5%

Spherical silica gel for Flash <or = 2.0%



puriFlash® SI-HC

60 Å - 680 m²/g
15, 25 & 50 µm
pH stability: 1.5 to 6.5
Greater loading capacity
& productivity
Low back pressure

puriFlash® SI-HC

| Flash columns | 15 µm | Qty | 25 µm | Qty | 50 µm | Qty |
|---------------|-----------------|------|-----------------|------|-----------------|------|
| F0001 | SC-15SIHC-F0001 | 50 u | --- | --- | --- | --- |
| F0004 | PF-15SIHC-F0004 | 20 u | PF-25SIHC-F0004 | 40 u | PF-50SIHC-F0004 | 40 u |
| F0012 | PF-15SIHC-F0012 | 20 u | PF-25SIHC-F0012 | 30 u | PF-50SIHC-F0012 | 30 u |
| F0025 | PF-15SIHC-F0025 | 12 u | PF-25SIHC-F0025 | 25 u | PF-50SIHC-F0025 | 25 u |
| F0040 | PF-15SIHC-F0040 | 12 u | PF-25SIHC-F0040 | 20 u | PF-50SIHC-F0040 | 20 u |
| F0080 | PF-15SIHC-F0080 | 4 u | PF-25SIHC-F0080 | 10 u | PF-50SIHC-F0080 | 10 u |
| F0120 | PF-15SIHC-F0120 | 4 u | PF-25SIHC-F0120 | 8 u | PF-50SIHC-F0120 | 8 u |
| F0220 | PF-15SIHC-F0220 | 2 u | PF-25SIHC-F0220 | 4 u | PF-50SIHC-F0220 | 4 u |
| F0330 | PF-15SIHC-F0330 | 2 u | PF-25SIHC-F0330 | 4 u | PF-50SIHC-F0330 | 4 u |
| F0800 | --- | --- | PF-25SIHC-F0800 | 1 u | PF-50SIHC-F0800 | 1 u |
| F1600 | --- | --- | PF-25SIHC-F1600 | 1 u | PF-50SIHC-F1600 | 1 u |
| F3000 | --- | --- | 25SIHC-F3000 | 1 u | 50SIHC-F3000 | 1 u |



puriFlash® SI-HC - Jumbo pack

| Flash columns | 15 µm | Qty | 25 µm | Qty | 50 µm | Qty |
|---------------|--------------------|------|--------------------|-------|--------------------|-------|
| F0004 | PF-15SIHC-JP-F0004 | 80 u | PF-25SIHC-JP-F0004 | 160 u | PF-50SIHC-JP-F0004 | 160 u |
| F0012 | PF-15SIHC-JP-F0012 | 80 u | PF-25SIHC-JP-F0012 | 120 u | PF-50SIHC-JP-F0012 | 120 u |
| F0025 | PF-15SIHC-JP-F0025 | 48 u | PF-25SIHC-JP-F0025 | 100 u | PF-50SIHC-JP-F0025 | 100 u |
| F0040 | PF-15SIHC-JP-F0040 | 48 u | PF-25SIHC-JP-F0040 | 80 u | PF-50SIHC-JP-F0040 | 80 u |
| F0080 | PF-15SIHC-JP-F0080 | 16 u | PF-25SIHC-JP-F0080 | 40 u | PF-50SIHC-JP-F0080 | 40 u |
| F0120 | PF-15SIHC-JP-F0120 | 16 u | PF-25SIHC-JP-F0120 | 32 u | PF-50SIHC-JP-F0120 | 32 u |
| F0220 | PF-15SIHC-JP-F0220 | 8 u | PF-25SIHC-JP-F0220 | 16 u | PF-50SIHC-JP-F0220 | 16 u |
| F0330 | PF-15SIHC-JP-F0330 | 8 u | PF-25SIHC-JP-F0330 | 16 u | PF-50SIHC-JP-F0330 | 16 u |
| F0800 | --- | --- | PF-25SIHC-JP-F0800 | 4 u | PF-50SIHC-JP-F0800 | 4 u |
| F1600 | --- | --- | PF-25SIHC-JP-F1600 | 4 u | PF-50SIHC-JP-F1600 | 4 u |

APPLICATION AREA

HPLC
Prep-LC
Flash



Single use columns
General application:
Non-ionic & polar organic molecules

Notes: influence of water content of silica.

The water contents are different between the silica gels used to make the TLC plates and the same materials used to make the spherical silica gels for purification

Flash: Silica gel for TLC = 6 - 6.5%

Spherical silica gel for Flash <or = 2.0%

Uptisphere® Strategy™ SI

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty |
|-----------------|---------------|-----|----------------|-----|
| 250 x 4.6 mm | US5SI-250/P46 | 1 u | US10SI-250/P46 | 1 u |
| 150 x 10.0 mm | US5SI-150/100 | 1 u | US10SI-150/100 | 1 u |
| 250 x 10.0 mm | US5SI-250/100 | 1 u | US10SI-250/100 | 1 u |
| 50 x 21.2 mm | US5SI-050/212 | 1 u | US10SI-050/212 | 1 u |
| 100 x 21.2 mm | US5SI-100/212 | 1 u | US10SI-100/212 | 1 u |
| 150 x 21.2 mm | US5SI-150/212 | 1 u | US10SI-150/212 | 1 u |
| 250 x 21.2 mm | US5SI-250/212 | 1 u | US10SI-250/212 | 1 u |
| 50 x 30.0 mm | US5SI-050/300 | 1 u | US10SI-050/300 | 1 u |
| 100 x 30.0 mm | US5SI-100/300 | 1 u | US10SI-100/300 | 1 u |
| 150 x 30.0 mm | US5SI-150/300 | 1 u | US10SI-150/300 | 1 u |
| 250 x 30.0 mm | US5SI-250/300 | 1 u | US10SI-250/300 | 1 u |
| 50 x 50.0 mm | US5SI-050/500 | 1 u | US10SI-050/500 | 1 u |
| 250 x 50.0 mm | US5SI-250/500 | 1 u | US10SI-250/500 | 1 u |

APPLICATION AREA

HPLC
Prep-LC
Flash



Single use columns
General application:
Non-ionic & polar organic molecules

Notes: influence of water content of silica.

The water contents are different between the silica gels used to make the TLC plates and the same materials used to make the spherical silica gels for purification

Flash: Silica gel for TLC = 6 - 6.5%

Spherical silica gel for Flash <or = 2.0%



LC PURIFICATION

Stationary phase - Normal mode



puriFlash® SI-AgNO₃

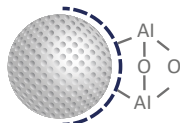
60 Å - 500 m²/g
50 µm
pH stability: 1.5 to 6.5
Purification of
cis/trans stereo-isomers

APPLICATION AREA

HPLC
PrepLC
Flash

Single use columns

General application:
Non-ionic & polar organic molecules



ALN - Neutral

60 Å - 200 m²/g
32/63 µm
pH stability: 1.0 to 12.0
*Natural products, Essential oils,
Antibiotics, Vitamins, Alkaloids...*

APPLICATION AREA

HPLC
PrepLC
Flash

Single use columns

General application:
Non-ionic & polar organic molecules

puriFlash® SI-AgNO₃

| Flash columns | 50 µm | Qty |
|---------------|-----------------|------|
| F0004 | PF-50SIAG-F0004 | 25 u |
| F0012 | PF-50SIAG-F0012 | 12 u |
| F0025 | PF-50SIAG-F0025 | 12 u |
| F0040 | PF-50SIAG-F0040 | 8 u |
| F0080 | PF-50SIAG-F0080 | 4 u |
| F0120 | PF-50SIAG-F0120 | 2 u |
| F0220 | PF-50SIAG-F0220 | 1 u |
| F0330 | PF-50SIAG-F0330 | 1 u |
| F0800 | PF-50SIAG-F0800 | 1 u |
| F1600 | PF-50SIAG-F1600 | 1 u |

Notes: influence of water content of silica.

The water contents are different between the silica gels used to make the TLC plates and the same materials used to make the spherical silica gels for purification

Flash:Silica gel for TLC = 6 - 6.5%

Spherical silica gel for Flash <or = 2.0%

puriFlash® ALN-Neutral

| Flash columns | 32/63 µm | Qty |
|---------------|--------------|------|
| F0001 | SC-ALN-F0001 | 25 u |
| F0004 | PF-ALN-F0004 | 8 u |
| F0012 | PF-ALN-F0012 | 4 u |
| F0025 | PF-ALN-F0025 | 4 u |
| F0040 | PF-ALN-F0040 | 4 u |
| F0080 | PF-ALN-F0080 | 2 u |
| F0120 | PF-ALN-F0120 | 2 u |
| F0220 | PF-ALN-F0220 | 2 u |
| F0330 | PF-ALN-F0330 | 1 u |
| F0800 | PF-ALN-F0800 | 1 u |
| F1600 | PF-ALN-F1600 | 1 u |

Notes: influence of water content of silica.

The water contents are different between the silica gels used to make the TLC plates and the same materials used to make the spherical silica gels for purification

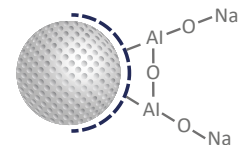
Flash:Silica gel for TLC = 6 - 6.5%

Spherical silica gel for Flash <or = 2.0%



puriFlash® ALB - Basique

| Flash columns | 32/63 µm | Qty |
|---------------|--------------|-----|
| F0004 | PF-ALB-F0004 | 8 u |
| F0012 | PF-ALB-F0012 | 4 u |
| F0025 | PF-ALB-F0025 | 4 u |
| F0040 | PF-ALB-F0040 | 4 u |
| F0080 | PF-ALB-F0080 | 2 u |
| F0120 | PF-ALB-F0120 | 2 u |
| F0220 | PF-ALB-F0220 | 2 u |
| F0330 | PF-ALB-F0330 | 1 u |
| F0800 | PF-ALB-F0800 | 1 u |
| F1600 | PF-ALB-F1600 | 1 u |



ALB - Basic

60 Å - 200 m²/g
32/63 µm
pH stability: 1.0 to 12.0
Extraction of plants, purification
organic solvents, Alkaloids...

APPLICATION AREA

HPLC ○
Prep-LC ○
Flash ●

Single use columns

General application:
Non-ionic & polar organic molecules

APPLICATION AREA

HPLC ○
Prep-LC ○
Flash ●

USP code : L1

Reusable column

General application:
Medium and high apolar organic compounds

Notes: influence of water content of silica.
The water contents are different between the silica gels used to make the TLC plates and the same materials used to make the spherical silica gels for purification
Flash: Silica gel for TLC = 6 - 6.5%
Spherical silica gel for Flash <or = 2.0%

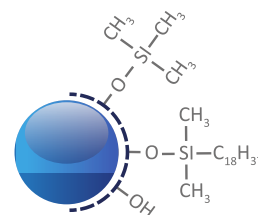
Reverse phase

puriFlash® C18-STD

| Flash columns | 50 µm | Qty |
|---------------|----------------|-----|
| F0004 | IR-50C18-F0004 | 4 u |
| F0012 | IR-50C18-F0012 | 2 u |
| F0025 | IR-50C18-F0025 | 1 u |
| F0040 | IR-50C18-F0040 | 1 u |
| F0080 | IR-50C18-F0080 | 1 u |
| F0120 | IR-50C18-F0120 | 1 u |
| F0220 | IR-50C18-F0220 | 1 u |
| F0330 | IR-50C18-F0330 | 1 u |
| F0800 | IR-50C18-F0800 | 1 u |
| F1600 | IR-50C18-F1600 | 1 u |
| F5000 | IR-50C18-F5000 | 1 u |
| F10K | IR-50C18-F10K | 1 u |

Uptisphere® Strategy™ C18-HQ

| Flash columns | 15 µm | Qty |
|---------------|------------------|------|
| F0001 | SC-15C18HQ-F0001 | 25 u |
| F0004 | PF-15C18HQ-F0004 | 4 u |
| F0012 | PF-15C18HQ-F0012 | 2 u |
| F0025 | PF-15C18HQ-F0025 | 1 u |
| F0040 | PF-15C18HQ-F0040 | 1 u |
| F0080 | PF-15C18HQ-F0080 | 1 u |
| F0120 | PF-15C18HQ-F0120 | 1 u |
| F0220 | PF-15C18HQ-F0220 | 1 u |
| F0330 | PF-15C18HQ-F0330 | 1 u |



Uptisphere® Strategy™ C18-HQ

100 Å - 425 m²/g
1.7, 2.2, 3, 5, 10, 15 µm
C18 Mono-functional
%C: 19
End-capping: Multi-step
pH stability: 1.0 to 10.0
Suitable for many pharmaceutical
applications and routine methods.
Its specific surface area of 425m²/g
gives it a high loading capacity.



APPLICATION AREA

HPLC
Prep-LC
Flash

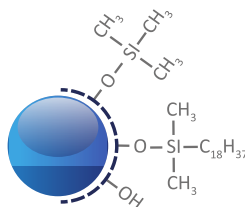


USP code: L1

Reusable column

General application:

Medium and high apolar organic compounds



puriFlash® C18-HP

100 Å - 300 m²/g
5, 10, 15, 30 & 50 µm
C18 Mono-functional
%C: 16.5

End-capping: One-step
pH stability: 1.5 to 7.5

Suitable for multiple pharmaceutical
applications.

This is an excellent choice for routine
reverse phase purifications.

APPLICATION AREA

HPLC
Prep-LC
Flash



USP code: L1

Reusable column

General application:

Medium and high apolar organic compounds

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|------------------|-----|-------------------|-----|-------------------|-----|
| 250 x 4.6 mm | US5C18HQ-250/P46 | 1 u | US10C18HQ-250/P46 | 1 u | US15C18HQ-250/P46 | 1 u |
| 150 x 10.0 mm | US5C18HQ-150/100 | 1 u | US10C18HQ-150/100 | 1 u | US15C18HQ-150/100 | 1 u |
| 250 x 10.0 mm | US5C18HQ-250/100 | 1 u | US10C18HQ-250/100 | 1 u | US15C18HQ-250/100 | 1 u |
| 50 x 21.2 mm | US5C18HQ-050/212 | 1 u | US10C18HQ-050/212 | 1 u | US15C18HQ-050/212 | 1 u |
| 100 x 21.2 mm | US5C18HQ-100/212 | 1 u | US10C18HQ-100/212 | 1 u | US15C18HQ-100/212 | 1 u |
| 150 x 21.2 mm | US5C18HQ-150/212 | 1 u | US10C18HQ-150/212 | 1 u | US15C18HQ-150/212 | 1 u |
| 250 x 21.2 mm | US5C18HQ-250/212 | 1 u | US10C18HQ-250/212 | 1 u | US15C18HQ-250/212 | 1 u |
| 50 x 30.0 mm | US5C18HQ-050/300 | 1 u | US10C18HQ-050/300 | 1 u | US15C18HQ-050/300 | 1 u |
| 100 x 30.0 mm | US5C18HQ-100/300 | 1 u | US10C18HQ-100/300 | 1 u | US15C18HQ-100/300 | 1 u |
| 150 x 30.0 mm | US5C18HQ-150/300 | 1 u | US10C18HQ-150/300 | 1 u | US15C18HQ-150/300 | 1 u |
| 250 x 30.0 mm | US5C18HQ-250/300 | 1 u | US10C18HQ-250/300 | 1 u | US15C18HQ-250/300 | 1 u |
| 50 x 50.0 mm | US5C18HQ-050/500 | 1 u | US10C18HQ-050/500 | 1 u | US15C18HQ-050/500 | 1 u |
| 250 x 50.0 mm | US5C18HQ-250/500 | 1 u | US10C18HQ-250/500 | 1 u | US15C18HQ-250/500 | 1 u |

puriFlash® C18-HP

| Flash columns | 15 µm | Qty | 30 µm | Qty | 50 µm | Qty |
|---------------|------------------|------|------------------|-----|------------------|-----|
| F0001 | SC-15C18HP-F0001 | 25 u | --- | --- | --- | --- |
| F0004 | PF-15C18HP-F0004 | 4 u | PF-30C18HP-F0004 | 4 u | PF-50C18HP-F0004 | 4 u |
| F0012 | PF-15C18HP-F0012 | 2 u | PF-30C18HP-F0012 | 2 u | PF-50C18HP-F0012 | 2 u |
| F0025 | PF-15C18HP-F0025 | 1 u | PF-30C18HP-F0025 | 1 u | PF-50C18HP-F0025 | 1 u |
| F0040 | PF-15C18HP-F0040 | 1 u | PF-30C18HP-F0040 | 1 u | PF-50C18HP-F0040 | 1 u |
| F0080 | PF-15C18HP-F0080 | 1 u | PF-30C18HP-F0080 | 1 u | PF-50C18HP-F0080 | 1 u |
| F0120 | PF-15C18HP-F0120 | 1 u | PF-30C18HP-F0120 | 1 u | PF-50C18HP-F0120 | 1 u |
| F0220 | PF-15C18HP-F0220 | 1 u | PF-30C18HP-F0220 | 1 u | PF-50C18HP-F0220 | 1 u |
| F0330 | PF-15C18HP-F0330 | 1 u | PF-30C18HP-F0330 | 1 u | PF-50C18HP-F0330 | 1 u |
| F0800 | --- | --- | PF-30C18HP-F0800 | 1 u | PF-50C18HP-F0800 | 1 u |
| F1600 | --- | --- | PF-30C18HP-F1600 | 1 u | PF-50C18HP-F1600 | 1 u |
| F3000 | --- | --- | PF-30C18HP-F3000 | 1 u | PF-50C18HP-F3000 | 1 u |
| F5000 | --- | --- | PF-30C18HP-F5000 | 1 u | PF-50C18HP-F5000 | 1 u |
| F10K | --- | --- | PF-30C18HP-F10K | 1 u | PF-50C18HP-F10K | 1 u |

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|------------------|-----|-------------------|-----|-------------------|-----|
| 250 x 4.6 mm | PF5C18HP-250/P46 | 1 u | PF10C18HP-250/P46 | 1 u | PF15C18HP-250/P46 | 1 u |
| 150 x 10.0 mm | PF5C18HP-150/100 | 1 u | PF10C18HP-150/100 | 1 u | PF15C18HP-150/100 | 1 u |
| 250 x 10.0 mm | PF5C18HP-250/100 | 1 u | PF10C18HP-250/100 | 1 u | PF15C18HP-250/100 | 1 u |
| 50 x 21.2 mm | PF5C18HP-050/212 | 1 u | PF10C18HP-050/212 | 1 u | PF15C18HP-050/212 | 1 u |
| 100 x 21.2 mm | PF5C18HP-100/212 | 1 u | PF10C18HP-100/212 | 1 u | PF15C18HP-100/212 | 1 u |
| 150 x 21.2 mm | PF5C18HP-150/212 | 1 u | PF10C18HP-150/212 | 1 u | PF15C18HP-150/212 | 1 u |
| 250 x 21.2 mm | PF5C18HP-250/212 | 1 u | PF10C18HP-250/212 | 1 u | PF15C18HP-250/212 | 1 u |
| 50 x 30.0 mm | PF5C18HP-050/300 | 1 u | PF10C18HP-050/300 | 1 u | PF15C18HP-050/300 | 1 u |
| 100 x 30.0 mm | PF5C18HP-100/300 | 1 u | PF10C18HP-100/300 | 1 u | PF15C18HP-100/300 | 1 u |
| 150 x 30.0 mm | PF5C18HP-150/300 | 1 u | PF10C18HP-150/300 | 1 u | PF15C18HP-150/300 | 1 u |
| 250 x 30.0 mm | PF5C18HP-250/300 | 1 u | PF10C18HP-250/300 | 1 u | PF15C18HP-250/300 | 1 u |
| 50 x 50.0 mm | PF5C18HP-050/500 | 1 u | PF10C18HP-050/500 | 1 u | PF15C18HP-050/500 | 1 u |
| 250 x 50.0 mm | PF5C18HP-250/500 | 1 u | PF10C18HP-250/500 | 1 u | PF15C18HP-250/500 | 1 u |



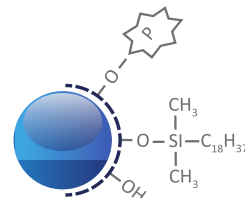
puriFlash® C18-AQ

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|------------------|------|------------------|-----|
| F0001 | SC-15C18AQ-F0001 | 25 u | --- | --- |
| F0004 | PF-15C18AQ-F0004 | 4 u | PF-30C18AQ-F0004 | 4 u |
| F0012 | PF-15C18AQ-F0012 | 2 u | PF-30C18AQ-F0012 | 2 u |
| F0025 | PF-15C18AQ-F0025 | 1 u | PF-30C18AQ-F0025 | 1 u |
| F0040 | PF-15C18AQ-F0040 | 1 u | PF-30C18AQ-F0040 | 1 u |
| F0080 | PF-15C18AQ-F0080 | 1 u | PF-30C18AQ-F0080 | 1 u |
| F0120 | PF-15C18AQ-F0120 | 1 u | PF-30C18AQ-F0120 | 1 u |
| F0220 | PF-15C18AQ-F0220 | 1 u | PF-30C18AQ-F0220 | 1 u |
| F0330 | PF-15C18AQ-F0330 | 1 u | PF-30C18AQ-F0330 | 1 u |
| F0800 | --- | --- | PF-30C18AQ-F0800 | 1 u |
| F1600 | --- | --- | PF-30C18AQ-F1600 | 1 u |
| F3000 | --- | --- | PF-30C18AQ-F3000 | 1 u |
| F5000 | --- | --- | PF-30C18AQ-F5000 | 1 u |
| F10K | --- | --- | PF-30C18AQ-F10K | 1 u |

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|------------------|-----|-------------------|-----|-------------------|-----|
| 250 x 4.6 mm | PF5C18AQ-250/P46 | 1 u | PF10C18AQ-250/P46 | 1 u | PF15C18AQ-250/P46 | 1 u |
| 150 x 10.0 mm | PF5C18AQ-150/100 | 1 u | PF10C18AQ-150/100 | 1 u | PF15C18AQ-150/100 | 1 u |
| 250 x 10.0 mm | PF5C18AQ-250/100 | 1 u | PF10C18AQ-250/100 | 1 u | PF15C18AQ-250/100 | 1 u |
| 50 x 21.2 mm | PF5C18AQ-050/212 | 1 u | PF10C18AQ-050/212 | 1 u | PF15C18AQ-050/212 | 1 u |
| 100 x 21.2 mm | PF5C18AQ-100/212 | 1 u | PF10C18AQ-100/212 | 1 u | PF15C18AQ-100/212 | 1 u |
| 150 x 21.2 mm | PF5C18AQ-150/212 | 1 u | PF10C18AQ-150/212 | 1 u | PF15C18AQ-150/212 | 1 u |
| 250 x 21.2 mm | PF5C18AQ-250/212 | 1 u | PF10C18AQ-250/212 | 1 u | PF15C18AQ-250/212 | 1 u |
| 50 x 30.0 mm | PF5C18AQ-050/300 | 1 u | PF10C18AQ-050/300 | 1 u | PF15C18AQ-050/300 | 1 u |
| 100 x 30.0 mm | PF5C18AQ-100/300 | 1 u | PF10C18AQ-100/300 | 1 u | PF15C18AQ-100/300 | 1 u |
| 150 x 30.0 mm | PF5C18AQ-150/300 | 1 u | PF10C18AQ-150/300 | 1 u | PF15C18AQ-150/300 | 1 u |
| 250 x 30.0 mm | PF5C18AQ-250/300 | 1 u | PF10C18AQ-250/300 | 1 u | PF15C18AQ-250/300 | 1 u |
| 50 x 50.0 mm | PF5C18AQ-050/500 | 1 u | PF10C18AQ-050/500 | 1 u | PF15C18AQ-050/500 | 1 u |
| 250 x 50.0 mm | PF5C18AQ-250/500 | 1 u | PF10C18AQ-250/500 | 1 u | PF15C18AQ-250/500 | 1 u |

puriFlash® RP-AQ

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|-----------------|------|-----------------|-----|
| F0001 | SC-15RPAQ-F0001 | 25 u | --- | --- |
| F0004 | PF-15RPAQ-F0004 | 4 u | PF-30RPAQ-F0004 | 4 u |
| F0012 | PF-15RPAQ-F0012 | 2 u | PF-30RPAQ-F0012 | 2 u |
| F0025 | PF-15RPAQ-F0025 | 1 u | PF-30RPAQ-F0025 | 1 u |
| F0040 | PF-15RPAQ-F0040 | 1 u | PF-30RPAQ-F0040 | 1 u |
| F0080 | PF-15RPAQ-F0080 | 1 u | PF-30RPAQ-F0080 | 1 u |
| F0120 | PF-15RPAQ-F0120 | 1 u | PF-30RPAQ-F0120 | 1 u |
| F0220 | PF-15RPAQ-F0220 | 1 u | PF-30RPAQ-F0220 | 1 u |
| F0330 | PF-15RPAQ-F0330 | 1 u | PF-30RPAQ-F0330 | 1 u |
| F0800 | --- | --- | PF-30RPAQ-F0800 | 1 u |



puriFlash® C18-AQ

100 Å - 300 m²/g
5, 10, 15 & 30 µm
C18 Mono-functional
%C: 14

End-capping: Mixte
pH stability: 2.0 to 7.5
The bonding chemistry makes it possible to start the gradient at 100% water. Suitable for the separation and purification of moderately polar and non-polar molecules.

APPLICATION AREA

HPLC
Prep-LC
Flash

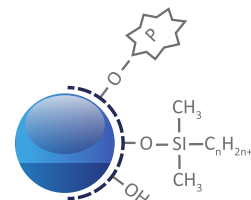


USP code: L1

Reusable column

General application:

Medium and high apolar organic compounds



puriFlash® RP-AQ

60 Å - 500 m²/g
15 & 30 µm
RP-alkyl
%C: 6

End-capping: Mixte
pH stability: 2.0 to 7.5
The bonding chemistry makes it possible to start the gradient at 100% water. Suitable for the separation and purification of strongly and moderately polar molecules. Compared to a C18, the peaks are eluted earlier from the beginning of the gradient.



LC PURIFICATION

Stationary phase - Reverse mode

APPLICATION AREA

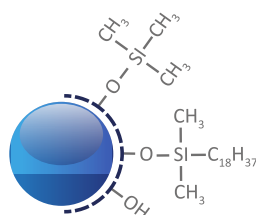
HPLC ●
 PrepLC ●
 Flash ●

USP code: L1

Reusable column

General application:

Medium and high apolar organic compounds



puriFlash® C18-XS

100 Å - 300 m²/g

5, 10, 15 & 30 µm

C18 Mono-functional

%C: 17

End-capping: Multi-step

pH stability: 1 to 10.0

The proprietary end-capping multi-step technology ensures stability under high pH conditions, up to 10.

It is an excellent phase for the complete separation of basic molecules.

APPLICATION AREA

HPLC ●
 PrepLC ●
 Flash ●

USP code: L1

Reusable column

General application:

Medium and high apolar organic compounds

| Prep-LC columns | 15 µm | Qty |
|-----------------|------------------|-----|
| 250 x 4.6 mm | PF15RPAQ-250/P46 | 1 u |
| 150 x 10.0 mm | PF15RPAQ-150/100 | 1 u |
| 250 x 10.0 mm | PF15RPAQ-250/100 | 1 u |
| 50 x 21.2 mm | PF15RPAQ-050/212 | 1 u |
| 100 x 21.2 mm | PF15RPAQ-100/212 | 1 u |
| 150 x 21.2 mm | PF15RPAQ-150/212 | 1 u |
| 250 x 21.2 mm | PF15RPAQ-250/212 | 1 u |
| 50 x 30.0 mm | PF15RPAQ-050/300 | 1 u |
| 100 x 30.0 mm | PF15RPAQ-100/300 | 1 u |
| 150 x 30.0 mm | PF15RPAQ-150/300 | 1 u |
| 250 x 30.0 mm | PF15RPAQ-250/300 | 1 u |
| 50 x 50.0 mm | PF15RPAQ-050/500 | 1 u |
| 250 x 50.0 mm | PF15RPAQ-250/500 | 1 u |

puriFlash® C18-XS

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|------------------|------|------------------|-----|
| F0001 | SC-15C18XS-F0001 | 25 u | --- | --- |
| F0004 | PF-15C18XS-F0004 | 4 u | PF-30C18XS-F0004 | 4 u |
| F0012 | PF-15C18XS-F0012 | 2 u | PF-30C18XS-F0012 | 2 u |
| F0025 | PF-15C18XS-F0025 | 1 u | PF-30C18XS-F0025 | 1 u |
| F0040 | PF-15C18XS-F0040 | 1 u | PF-30C18XS-F0040 | 1 u |
| F0080 | PF-15C18XS-F0080 | 1 u | PF-30C18XS-F0080 | 1 u |
| F0120 | PF-15C18XS-F0120 | 1 u | PF-30C18XS-F0120 | 1 u |
| F0220 | PF-15C18XS-F0220 | 1 u | PF-30C18XS-F0220 | 1 u |
| F0330 | PF-15C18XS-F0330 | 1 u | PF-30C18XS-F0330 | 1 u |
| F0800 | --- | --- | PF-30C18XS-F0800 | 1 u |
| F1600 | --- | --- | PF-30C18XS-F1600 | 1 u |

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|------------------|-----|-------------------|-----|-------------------|-----|
| 250 x 4.6 mm | PF5C18XS-250/P46 | 1 u | PF10C18XS-250/P46 | 1 u | PF15C18XS-250/P46 | 1 u |
| 150 x 10.0 mm | PF5C18XS-150/100 | 1 u | PF10C18XS-150/100 | 1 u | PF15C18XS-150/100 | 1 u |
| 250 x 10.0 mm | PF5C18XS-250/100 | 1 u | PF10C18XS-250/100 | 1 u | PF15C18XS-250/100 | 1 u |
| 50 x 21.2 mm | PF5C18XS-050/212 | 1 u | PF10C18XS-050/212 | 1 u | PF15C18XS-050/212 | 1 u |
| 100 x 21.2 mm | PF5C18XS-100/212 | 1 u | PF10C18XS-100/212 | 1 u | PF15C18XS-100/212 | 1 u |
| 150 x 21.2 mm | PF5C18XS-150/212 | 1 u | PF10C18XS-150/212 | 1 u | PF15C18XS-150/212 | 1 u |
| 250 x 21.2 mm | PF5C18XS-250/212 | 1 u | PF10C18XS-250/212 | 1 u | PF15C18XS-250/212 | 1 u |
| 50 x 30.0 mm | PF5C18XS-050/300 | 1 u | PF10C18XS-050/300 | 1 u | PF15C18XS-050/300 | 1 u |
| 100 x 30.0 mm | PF5C18XS-100/300 | 1 u | PF10C18XS-100/300 | 1 u | PF15C18XS-100/300 | 1 u |
| 150 x 30.0 mm | PF5C18XS-150/300 | 1 u | PF10C18XS-150/300 | 1 u | PF15C18XS-150/300 | 1 u |
| 250 x 30.0 mm | PF5C18XS-250/300 | 1 u | PF10C18XS-250/300 | 1 u | PF15C18XS-250/300 | 1 u |
| 50 x 50.0 mm | PF5C18XS-050/500 | 1 u | PF10C18XS-050/500 | 1 u | PF15C18XS-050/500 | 1 u |
| 250 x 50.0 mm | PF5C18XS-250/500 | 1 u | PF10C18XS-250/500 | 1 u | PF15C18XS-250/500 | 1 u |



Uptisphere® Strategy™ C18-3

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|-----------------|-----|------------------|-----|------------------|-----|
| 250 x 4.6 mm | US5C183-250/P46 | 1 u | US10C183-250/P46 | 1 u | US15C183-250/P46 | 1 u |
| 150 x 10.0 mm | US5C183-150/100 | 1 u | US10C183-150/100 | 1 u | US15C183-150/100 | 1 u |
| 250 x 10.0 mm | US5C183-250/100 | 1 u | US10C183-250/100 | 1 u | US15C183-250/100 | 1 u |
| 50 x 21.2 mm | US5C183-050/212 | 1 u | US10C183-050/212 | 1 u | US15C183-050/212 | 1 u |
| 100 x 21.2 mm | US5C183-100/212 | 1 u | US10C183-100/212 | 1 u | US15C183-100/212 | 1 u |
| 150 x 21.2 mm | US5C183-150/212 | 1 u | US10C183-150/212 | 1 u | US15C183-150/212 | 1 u |
| 250 x 21.2 mm | US5C183-250/212 | 1 u | US10C183-250/212 | 1 u | US15C183-250/212 | 1 u |
| 50 x 30.0 mm | US5C183-050/300 | 1 u | US10C183-050/300 | 1 u | US15C183-050/300 | 1 u |
| 100 x 30.0 mm | US5C183-100/300 | 1 u | US10C183-100/300 | 1 u | US15C183-100/300 | 1 u |
| 150 x 30.0 mm | US5C183-150/300 | 1 u | US10C183-150/300 | 1 u | US15C183-150/300 | 1 u |
| 250 x 30.0 mm | US5C183-250/300 | 1 u | US10C183-250/300 | 1 u | US15C183-250/300 | 1 u |
| 50 x 50.0 mm | US5C183-050/500 | 1 u | US10C183-050/500 | 1 u | US15C183-050/500 | 1 u |
| 250 x 50.0 mm | US5C183-250/500 | 1 u | US10C183-250/500 | 1 u | US15C183-250/500 | 1 u |

| APPLICATION AREA | |
|------------------|---|
| HPLC | ● |
| Prep-LC | ● |
| Flash | ○ |

USP code: L1

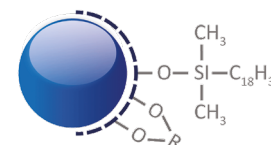
Reusable column

General application:

Medium and high apolar organic compounds

Uptisphere® Strategy™ C18-RP

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|---------------|-----|----------------|-----|----------------|-----|
| 250 x 4.6 mm | US5RP-250/P46 | 1 u | US10RP-250/P46 | 1 u | US15RP-250/P46 | 1 u |
| 150 x 10.0 mm | US5RP-150/100 | 1 u | US10RP-150/100 | 1 u | US15RP-150/100 | 1 u |
| 250 x 10.0 mm | US5RP-250/100 | 1 u | US10RP-250/100 | 1 u | US15RP-250/100 | 1 u |
| 50 x 21.2 mm | US5RP-050/212 | 1 u | US10RP-050/212 | 1 u | US15RP-050/212 | 1 u |
| 100 x 21.2 mm | US5RP-100/212 | 1 u | US10RP-100/212 | 1 u | US15RP-100/212 | 1 u |
| 150 x 21.2 mm | US5RP-150/212 | 1 u | US10RP-150/212 | 1 u | US15RP-150/212 | 1 u |
| 250 x 21.2 mm | US5RP-250/212 | 1 u | US10RP-250/212 | 1 u | US15RP-250/212 | 1 u |
| 50 x 30.0 mm | US5RP-050/300 | 1 u | US10RP-050/300 | 1 u | US15RP-050/300 | 1 u |
| 100 x 30.0 mm | US5RP-100/300 | 1 u | US10RP-100/300 | 1 u | US15RP-100/300 | 1 u |
| 150 x 30.0 mm | US5RP-150/300 | 1 u | US10RP-150/300 | 1 u | US15RP-150/300 | 1 u |
| 250 x 30.0 mm | US5RP-250/300 | 1 u | US10RP-250/300 | 1 u | US15RP-250/300 | 1 u |
| 50 x 50.0 mm | US5RP-050/500 | 1 u | US10RP-050/500 | 1 u | US15RP-050/500 | 1 u |
| 250 x 50.0 mm | US5RP-250/500 | 1 u | US10RP-250/500 | 1 u | US15RP-250/500 | 1 u |



Uptisphere® Strategy™
C18-RP

| APPLICATION AREA | |
|------------------|---|
| HPLC | ● |
| Prep-LC | ● |
| Flash | ○ |

USP code: L1

Reusable column

General application:

Medium and high apolar organic compounds

Uptisphere® Strategy™ C18-NEC

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|----------------|-----|-----------------|-----|-----------------|-----|
| 250 x 4.6 mm | UP5NEP-250/P46 | 1 u | UP10NEP-250/P46 | 1 u | UP15NEP-250/P46 | 1 u |
| 150 x 10.0 mm | UP5NEP-150/100 | 1 u | UP10NEP-150/100 | 1 u | UP15NEP-150/100 | 1 u |
| 250 x 10.0 mm | UP5NEP-250/100 | 1 u | UP10NEP-250/100 | 1 u | UP15NEP-250/100 | 1 u |
| 50 x 21.2 mm | UP5NEP-050/212 | 1 u | UP10NEP-050/212 | 1 u | UP15NEP-050/212 | 1 u |
| 100 x 21.2 mm | UP5NEP-100/212 | 1 u | UP10NEP-100/212 | 1 u | UP15NEP-100/212 | 1 u |
| 150 x 21.2 mm | UP5NEP-150/212 | 1 u | UP10NEP-150/212 | 1 u | UP15NEP-150/212 | 1 u |
| 250 x 21.2 mm | UP5NEP-250/212 | 1 u | UP10NEP-250/212 | 1 u | UP15NEP-250/212 | 1 u |
| 50 x 30.0 mm | UP5NEP-050/300 | 1 u | UP10NEP-050/300 | 1 u | UP15NEP-050/300 | 1 u |
| 100 x 30.0 mm | UP5NEP-100/300 | 1 u | UP10NEP-100/300 | 1 u | UP15NEP-100/300 | 1 u |
| 150 x 30.0 mm | UP5NEP-150/300 | 1 u | UP10NEP-150/300 | 1 u | UP15NEP-150/300 | 1 u |
| 250 x 30.0 mm | UP5NEP-250/300 | 1 u | UP10NEP-250/300 | 1 u | UP15NEP-250/300 | 1 u |
| 50 x 50.0 mm | UP5NEP-050/500 | 1 u | UP10NEP-050/500 | 1 u | UP15NEP-050/500 | 1 u |
| 250 x 50.0 mm | UP5NEP-250/500 | 1 u | UP10NEP-250/500 | 1 u | UP15NEP-250/500 | 1 u |

| APPLICATION AREA | |
|------------------|---|
| HPLC | ● |
| Prep-LC | ● |
| Flash | ○ |

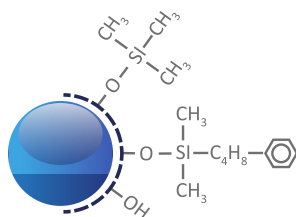
USP code: L1

Reusable column

General application:

Medium and high apolar organic compounds





Uptisphere® Strategy™ PHC4

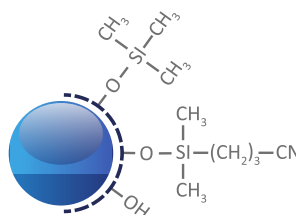
100 Å - 300 m²/g
2.2, 3, 5, 10, 15 µm
PH C4 Mono-functional
%C: 12

End-capping: One-step
pH stability: 1.5 to 7.5

Very selective for compounds having
aromatic rings
and moderately polar compounds.

APPLICATION AREA

HPLC ●
PrepLC ●
Flash ●



puriFlash® CN

60 Å - 500 m²/g
15 & 50 µm
CN Mono-functional
%C: 5

End-capping: One-step
pH stability: 1.5 to 7.5

Used in normal mode to purify polar
compounds and in reverse mode for
moderately polar.

APPLICATION AREA

HPLC ○
PrepLC ○
Flash ●

Reverse phase

Uptisphere® Strategy™ PHC4

| Flash columns | 15 µm | Qty |
|---------------|-----------------|------|
| F0001 | SC-15PHC4-F0001 | 25 u |
| F0004 | PF-15PHC4-F0004 | 4 u |
| F0012 | PF-15PHC4-F0012 | 2 u |
| F0025 | PF-15PHC4-F0025 | 1 u |
| F0040 | PF-15PHC4-F0040 | 1 u |
| F0080 | PF-15PHC4-F0080 | 1 u |
| F0120 | PF-15PHC4-F0120 | 1 u |
| F0220 | PF-15PHC4-F0220 | 1 u |
| F0330 | PF-15PHC4-F0330 | 1 u |

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|-----------------|-----|------------------|-----|------------------|-----|
| 250 x 4.6 mm | US5PHC4-250/P46 | 1 u | US10PHC4-250/P46 | 1 u | US15PHC4-250/P46 | 1 u |
| 150 x 10.0 mm | US5PHC4-150/100 | 1 u | US10PHC4-150/100 | 1 u | US15PHC4-150/100 | 1 u |
| 250 x 10.0 mm | US5PHC4-250/100 | 1 u | US10PHC4-250/100 | 1 u | US15PHC4-250/100 | 1 u |
| 50 x 21.2 mm | US5PHC4-050/212 | 1 u | US10PHC4-050/212 | 1 u | US15PHC4-050/212 | 1 u |
| 100 x 21.2 mm | US5PHC4-100/212 | 1 u | US10PHC4-100/212 | 1 u | US15PHC4-100/212 | 1 u |
| 150 x 21.2 mm | US5PHC4-150/212 | 1 u | US10PHC4-150/212 | 1 u | US15PHC4-150/212 | 1 u |
| 250 x 21.2 mm | US5PHC4-250/212 | 1 u | US10PHC4-250/212 | 1 u | US15PHC4-250/212 | 1 u |
| 50 x 30.0 mm | US5PHC4-050/300 | 1 u | US10PHC4-050/300 | 1 u | US15PHC4-050/300 | 1 u |
| 100 x 30.0 mm | US5PHC4-100/300 | 1 u | US10PHC4-100/300 | 1 u | US15PHC4-100/300 | 1 u |
| 150 x 30.0 mm | US5PHC4-150/300 | 1 u | US10PHC4-150/300 | 1 u | US15PHC4-150/300 | 1 u |
| 250 x 30.0 mm | US5PHC4-250/300 | 1 u | US10PHC4-250/300 | 1 u | US15PHC4-250/300 | 1 u |
| 50 x 50.0 mm | US5PHC4-050/500 | 1 u | US10PHC4-050/500 | 1 u | US15PHC4-050/500 | 1 u |
| 250 x 50.0 mm | US5PHC4-250/500 | 1 u | US10PHC4-250/500 | 1 u | US15PHC4-250/500 | 1 u |

Reverse phase / normal

puriFlash® CN

| Flash columns | 15 µm | Qty | 50 µm | Qty |
|---------------|---------------|-----|---------------|-----|
| F0004 | PF-15CN-F0004 | 4 u | PF-50CN-F0004 | 4 u |
| F0012 | PF-15CN-F0012 | 2 u | PF-50CN-F0012 | 2 u |
| F0025 | PF-15CN-F0025 | 1 u | PF-50CN-F0025 | 1 u |
| F0040 | PF-15CN-F0040 | 1 u | PF-50CN-F0040 | 1 u |
| F0080 | PF-15CN-F0080 | 1 u | PF-50CN-F0080 | 1 u |
| F0120 | PF-15CN-F0120 | 1 u | PF-50CN-F0120 | 1 u |
| F0220 | PF-15CN-F0220 | 1 u | PF-50CN-F0220 | 1 u |
| F0330 | PF-15CN-F0330 | 1 u | PF-50CN-F0330 | 1 u |
| F0800 | — | — | PF-50CN-F0800 | 1 u |
| F1600 | — | — | PF-50CN-F1600 | 1 u |



Uptisphere® CN

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty |
|-----------------|---------------|-----|----------------|-----|
| 250 x 4.6 mm | UP5CN-250/P46 | 1 u | UP10CN-250/P46 | 1 u |
| 150 x 10.0 mm | UP5CN-150/100 | 1 u | UP10CN-150/100 | 1 u |
| 250 x 10.0 mm | UP5CN-250/100 | 1 u | UP10CN-250/100 | 1 u |
| 50 x 21.2 mm | UP5CN-050/212 | 1 u | UP10CN-050/212 | 1 u |
| 100 x 21.2 mm | UP5CN-100/212 | 1 u | UP10CN-100/212 | 1 u |
| 150 x 21.2 mm | UP5CN-150/212 | 1 u | UP10CN-150/212 | 1 u |
| 250 x 21.2 mm | UP5CN-250/212 | 1 u | UP10CN-250/212 | 1 u |
| 50 x 30.0 mm | UP5CN-050/300 | 1 u | UP10CN-050/300 | 1 u |
| 100 x 30.0 mm | UP5CN-100/300 | 1 u | UP10CN-100/300 | 1 u |
| 150 x 30.0 mm | UP5CN-150/300 | 1 u | UP10CN-150/300 | 1 u |
| 250 x 30.0 mm | UP5CN-250/300 | 1 u | UP10CN-250/300 | 1 u |
| 50 x 50.0 mm | UP5CN-050/500 | 1 u | UP10CN-050/500 | 1 u |
| 250 x 50.0 mm | UP5CN-250/500 | 1 u | UP10CN-250/500 | 1 u |

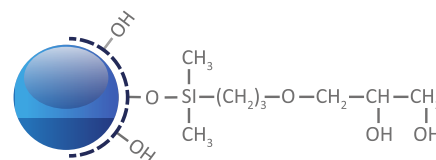
APPLICATION AREA

HPLC ●
 Prep-LC ●
 Flash ○

Normal phase / Hilic puriFlash® Diol

| Flash columns | 15 µm | Qty | 30 µm | Qty | 50 µm | Qty |
|---------------|----------------|-----|-----------------|-----|----------------|-----|
| F0004 | PF-15DIOLF0004 | 4 u | PF-30DIOLF0004 | 4 u | PF-50DIOLF0004 | 4 u |
| F0012 | PF-15DIOLF0012 | 2 u | PF-30DIOLF0012 | 2 u | PF-50DIOLF0012 | 2 u |
| F0025 | PF-15DIOLF0025 | 1 u | PF-30DIOLF0025 | 1 u | PF-50DIOLF0025 | 1 u |
| F0040 | PF-15DIOLF0040 | 1 u | PF-30DIOLF0040 | 1 u | PF-50DIOLF0040 | 1 u |
| F0080 | PF-15DIOLF0080 | 1 u | PF-30DIOLF0080 | 1 u | PF-50DIOLF0080 | 1 u |
| F0120 | PF-15DIOLF0120 | 1 u | PF-30DIOLF0120 | 1 u | PF-50DIOLF0120 | 1 u |
| F0220 | PF-15DIOLF0220 | 1 u | PF-30DIOLF0220 | 1 u | PF-50DIOLF0220 | 1 u |
| F0330 | PF-15DIOLF0330 | 1 u | PF-30DIOLF0330 | 1 u | PF-50DIOLF0330 | 1 u |
| F0800 | --- | --- | PF-30DIOLF08000 | 1 u | PF-50DIOLF0800 | 1 u |
| F1600 | --- | --- | PF-30DIOLF1600 | 1 u | PF-50DIOLF1600 | 1 u |

| Prep-LC columns | 6 µm | Qty | 30 µm | Qty | 50 µm | Qty |
|-----------------|----------------|-----|----------------|-----|----------------|-----|
| 250 x 4.6 mm | PF-6HO-250/P46 | 1 u | PF10OH-250/P46 | 1 u | PF15OH-250/P46 | 1 u |
| 150 x 10.0 mm | --- | --- | PF10OH-150/100 | 1 u | PF15OH-150/100 | 1 u |
| 250 x 10.0 mm | --- | --- | PF10OH-250/100 | 1 u | PF15OH-250/100 | 1 u |
| 50 x 21.2 mm | --- | --- | PF10OH-050/212 | 1 u | PF15OH-050/212 | 1 u |
| 100 x 21.2 mm | --- | --- | PF10OH-100/212 | 1 u | PF15OH-100/212 | 1 u |
| 150 x 21.2 mm | --- | --- | PF10OH-150/212 | 1 u | PF15OH-150/212 | 1 u |
| 250 x 21.2 mm | --- | --- | PF10OH-250/212 | 1 u | PF15OH-250/212 | 1 u |
| 50 x 30.0 mm | --- | --- | PF10OH-050/300 | 1 u | PF15OH-050/300 | 1 u |
| 100 x 30.0 mm | --- | --- | PF10OH-100/300 | 1 u | PF15OH-100/300 | 1 u |
| 150 x 30.0 mm | --- | --- | PF10OH-150/300 | 1 u | PF15OH-150/300 | 1 u |
| 250 x 30.0 mm | --- | --- | PF10OH-250/300 | 1 u | PF15OH-250/300 | 1 u |
| 50 x 50.0 mm | --- | --- | PF10OH-050/500 | 1 u | PF15OH-050/500 | 1 u |
| 250 x 50.0 mm | --- | --- | PF10OH-250/500 | 1 u | PF15OH-250/500 | 1 u |



puriFlash® Diol

60 Å - 500 m²/g
 5, 10, 15, 30 & 50 µm
 Diol Mono-functional
 End-capping non
 pH stability: 1.5 to 6.5

The Diol function imparts a globally neutral surface to the silica.

Compared to a virgin silica, this grafted diol silica allows a better separation of the basic molecules in normal phase.

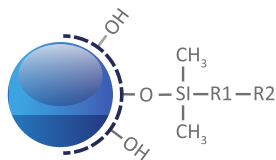
APPLICATION AREA

HPLC ●
 Prep-LC ●
 Flash ●

USP code: L1

Reusable column





Uptisphere® Strategy™ HILIC-HIA

100 Å - 300 m²/g

2.2, 3, 5, 10, 15 µm

Proprietary bonding & end-capping

pH stability: 2.0 to 7.0

Separation of highly polar water-soluble
molecules in Hilic mode.Typical mobile phase: H₂O/ACN (> 70%).ANP is an excellent alternative to reverse
phase purification for highly polar
compounds.

APPLICATION AREA

HPLC ●
Prep-LC ●
Flash ●



Uptisphere® Strategy™ HILIC-HIT

APPLICATION AREA

HPLC ●
Prep-LC ●
Flash ●

Hilic

Uptisphere® Strategy™ HILIC-HIA

| Flash columns | 15 µm | Qty |
|---------------|----------------|------|
| F0001 | SC-15HIA-F0001 | 25 u |
| F0004 | PF-15HIA-F0004 | 4 u |
| F0012 | PF-15HIA-F0012 | 2 u |
| F0025 | PF-15HIA-F0025 | 1 u |
| F0040 | PF-15HIA-F0040 | 1 u |
| F0080 | PF-15HIA-F0080 | 1 u |
| F0120 | PF-15HIA-F0120 | 1 u |
| F0220 | PF-15HIA-F0220 | 1 u |
| F0330 | PF-15HIA-F0330 | 1 u |

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|----------------|-----|-----------------|-----|-----------------|-----|
| 250 x 4.6 mm | US5HIA-250/P46 | 1 u | US10HIA-250/P46 | 1 u | US15HIA-250/P46 | 1 u |
| 150 x 10.0 mm | US5HIA-150/100 | 1 u | US10HIA-150/100 | 1 u | US15HIA-150/100 | 1 u |
| 250 x 10.0 mm | US5HIA-250/100 | 1 u | US10HIA-250/100 | 1 u | US15HIA-250/100 | 1 u |
| 50 x 21.2 mm | US5HIA-050/212 | 1 u | US10HIA-050/212 | 1 u | US15HIA-050/212 | 1 u |
| 100 x 21.2 mm | US5HIA-100/212 | 1 u | US10HIA-100/212 | 1 u | US15HIA-100/212 | 1 u |
| 150 x 21.2 mm | US5HIA-150/212 | 1 u | US10HIA-150/212 | 1 u | US15HIA-150/212 | 1 u |
| 250 x 21.2 mm | US5HIA-250/212 | 1 u | US10HIA-250/212 | 1 u | US15HIA-250/212 | 1 u |
| 50 x 30.0 mm | US5HIA-050/300 | 1 u | US10HIA-050/300 | 1 u | US15HIA-050/300 | 1 u |
| 100 x 30.0 mm | US5HIA-100/300 | 1 u | US10HIA-100/300 | 1 u | US15HIA-100/300 | 1 u |
| 150 x 30.0 mm | US5HIA-150/300 | 1 u | US10HIA-150/300 | 1 u | US15HIA-150/300 | 1 u |
| 250 x 30.0 mm | US5HIA-250/300 | 1 u | US10HIA-250/300 | 1 u | US15HIA-250/300 | 1 u |
| 50 x 50.0 mm | US5HIA-050/500 | 1 u | US10HIA-050/500 | 1 u | US15HIA-050/500 | 1 u |
| 250 x 50.0 mm | US5HIA-250/500 | 1 u | US10HIA-250/500 | 1 u | US15HIA-250/500 | 1 u |

Uptisphere® Strategy™ HILIC-HIT

| Flash columns | 15 µm | Qty |
|---------------|----------------|------|
| F0001 | SC-15HIT-F0001 | 25 u |
| F0004 | PF-15HIT-F0004 | 4 u |
| F0012 | PF-15HIT-F0012 | 2 u |
| F0025 | PF-15HIT-F0025 | 1 u |
| F0040 | PF-15HIT-F0040 | 1 u |
| F0080 | PF-15HIT-F0080 | 1 u |
| F0120 | PF-15HIT-F0120 | 1 u |
| F0220 | PF-15HIT-F0220 | 1 u |
| F0330 | PF-15HIT-F0330 | 1 u |

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|----------------|-----|-----------------|-----|-----------------|-----|
| 250 x 4.6 mm | US5HIT-250/P46 | 1 u | US10HIT-250/P46 | 1 u | US15HIT-250/P46 | 1 u |
| 150 x 10.0 mm | US5HIT-150/100 | 1 u | US10HIT-150/100 | 1 u | US15HIT-150/100 | 1 u |
| 250 x 10.0 mm | US5HIT-250/100 | 1 u | US10HIT-250/100 | 1 u | US15HIT-250/100 | 1 u |
| 50 x 21.2 mm | US5HIT-050/212 | 1 u | US10HIT-050/212 | 1 u | US15HIT-050/212 | 1 u |
| 100 x 21.2 mm | US5HIT-100/212 | 1 u | US10HIT-100/212 | 1 u | US15HIT-100/212 | 1 u |
| 150 x 21.2 mm | US5HIT-150/212 | 1 u | US10HIT-150/212 | 1 u | US15HIT-150/212 | 1 u |
| 250 x 21.2 mm | US5HIT-250/212 | 1 u | US10HIT-250/212 | 1 u | US15HIT-250/212 | 1 u |
| 50 x 30.0 mm | US5HIT-050/300 | 1 u | US10HIT-050/300 | 1 u | US15HIT-050/300 | 1 u |
| 100 x 30.0 mm | US5HIT-100/300 | 1 u | US10HIT-100/300 | 1 u | US15HIT-100/300 | 1 u |
| 150 x 30.0 mm | US5HIT-150/300 | 1 u | US10HIT-150/300 | 1 u | US15HIT-150/300 | 1 u |
| 250 x 30.0 mm | US5HIT-250/300 | 1 u | US10HIT-250/300 | 1 u | US15HIT-250/300 | 1 u |
| 50 x 50.0 mm | US5HIT-050/500 | 1 u | US10HIT-050/500 | 1 u | US15HIT-050/500 | 1 u |
| 250 x 50.0 mm | US5HIT-250/500 | 1 u | US10HIT-250/500 | 1 u | US15HIT-250/500 | 1 u |



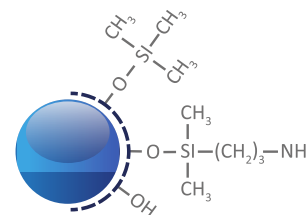
Normal phase / Ion exchange
puriFlash® NH₂

| Flash columns | 15 µm | Qty | 30 µm | Qty | 50 µm | Qty |
|---------------|-----------------------------|-----|-----------------------------|-----|-----------------------------|-----|
| F0004 | PF-15NH ₂ -F0004 | 4 u | PF-30NH ₂ -F0004 | 4 u | PF-50NH ₂ -F0004 | 4 u |
| F0012 | PF-15NH ₂ -F0012 | 2 u | PF-30NH ₂ -F0012 | 2 u | PF-50NH ₂ -F0012 | 2 u |
| F0025 | PF-15NH ₂ -F0025 | 1 u | PF-30NH ₂ -F0025 | 1 u | PF-50NH ₂ -F0025 | 1 u |
| F0040 | PF-15NH ₂ -F0040 | 1 u | PF-30NH ₂ -F0040 | 1 u | PF-50NH ₂ -F0040 | 1 u |
| F0080 | PF-15NH ₂ -F0080 | 1 u | PF-30NH ₂ -F0080 | 1 u | PF-50NH ₂ -F0080 | 1 u |
| F0120 | PF-15NH ₂ -F0120 | 1 u | PF-30NH ₂ -F0120 | 1 u | PF-50NH ₂ -F0120 | 1 u |
| F0220 | PF-15NH ₂ -F0220 | 1 u | PF-30NH ₂ -F0220 | 1 u | PF-50NH ₂ -F0220 | 1 u |
| F0330 | PF-15NH ₂ -F0330 | 1 u | PF-30NH ₂ -F0330 | 1 u | PF-50NH ₂ -F0330 | 1 u |
| F0800 | --- | --- | PF-30NH ₂ -F0800 | 1 u | PF-50NH ₂ -F0800 | 1 u |
| F1600 | --- | --- | PF-30NH ₂ -F1600 | 1 u | PF-50NH ₂ -F1600 | 1 u |

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|-----------------------------|-----|------------------------------|-----|------------------------------|-----|
| 250 x 4.6 mm | PF5NH ₂ -250/P46 | 1 u | PF10NH ₂ -250/P46 | 1 u | PF15NH ₂ -250/P46 | 1 u |
| 150 x 10.0 mm | PF5NH ₂ -150/100 | 1 u | PF10NH ₂ -150/100 | 1 u | PF15NH ₂ -150/100 | 1 u |
| 250 x 10.0 mm | PF5NH ₂ -250/100 | 1 u | PF10NH ₂ -250/100 | 1 u | PF15NH ₂ -250/100 | 1 u |
| 50 x 21.2 mm | PF5NH ₂ -050/212 | 1 u | PF10NH ₂ -050/212 | 1 u | PF15NH ₂ -050/212 | 1 u |
| 100 x 21.2 mm | PF5NH ₂ -100/212 | 1 u | PF10NH ₂ -100/212 | 1 u | PF15NH ₂ -100/212 | 1 u |
| 150 x 21.2 mm | PF5NH ₂ -150/212 | 1 u | PF10NH ₂ -150/212 | 1 u | PF15NH ₂ -150/212 | 1 u |
| 250 x 21.2 mm | PF5NH ₂ -250/212 | 1 u | PF10NH ₂ -250/212 | 1 u | PF15NH ₂ -250/212 | 1 u |
| 50 x 30.0 mm | PF5NH ₂ -050/300 | 1 u | PF10NH ₂ -050/300 | 1 u | PF15NH ₂ -050/300 | 1 u |
| 100 x 30.0 mm | PF5NH ₂ -100/300 | 1 u | PF10NH ₂ -100/300 | 1 u | PF15NH ₂ -100/300 | 1 u |
| 150 x 30.0 mm | PF5NH ₂ -150/300 | 1 u | PF10NH ₂ -150/300 | 1 u | PF15NH ₂ -150/300 | 1 u |
| 250 x 30.0 mm | PF5NH ₂ -250/300 | 1 u | PF10NH ₂ -250/300 | 1 u | PF15NH ₂ -250/300 | 1 u |
| 50 x 50.0 mm | PF5NH ₂ -050/500 | 1 u | PF10NH ₂ -050/500 | 1 u | PF15NH ₂ -050/500 | 1 u |
| 250 x 50.0 mm | PF5NH ₂ -250/500 | 1 u | PF10NH ₂ -250/500 | 1 u | PF15NH ₂ -250/500 | 1 u |

puriFlash® NH₂-HC

| Flash columns | 50 µm | Qty |
|---------------|-------------------------------|-----|
| F0004 | PF-50NH ₂ HC-F0004 | 4 u |
| F0012 | PF-50NH ₂ HC-F0012 | 2 u |
| F0025 | PF-50NH ₂ HC-F0025 | 1 u |
| F0040 | PF-50NH ₂ HC-F0040 | 1 u |
| F0080 | PF-50NH ₂ HC-F0080 | 1 u |
| F0120 | PF-50NH ₂ HC-F0120 | 1 u |
| F0220 | PF-50NH ₂ HC-F0220 | 1 u |
| F0330 | PF-50NH ₂ HC-F0330 | 1 u |
| F0800 | PF-50NH ₂ HC-F0800 | 1 u |
| F1600 | PF-50NH ₂ HC-F1600 | 1 u |



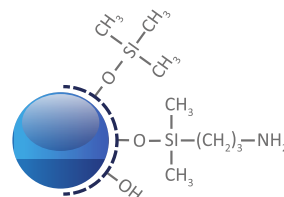
puriFlash® NH₂

100 Å - 300 m²/g
5, 10, 15, 30 & 50 µm
Amino
% C: 4

End-capping: One-step
pH stability: 2 to 6.5
Can be both a weak anion
exchanger for strong acids or a
polar phase that can interact with the
OH, NH, SH ... functions.

APPLICATION AREA

HPLC
Prep-LC
Flash



puriFlash® NH₂-HC

60 Å - 680 m²/g
50 µm
Amino
%C: 4

End-capping: n.c
pH stability: 1.5 to 6.5
Can be both a weak anion
exchanger for strong acids or a
polar phase that can interact with
the OH, NH, SH ... functions.

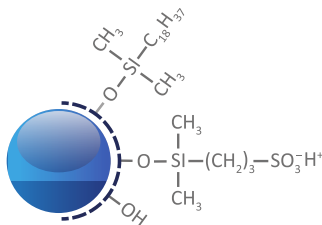
APPLICATION AREA

HPLC
Prep-LC
Flash



LC PURIFICATION

Stationary phase: MM1 - SCX - SAX - X - P6 - Carbon



puriFlash® MM1

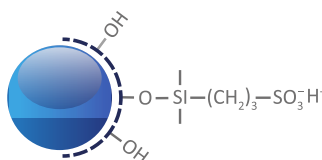
100 Å - 400 m²/g
50 µm

RP alkyl / Strong ion exchange - SCX
0.1 meq/g

End-capping: One-step
pH stability: 1.0 to 7.5

*The hydrophobic & ion exchange
mixed bonding give
a unique selectivity.*

*Compounds which have a basic
function are retained by the ion
exchanger. An organic solvent will
elute the hydrophobic compounds.*



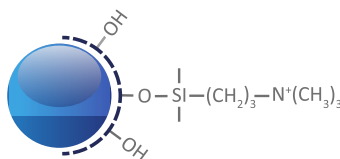
puriFlash® SCX

100 Å - 400 m²/g
50 µm

Strong ion exchange - SCX
0.3 meq/g

End-capping: Non
pH stability: 1.0 to 7.5

*A strong cation exchanger containing
sulphonic acids for purifying weakly
basic molecules having one or more
positive charges.*



puriFlash® SAX

60 Å - 500 m²/g
50 µm

Strong ion exchange - SAX
0.3 meq/g

End-capping: Non
pH stability: 1.0 to 7.5

*A strong anion exchanger containing
quaternary amines for purifying
weakly acid molecules having one or
more negative charges, nucleotides,
nucleosides, organic acids, etc.*

Normal phase / Ion exchange

puriFlash® MM1

| Flash columns | 50 µm | Qty |
|---------------|-----------------|-----|
| F0004 | PF-50 MM1-F0004 | 4 u |
| F0012 | PF-50 MM1-F0012 | 2 u |
| F0025 | PF-50 MM1-F0025 | 1 u |
| F0040 | PF-50 MM1-F0040 | 1 u |
| F0080 | PF-50 MM1-F0080 | 1 u |
| F0120 | PF-50 MM1-F0120 | 1 u |
| F0220 | PF-50 MM1-F0220 | 1 u |
| F0330 | PF-50 MM1-F0330 | 1 u |
| F0800 | PF-50 MM1-F0800 | 1 u |
| F1600 | PF-50 MM1-F1600 | 1 u |

APPLICATION AREA

HPLC
Prep-LC
Flash

Ion exchange

puriFlash® SCX

| Flash columns | 50 µm | Qty |
|---------------|----------------|-----|
| F0004 | PF-50SCX-F0004 | 4 u |
| F0012 | PF-50SCX-F0012 | 2 u |
| F0025 | PF-50SCX-F0025 | 1 u |
| F0040 | PF-50SCX-F0040 | 1 u |
| F0080 | PF-50SCX-F0080 | 1 u |
| F0120 | PF-50SCX-F0120 | 1 u |
| F0220 | PF-50SCX-F0220 | 1 u |
| F0330 | PF-50SCX-F0330 | 1 u |
| F0800 | PF-50SCX-F0800 | 1 u |
| F1600 | PF-50SCX-F1600 | 1 u |

APPLICATION AREA

HPLC
Prep-LC
Flash

puriFlash® SAX

| Flash columns | 50 µm | Qty |
|---------------|----------------|-----|
| F0004 | PF-50SAX-F0004 | 4 u |
| F0012 | PF-50SAX-F0012 | 2 u |
| F0025 | PF-50SAX-F0025 | 1 u |
| F0040 | PF-50SAX-F0040 | 1 u |
| F0080 | PF-50SAX-F0080 | 1 u |
| F0120 | PF-50SAX-F0120 | 1 u |
| F0220 | PF-50SAX-F0220 | 1 u |
| F0330 | PF-50SAX-F0330 | 1 u |
| F0800 | PF-50SAX-F0800 | 1 u |
| F1600 | PF-50SAX-F1600 | 1 u |

APPLICATION AREA

HPLC
Prep-LC
Flash

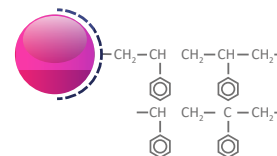


puriFlash® X (Pure PSDVB)

| Flash columns | 40 µm | Qty |
|---------------|------------|-----|
| F0004 | PF-X-F0004 | 4 u |
| F0012 | PF-X-F0012 | 2 u |
| F0025 | PF-X-F0025 | 1 u |
| F0040 | PF-X-F0040 | 1 u |
| F0080 | PF-X-F0080 | 1 u |
| F0120 | PF-X-F0120 | 1 u |
| F0220 | PF-X-F0220 | 1 u |
| F0330 | PF-X-F0330 | 1 u |
| F0800 | PF-X-F0800 | 1 u |
| F1600 | PF-X-F1600 | 1 u |

APPLICATION AREA

HPLC ○
PrepLC ○
Flash ●



Ultra-Pur PSDVB (Atoll X)

100 Å - 800 m²/g
40 µm

pH stability: 1.0 to 13.0

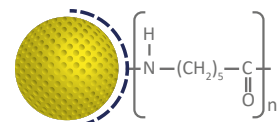
A Universal polymer with a large specific surface for the purification of medium and non-polar compounds with Mw < 5 KD under pH conditions from 1 to 13.

puriFlash® P6 (Polyamide 6)

| Flash columns | 100 µm | Qty |
|---------------|----------------|-----|
| F0004 | PF-100P6-F0004 | 4 u |
| F0012 | PF-100P6-F0012 | 2 u |
| F0025 | PF-100P6-F0025 | 2 u |
| F0040 | PF-100P6-F0040 | 2 u |
| F0080 | PF-100P6-F0080 | 1 u |
| F0120 | PF-100P6-F0120 | 1 u |
| F0220 | PF-100P6-F0220 | 1 u |
| F0330 | PF-100P6-F0330 | 1 u |
| F0800 | PF-100P6-F0800 | 1 u |
| F1600 | PF-100P6-F1600 | 1 u |

APPLICATION AREA

HPLC ○
PrepLC ○
Flash ●



Polyamide 6

60 Å - 100 µm

pH stability: n.c.

Selective towards flavones, anthraquinones, aromatic compounds, Nitrates, phenols, sulfonic acids and carboxylic acids, amines, amides, etc...

Carbon

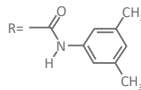
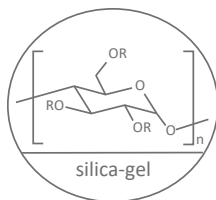
puriFlash® CARBON ACTIVE

| Flash columns | 420 / 840 µm | Qty |
|---------------|--------------|------|
| F0004 | PF-AC-F0004 | 16 u |
| F0012 | PF-AC-F0012 | 8 u |
| F0025 | PF-AC-F0025 | 8 u |
| F0040 | PF-AC-F0040 | 8 u |
| F0080 | PF-AC-F0080 | 4 u |
| F0120 | PF-AC-F0120 | 4 u |
| F0220 | PF-AC-F0220 | 4 u |
| F0330 | PF-AC-F0330 | 2 u |
| F0800 | PF-AC-F0800 | 1 u |
| F1600 | PF-AC-F1600 | 1 u |

APPLICATION AREA

HPLC ○
PrepLC ○
Flash ●





IA chiral

20 μ m

Amylose tris-(3,5-dimethylphenyl carbamate)
Immobilized on silica gel

Chiral compounds in normal and reverse phase
such as Bupivacaine, Indapamide, suptofern...

puriFlash® Chiral IA

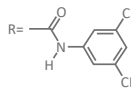
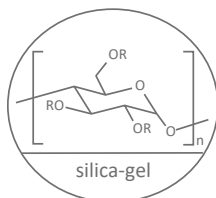
| Flash columns | 20 μ m | Qty |
|---------------|---------------|-----|
| F0004 | CT-20IA-F0004 | 1 u |
| F0012 | CT-20IA-F0012 | 1 u |
| F0025 | CT-20IA-F0025 | 1 u |
| F0040 | CT-20IA-F0040 | 1 u |
| F0080 | CT-20IA-F0080 | 1 u |
| F0120 | CT-20IA-F0120 | 1 u |
| F0220 | CT-20IA-F0220 | 1 u |

APPLICATION AREA

HPLC

Prep-LC

Flash



IC chiral

20 μ m

Cellulose tris-(3,5-dichlorophenyl carbamate)
Immobilized on silica gel

Chiral compounds in normal and inverse phase,
such as Econazole, Indoprofen, 5-Fluoro-1
(tetrahydro-2-furyl) uracil, etc.

puriFlash® Chiral IC

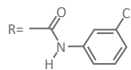
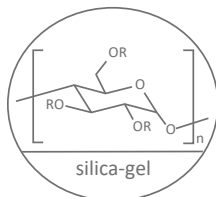
| Flash columns | 20 μ m | Qty |
|---------------|---------------|-----|
| F0004 | CT-20IC-F0004 | 1 u |
| F0012 | CT-20IC-F0012 | 1 u |
| F0025 | CT-20IC-F0025 | 1 u |
| F0040 | CT-20IC-F0040 | 1 u |

APPLICATION AREA

HPLC

Prep-LC

Flash



ID chiral

20 μ m

Amylose tris-(3-Chlorophenyl carbamate)
Immobilized on silica gel

Chiral compounds in normal and reverse phase
such as (\pm)-Hydrobenzoin, Sulconazole,
Tropic acid...

puriFlash® Chiral ID

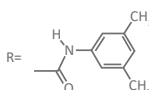
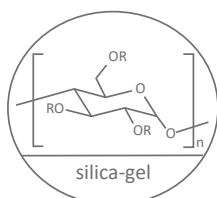
| Flash columns | 20 μ m | Qty |
|---------------|---------------|-----|
| F0004 | CT-20ID-F0004 | 1 u |
| F0012 | CT-20ID-F0012 | 1 u |
| F0025 | CT-20ID-F0025 | 1 u |
| F0040 | CT-20ID-F0040 | 1 u |

APPLICATION AREA

HPLC

Prep-LC

Flash



OD-I chiral

20 μ m

Cellulose tris-(3,5 dimethylphenyl carbamate)
Immobilized on silica gel

Chiral compounds in normal and reverse phase such
as 2-Bromomethyl-1,4-benzodioxane, pindolol,
Troger's Base, etc.

puriFlash® Chiral OD-I

| Flash columns | 20 μ m | Qty |
|---------------|--------------|-----|
| F0004 | CT20OD-F0004 | 1 u |
| F0012 | CT20OD-F0012 | 1 u |
| F0025 | CT20OD-F0025 | 1 u |
| F0040 | CT20OD-F0040 | 1 u |

APPLICATION AREA

HPLC

Prep-LC

Flash



Advion Interchim Scientific stationary phases selection guide

Advion Interchim Scientific stationary phases selection guide

| Name | Code | USP Code | Ø Pore | Surface | Particle size (µm) | | | | | | Bonding | Type | % C | End-Capping | |
|--|--------|----------|--------|-----------------------|--------------------|----|----|----|----|----|---------|-------------------------------|-----------------|-------------|------------|
| | | | | | 5 | 10 | 15 | 20 | 30 | 50 | | | | | µm |
| Flash & Prep for Bio-Purification | | | | | | | | | | | | | | | |
| puriFlash® Bio 100 | C18-N | L1 | 100 Å | 320 m ² /g | x | x | x | | | | | C18 - octadecyl | Mono-functional | 15.5% | Non |
| puriFlash® Bio 100 | C18-T | L1 | 100 Å | 320 m ² /g | x | x | x | | | | | C18 - octadecyl | Tri-functional | 17.0% | One-step |
| puriFlash® Bio 100 | C18-XS | L1 | 100 Å | 320 m ² /g | x | x | x | | | | | C18 - octadecyl | Mono-functional | 17.0% | Multi-step |
| puriFlash® Bio 200 | C18-N | L1 | 200 Å | 200 m ² /g | x | x | x | | | | | C18 - octadecyl | Mono-functional | 7.0% | Non |
| puriFlash® Bio 200 | C18-T | L1 | 200 Å | 200 m ² /g | x | x | x | | | | | C18 - octadecyl | Tri-functional | 10.0% | One-step |
| puriFlash® Bio 200 | C18-XS | L1 | 200 Å | 200 m ² /g | x | x | x | | | | | C18 - octadecyl | Mono-functional | 8.0% | Multi-step |
| puriFlash® Bio 200 | C8-N | L7 | 200 Å | 200 m ² /g | x | x | x | | | | | C8 - octyle | Mono-functional | 5.0% | Non |
| puriFlash® Bio 300 | C4-AQ | L26 | 300 Å | 100 m ² /g | x | x | x | | | | | C4 - butyl | Mono-functional | 3.0% | Mixte |
| puriFlash® Bio 200 | RPNH | | 200 Å | 200 m ² /g | x | x | x | | | | | RP - Chaînes Alkyles / Amines | Mono-functional | 4.0% | Non |
| puriFlash® Bio 300 | RPNH | | 300 Å | 100 m ² /g | x | x | x | | | | | RP - Chaînes Alkyles / Amines | Mono-functional | 2.0% | Non |
| puriFlash® Bio 200 | RP | | 200 Å | 200 m ² /g | | | | | | | 45 | RP - Chaînes Alkyles | Mono-functional | 5.0% | Mixte |
| puriFlash® Bio 300 | RPT | | 300 Å | 100 m ² /g | | | | | | | x | RP - Chaînes Alkyles | Tri-functional | 3.0% | One-step |
| puriFlash® PT | C18-AQ | L1 | 200 Å | 150 m ² /g | | | x | | | | | C18 - octadecyl | Mono-functional | 12.0% | Mixte |
| puriFlash® PT | C8 | L7 | 200 Å | 150 m ² /g | | | x | | | | | C8 - octyle | Mono-functional | 5.0% | One step |
| puriFlash® PT | C4 | L26 | 200 Å | 150 m ² /g | | | x | | | | | C4 - butyl | Mono-functional | 3.0% | One step |
| puriFlash® PP | C18 | L1 | 300 Å | 100 m ² /g | | | x | | | | | C18 - octadecyl | Mono-functional | 10.0% | One step |
| puriFlash® PP | C4 | L26 | 300 Å | 100 m ² /g | | | x | | | | | C4 - butyl | Mono-functional | 3.0% | One step |



| pH stability | Mode | Application |
|--------------|------------------------|--|
| 1.5 - 8.0 | Reverse | In-Process QA/QC of Peptides Synthesis. |
| 1.5 - 8.0 | Reverse | Analysis & Purification of polar Peptides with less than 40AA & mw. up to 5KDa under pseudo hilic mode with 85% to- 95% ACN. Analysis & Purification of hydrophobic Peptides with less than 40AA & mw. up to 5KDa. |
| 1.0 - 10.0 | Reverse | Analysis & Purification of mid & non-polar Peptides, hydrophobic Peptides with less than 40AA & mw. up to 5KDa. |
| 1.5 - 8.0 | Reverse | Analysis & Purification of mid & non-polar Peptides, hydrophobic Peptides with less than 40AA & mw. up to 5KDa under basic conditions up to pH: 10.0. |
| 1.5 - 8.0 | Reverse | Analysis & Purification of polar Peptides less than 160AA & mw. up to 20KDa under pseudo hilic mode with 85% to- 95% ACN. Analysis & Purification of hydrophobic Peptides with less than 80AA & mw. up to 10KDa. |
| 1.0 - 10.0 | Reverse | Analysis & Purification of mid & non-polar Peptides, hydrophobic Peptides with less than 80AA & mw. up to 10KDa. |
| 1.5 - 8.0 | Reverse | Analysis & Purification of mid & non-polar Peptides, hydrophobic Peptides with less than 80AA & mw. up to 10KDa under basic conditions up to pH: 10.0. |
| 1.5 - 8.0 | Reverse | Analysis & Purification of mid & non-polar Peptides, hydrophobic Peptides with less than 160AA & mw. up to 20KDa. |
| 1.5 - 8.0 | Reverse / Ion Exchange | Analysis & Purification of natural Peptides, fatty acids larger than 80AA & mw. up to 100KDa. |
| 1.5 - 8.0 | Reverse / Ion Exchange | Analysis & Purification of oligonucleotides up to 40 mer. |
| 1.5 - 8.0 | Reverse | Analysis & Purification of large oligos, aptamers, DNA. |
| 1.5 - 8.0 | Reverse | Desalting columns for Synthetic Peptides. |
| 1.5 - 8 | Reverse | Mid-polar BioDrugs & Peptides with medium molecular weight. 100% water compatible. |
| 1.5 - 8 | Reverse | BioDrugs & Peptides with medium molecular weight. |
| 1.5 - 8 | Reverse | BioDrugs & Peptides with high molecular weight. |
| 1.5 - 8 | Reverse | Weakly hydrophobic peptides & oligopeptides up to 50 kD. |
| 1.5 - 8 | Reverse | Hydrophobic proteins & polypeptides, 50 up to 150 kD. |



I Selection Guide I

| Peptides | Polar | Mid & non-polar | Hydrophobic | Natural, Fatty Acids |
|--|-------------------------|--|--|-------------------------|
| <p>< 40 AA MW: up to 5KDa</p> <p>pH: 1.5 to 8.0</p> <p>max. pH: 10</p> | puriFlash® BIO 100 C18N | <p>puriFlash® BIO 100 C18T</p> <p>puriFlash® BIO 100 C18XS</p> | <p>Screening of puriFlash® BIO 100 (C18N / C18T)</p> <p>puriFlash® BIO 100 C18XS</p> | |
| <p>< 80 AA MW: up to 10KDa</p> <p>pH: 1.5 to 8.0</p> <p>max. pH: 10</p> | puriFlash® BIO 200 C18N | <p>puriFlash® BIO 200 C18T</p> <p>puriFlash® BIO 200 C18XS</p> | <p>Screening of puriFlash® BIO 200 (C18N / C18T)</p> <p>puriFlash® BIO 200 C18XS</p> | |
| <p>< 160 AA MW: up to 20KDa</p> <p>pH: 1.5 to 8.0</p> | puriFlash® BIO 200 C18N | puriFlash® BIO 200 C8N | puriFlash® BIO 200 C8N | |
| <p>< 80AA MW: up to 100KDa</p> <p>pH: 1.5 to 8.0</p> | | | | puriFlash® BIO 300 C4AQ |

In-Process QA/QC of Peptides Synthesis

In-Process QA/QC of Peptides Synthesis
puriFlash® BIO CS 2.6C18N => puriFlash® BIO 100 2.5C18N

Notes:

Polar Peptides => HILIC mode using higher % of ACN 95 to 85%

Hydrophobic Peptides => it is useful to work with Water/ACN using a few % Formic Acid or 0.05% TFA ~ pH 2. In case your peptides have lysine, Arginine etc. it is better to have an alkali environment in the solvent. You need real buffer and according to buffer solubility it is to suggest to switch to MeOH instead of ACN. Usually step-Gradients (Ramp Gradients) or Pseudo-Isocratic or very flat gradients lead to highest capacity.



Peptides

puriflash® BIO 100 C18-N

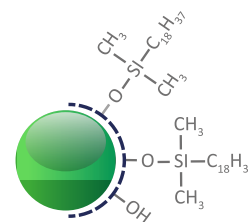
| Prep-IC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|------------------|-----|-------------------|-----|-------------------|-----|
| 250 x 4.6 mm | PFB5C18N-250/P46 | 1 u | PFB10C18N-250/P46 | 1 u | PFB15C18N-250/P46 | 1 u |
| 150 x 10.0 mm | PFB5C18N-150/100 | 1 u | PFB10C18N-150/100 | 1 u | PFB15C18N-150/100 | 1 u |
| 250 x 10.0 mm | PFB5C18N-250/100 | 1 u | PFB10C18N-250/100 | 1 u | PFB15C18N-250/100 | 1 u |
| 50 x 21.2 mm | PFB5C18N-050/212 | 1 u | PFB10C18N-050/212 | 1 u | PFB15C18N-050/212 | 1 u |
| 100 x 21.2 mm | PFB5C18N-100/212 | 1 u | PFB10C18N-100/212 | 1 u | PFB15C18N-100/212 | 1 u |
| 150 x 21.2 mm | PFB5C18N-150/212 | 1 u | PFB10C18N-150/212 | 1 u | PFB15C18N-150/212 | 1 u |
| 250 x 21.2 mm | PFB5C18N-250/212 | 1 u | PFB10C18N-250/212 | 1 u | PFB15C18N-250/212 | 1 u |
| 50 x 30.0 mm | PFB5C18N-050/300 | 1 u | PFB10C18N-050/300 | 1 u | PFB15C18N-050/300 | 1 u |
| 100 x 30.0 mm | PFB5C18N-100/300 | 1 u | PFB10C18N-100/300 | 1 u | PFB15C18N-100/300 | 1 u |
| 150 x 30.0 mm | PFB5C18N-150/300 | 1 u | PFB10C18N-150/300 | 1 u | PFB15C18N-150/300 | 1 u |
| 250 x 30.0 mm | PFB5C18N-250/300 | 1 u | PFB10C18N-250/300 | 1 u | PFB15C18N-250/300 | 1 u |
| 50 x 50.0 mm | PFB5C18N-050/500 | 1 u | PFB10C18N-050/500 | 1 u | PFB15C18N-050/500 | 1 u |
| 250 x 50.0 mm | PFB5C18N-250/500 | 1 u | PFB10C18N-250/500 | 1 u | PFB15C18N-250/500 | 1 u |

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|------------------|-----|------------------|-----|
| F0004 | PFB-15C18N-F0004 | 4 u | PFB-30C18N-F0004 | 4 u |
| F0012 | PFB-15C18N-F0012 | 2 u | PFB-30C18N-F0012 | 2 u |
| F0025 | PFB-15C18N-F0025 | 1 u | PFB-30C18N-F0025 | 1 u |
| F0040 | PFB-15C18N-F0040 | 1 u | PFB-30C18N-F0040 | 1 u |
| F0080 | PFB-15C18N-F0080 | 1 u | PFB-30C18N-F0080 | 1 u |
| F0120 | PFB-15C18N-F0120 | 1 u | PFB-30C18N-F0120 | 1 u |
| F0220 | PFB-15C18N-F0220 | 1 u | PFB-30C18N-F0220 | 1 u |
| F0330 | PFB-15C18N-F0330 | 1 u | PFB-30C18N-F0330 | 1 u |
| F0800 | --- | --- | PFB-30C18N-F0800 | 1 u |
| F1600 | --- | --- | PFB-30C18N-F1600 | 1 u |

puriflash® BIO 100 C18-T

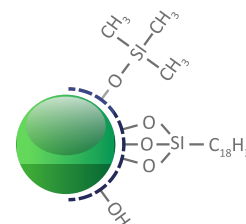
| Prep-IC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|------------------|-----|-------------------|-----|-------------------|-----|
| 250 x 4.6 mm | PFB5C18T-250/P46 | 1 u | PFB10C18T-250/P46 | 1 u | PFB15C18T-250/P46 | 1 u |
| 150 x 10.0 mm | PFB5C18T-150/100 | 1 u | PFB10C18T-150/100 | 1 u | PFB15C18T-150/100 | 1 u |
| 250 x 10.0 mm | PFB5C18T-250/100 | 1 u | PFB10C18T-250/100 | 1 u | PFB15C18T-250/100 | 1 u |
| 50 x 21.2 mm | PFB5C18T-050/212 | 1 u | PFB10C18T-050/212 | 1 u | PFB15C18T-050/212 | 1 u |
| 100 x 21.2 mm | PFB5C18T-100/212 | 1 u | PFB10C18T-100/212 | 1 u | PFB15C18T-100/212 | 1 u |
| 150 x 21.2 mm | PFB5C18T-150/212 | 1 u | PFB10C18T-150/212 | 1 u | PFB15C18T-150/212 | 1 u |
| 250 x 21.2 mm | PFB5C18T-250/212 | 1 u | PFB10C18T-250/212 | 1 u | PFB15C18T-250/212 | 1 u |
| 50 x 30.0 mm | PFB5C18T-050/300 | 1 u | PFB10C18T-050/300 | 1 u | PFB15C18T-050/300 | 1 u |
| 100 x 30.0 mm | PFB5C18T-100/300 | 1 u | PFB10C18T-100/300 | 1 u | PFB15C18T-100/300 | 1 u |
| 150 x 30.0 mm | PFB5C18T-150/300 | 1 u | PFB10C18T-150/300 | 1 u | PFB15C18T-150/300 | 1 u |
| 250 x 30.0 mm | PFB5C18T-250/300 | 1 u | PFB10C18T-250/300 | 1 u | PFB15C18T-250/300 | 1 u |
| 50 x 50.0 mm | PFB5C18T-050/500 | 1 u | PFB10C18T-050/500 | 1 u | PFB15C18T-050/500 | 1 u |
| 250 x 50.0 mm | PFB5C18T-250/500 | 1 u | PFB10C18T-250/500 | 1 u | PFB15C18T-250/500 | 1 u |

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|------------------|-----|------------------|-----|
| F0004 | PFB-15C18T-F0004 | 4 u | PFB-30C18T-F0004 | 4 u |
| F0012 | PFB-15C18T-F0012 | 2 u | PFB-30C18T-F0012 | 2 u |
| F0025 | PFB-15C18T-F0025 | 1 u | PFB-30C18T-F0025 | 1 u |
| F0040 | PFB-15C18T-F0040 | 1 u | PFB-30C18T-F0040 | 1 u |
| F0080 | PFB-15C18T-F0080 | 1 u | PFB-30C18T-F0080 | 1 u |
| F0120 | PFB-15C18T-F0120 | 1 u | PFB-30C18T-F0120 | 1 u |
| F0220 | PFB-15C18T-F0220 | 1 u | PFB-30C18T-F0220 | 1 u |
| F0330 | PFB-15C18T-F0330 | 1 u | PFB-30C18T-F0330 | 1 u |
| F0800 | --- | --- | PFB-30C18T-F0800 | 1 u |
| F1600 | --- | --- | PFB-30C18T-F1600 | 1 u |



puriflash® BIO C18-N

100 Å - 320 m²/g
 2.5 ; 3.5 ; 5 ; 10 ; 15 & 30 µm
 C18 - octadecyl
 Mono-functional
 %C: 15.0
 End-capping: None
 pH stability: 1.5 to 8.0
 Use mode: Reverse
In-Process QA/QC of Peptides Synthesis. Analysis & Purification of polar Peptides with less than 40AA & mw. up to 5KDa under pseudo hilic mode with 85% to 95% ACN. Analysis & Purification of hydrophobic Peptides with less than 40AA & mw. up to 5KDa.

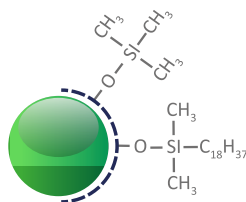


puriflash® BIO C18-T

100 Å - 320 m²/g
 2.5 ; 3.5 ; 5 ; 10, 15 & 30 µm
 C18 - octadecyl
 Tri-functional
 %C: 17.0
 End-capping : One-step
 pH stability: 1.5 to 8.0
 Use mode: Reverse
Analysis & Purification of mid & non-polar Peptides, hydrophobic Peptides with less than 40AA & mw. up to 5KDa.



Flash and preparative columns - Peptide purification



puriFlash® BIO C18-XS

100 Å - 320 m²/g
 2.5 ; 3.5 ; 5 ; 10, 15 & 30 µm
 C18 - octadecyl
 Mono-functional
 %C: 17.0
 End-capping: Multi-step
 pH stability: 1.0 to 10.0
 Use mode: Reverse
 Analysis & Purification of mid &
 non-polar Peptides, hydrophobic
 Peptides with less than 40AA & mw.
 up to 5KDa under basic conditions
 up to pH: 10.0

puriFlash® BIO 100 C18-XS

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|-------------------|-----|--------------------|-----|--------------------|-----|
| 250 x 4.6 mm | PFB5C18XS-250/P46 | 1 u | PFB10C18XS-250/P46 | 1 u | PFB15C18XS-250/P46 | 1 u |
| 150 x 10.0 mm | PFB5C18XS-150/100 | 1 u | PFB10C18XS-150/100 | 1 u | PFB15C18XS-150/100 | 1 u |
| 250 x 10.0 mm | PFB5C18XS-250/100 | 1 u | PFB10C18XS-250/100 | 1 u | PFB15C18XS-250/100 | 1 u |
| 50 x 21.2 mm | PFB5C18XS-050/212 | 1 u | PFB10C18XS-050/212 | 1 u | PFB15C18XS-050/212 | 1 u |
| 100 x 21.2 mm | PFB5C18XS-100/212 | 1 u | PFB10C18XS-100/212 | 1 u | PFB15C18XS-100/212 | 1 u |
| 150 x 21.2 mm | PFB5C18XS-150/212 | 1 u | PFB10C18XS-150/212 | 1 u | PFB15C18XS-150/212 | 1 u |
| 250 x 21.2 mm | PFB5C18XS-250/212 | 1 u | PFB10C18XS-250/212 | 1 u | PFB15C18XS-250/212 | 1 u |
| 50 x 30.0 mm | PFB5C18XS-050/300 | 1 u | PFB10C18XS-050/300 | 1 u | PFB15C18XS-050/300 | 1 u |
| 100 x 30.0 mm | PFB5C18XS-100/300 | 1 u | PFB10C18XS-100/300 | 1 u | PFB15C18XS-100/300 | 1 u |
| 150 x 30.0 mm | PFB5C18XS-150/300 | 1 u | PFB10C18XS-150/300 | 1 u | PFB15C18XS-150/300 | 1 u |
| 250 x 30.0 mm | PFB5C18XS-250/300 | 1 u | PFB10C18XS-250/300 | 1 u | PFB15C18XS-250/300 | 1 u |
| 50 x 50.0 mm | PFB5C18XS-050/500 | 1 u | PFB10C18XS-050/500 | 1 u | PFB15C18XS-050/500 | 1 u |
| 250 x 50.0 mm | PFB5C18XS-250/500 | 1 u | PFB10C18XS-250/500 | 1 u | PFB15C18XS-250/500 | 1 u |

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|-------------------|-----|-------------------|-----|
| F0004 | PFB-15C18XS-F0004 | 4 u | PFB-30C18XS-F0004 | 4 u |
| F0012 | PFB-15C18XS-F0012 | 2 u | PFB-30C18XS-F0012 | 2 u |
| F0025 | PFB-15C18XS-F0025 | 1 u | PFB-30C18XS-F0025 | 1 u |
| F0040 | PFB-15C18XS-F0040 | 1 u | PFB-30C18XS-F0040 | 1 u |
| F0080 | PFB-15C18XS-F0080 | 1 u | PFB-30C18XS-F0080 | 1 u |
| F0120 | PFB-15C18XS-F0120 | 1 u | PFB-30C18XS-F0120 | 1 u |
| F0220 | PFB-15C18XS-F0220 | 1 u | PFB-30C18XS-F0220 | 1 u |
| F0330 | PFB-15C18XS-F0330 | 1 u | PFB-30C18XS-F0330 | 1 u |
| F0800 | --- | --- | PFB-30C18XS-F0800 | 1 u |
| F1600 | --- | --- | PFB-30C18XS-F1600 | 1 u |

puriFlash® BIO 200 C18-N

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|-----------------|-----|------------------|-----|------------------|-----|
| 250 x 4.6 mm | PT5C18N-250/P46 | 1 u | PT10C18N-250/P46 | 1 u | PT15C18N-250/P46 | 1 u |
| 150 x 10.0 mm | PT5C18N-150/100 | 1 u | PT10C18N-150/100 | 1 u | PT15C18N-150/100 | 1 u |
| 250 x 10.0 mm | PT5C18N-250/100 | 1 u | PT10C18N-250/100 | 1 u | PT15C18N-250/100 | 1 u |
| 50 x 21.2 mm | PT5C18N-050/212 | 1 u | PT10C18N-050/212 | 1 u | PT15C18N-050/212 | 1 u |
| 100 x 21.2 mm | PT5C18N-100/212 | 1 u | PT10C18N-100/212 | 1 u | PT15C18N-100/212 | 1 u |
| 150 x 21.2 mm | PT5C18N-150/212 | 1 u | PT10C18N-150/212 | 1 u | PT15C18N-150/212 | 1 u |
| 250 x 21.2 mm | PT5C18N-250/212 | 1 u | PT10C18N-250/212 | 1 u | PT15C18N-250/212 | 1 u |
| 50 x 30.0 mm | PT5C18N-050/300 | 1 u | PT10C18N-050/300 | 1 u | PT15C18N-050/300 | 1 u |
| 100 x 30.0 mm | PT5C18N-100/300 | 1 u | PT10C18N-100/300 | 1 u | PT15C18N-100/300 | 1 u |
| 150 x 30.0 mm | PT5C18N-150/300 | 1 u | PT10C18N-150/300 | 1 u | PT15C18N-150/300 | 1 u |
| 250 x 30.0 mm | PT5C18N-250/300 | 1 u | PT10C18N-250/300 | 1 u | PT15C18N-250/300 | 1 u |
| 50 x 50.0 mm | PT5C18N-050/500 | 1 u | PT10C18N-050/500 | 1 u | PT15C18N-050/500 | 1 u |
| 250 x 50.0 mm | PT5C18N-250/500 | 1 u | PT10C18N-250/500 | 1 u | PT15C18N-250/500 | 1 u |

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|-----------------|-----|-----------------|-----|
| F0004 | PT-15C18N-F0004 | 4 u | PT-30C18N-F0004 | 4 u |
| F0012 | PT-15C18N-F0012 | 2 u | PT-30C18N-F0012 | 2 u |
| F0025 | PT-15C18N-F0025 | 1 u | PT-30C18N-F0025 | 1 u |
| F0040 | PT-15C18N-F0040 | 1 u | PT-30C18N-F0040 | 1 u |
| F0080 | PT-15C18N-F0080 | 1 u | PT-30C18N-F0080 | 1 u |
| F0120 | PT-15C18N-F0120 | 1 u | PT-30C18N-F0120 | 1 u |
| F0220 | PT-15C18N-F0220 | 1 u | PT-30C18N-F0220 | 1 u |
| F0330 | PT-15C18N-F0330 | 1 u | PT-30C18N-F0330 | 1 u |
| F0800 | --- | 1 u | PT-30C18N-F0800 | 1 u |
| F1600 | --- | 1 u | PT-30C18N-F1600 | 1 u |



puriFlash® BIO 200 C18-T

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|----------------|-----|-----------------|-----|-----------------|-----|
| 250 x 4.6 mm | PT5C18T250/P46 | 1 u | PT10C18T250/P46 | 1 u | PT15C18T250/P46 | 1 u |
| 150 x 10.0 mm | PT5C18T150/100 | 1 u | PT10C18T150/100 | 1 u | PT15C18T150/100 | 1 u |
| 250 x 10.0 mm | PT5C18T250/100 | 1 u | PT10C18T250/100 | 1 u | PT15C18T250/100 | 1 u |
| 50 x 21.2 mm | PT5C18T050/212 | 1 u | PT10C18T050/212 | 1 u | PT15C18T050/212 | 1 u |
| 100 x 21.2 mm | PT5C18T100/212 | 1 u | PT10C18T100/212 | 1 u | PT15C18T100/212 | 1 u |
| 150 x 21.2 mm | PT5C18T150/212 | 1 u | PT10C18T150/212 | 1 u | PT15C18T150/212 | 1 u |
| 250 x 21.2 mm | PT5C18T250/212 | 1 u | PT10C18T250/212 | 1 u | PT15C18T250/212 | 1 u |
| 50 x 30.0 mm | PT5C18T050/300 | 1 u | PT10C18T050/300 | 1 u | PT15C18T050/300 | 1 u |
| 100 x 30.0 mm | PT5C18T100/300 | 1 u | PT10C18T100/300 | 1 u | PT15C18T100/300 | 1 u |
| 150 x 30.0 mm | PT5C18T150/300 | 1 u | PT10C18T150/300 | 1 u | PT15C18T150/300 | 1 u |
| 250 x 30.0 mm | PT5C18T250/300 | 1 u | PT10C18T250/300 | 1 u | PT15C18T250/300 | 1 u |
| 50 x 50.0 mm | PT5C18T050/500 | 1 u | PT10C18T050/500 | 1 u | PT15C18T050/500 | 1 u |
| 250 x 50.0 mm | PT5C18T250/500 | 1 u | PT10C18T250/500 | 1 u | PT15C18T250/500 | 1 u |

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|----------------|-----|----------------|-----|
| F0004 | PT-15C18TF0004 | 4 u | PT-30C18TF0004 | 4 u |
| F0012 | PT-15C18TF0012 | 2 u | PT-30C18TF0012 | 2 u |
| F0025 | PT-15C18TF0025 | 1 u | PT-30C18TF0025 | 1 u |
| F0040 | PT-15C18TF0040 | 1 u | PT-30C18TF0040 | 1 u |
| F0080 | PT-15C18TF0080 | 1 u | PT-30C18TF0080 | 1 u |
| F0120 | PT-15C18TF0120 | 1 u | PT-30C18TF0120 | 1 u |
| F0220 | PT-15C18TF0220 | 1 u | PT-30C18TF0220 | 1 u |
| F0330 | PT-15C18TF0330 | 1 u | PT-30C18TF0330 | 1 u |
| F0800 | --- | --- | PT-30C18TF0800 | 1 u |
| F1600 | --- | --- | PT-30C18TF1600 | 1 u |

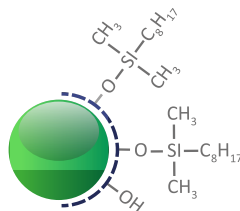
puriFlash® BIO 200 C18-XS

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|------------------|-----|-------------------|-----|-------------------|-----|
| 250 x 4.6 mm | PT5C18XS-250/P46 | 1 u | PT10C18XS-250/P46 | 1 u | PT15C18XS-250/P46 | 1 u |
| 150 x 10.0 mm | PT5C18XS-150/100 | 1 u | PT10C18XS-150/100 | 1 u | PT15C18XS-150/100 | 1 u |
| 250 x 10.0 mm | PT5C18XS-250/100 | 1 u | PT10C18XS-250/100 | 1 u | PT15C18XS-250/100 | 1 u |
| 50 x 21.2 mm | PT5C18XS-050/212 | 1 u | PT10C18XS-050/212 | 1 u | PT15C18XS-050/212 | 1 u |
| 100 x 21.2 mm | PT5C18XS-100/212 | 1 u | PT10C18XS-100/212 | 1 u | PT15C18XS-100/212 | 1 u |
| 150 x 21.2 mm | PT5C18XS-150/212 | 1 u | PT10C18XS-150/212 | 1 u | PT15C18XS-150/212 | 1 u |
| 250 x 21.2 mm | PT5C18XS-250/212 | 1 u | PT10C18XS-250/212 | 1 u | PT15C18XS-250/212 | 1 u |
| 50 x 30.0 mm | PT5C18XS-050/300 | 1 u | PT10C18XS-050/300 | 1 u | PT15C18XS-050/300 | 1 u |
| 100 x 30.0 mm | PT5C18XS-100/300 | 1 u | PT10C18XS-100/300 | 1 u | PT15C18XS-100/300 | 1 u |
| 150 x 30.0 mm | PT5C18XS-150/300 | 1 u | PT10C18XS-150/300 | 1 u | PT15C18XS-150/300 | 1 u |
| 250 x 30.0 mm | PT5C18XS-250/300 | 1 u | PT10C18XS-250/300 | 1 u | PT15C18XS-250/300 | 1 u |
| 50 x 50.0 mm | PT5C18XS-050/500 | 1 u | PT10C18XS-050/500 | 1 u | PT15C18XS-050/500 | 1 u |
| 250 x 50.0 mm | PT5C18XS-250/500 | 1 u | PT10C18XS-250/500 | 1 u | PT15C18XS-250/500 | 1 u |

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|------------------|-----|------------------|-----|
| F0004 | PT-15C18XS-F0004 | 4 u | PT-30C18XS-F0004 | 4 u |
| F0012 | PT-15C18XS-F0012 | 2 u | PT-30C18XS-F0012 | 2 u |
| F0025 | PT-15C18XS-F0025 | 1 u | PT-30C18XS-F0025 | 1 u |
| F0040 | PT-15C18XS-F0040 | 1 u | PT-30C18XS-F0040 | 1 u |
| F0080 | PT-15C18XS-F0080 | 1 u | PT-30C18XS-F0080 | 1 u |
| F0120 | PT-15C18XS-F0120 | 1 u | PT-30C18XS-F0120 | 1 u |
| F0220 | PT-15C18XS-F0220 | 1 u | PT-30C18XS-F0220 | 1 u |
| F0330 | PT-15C18XS-F0330 | 1 u | PT-30C18XS-F0330 | 1 u |
| F0800 | --- | --- | PT-30C18XS-F0800 | 1 u |
| F1600 | --- | --- | PT-30C18XS-F1600 | 1 u |



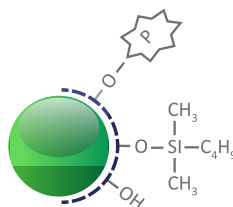
Flash and preparative columns - Peptide purification

**puriFlash® BIO C8-N**

200 Å - 200 m²/g
2.5 ; 3.5 ; 5 ; 10, 15 & 30 µm
C18 - octadecyl
Mono-functional
%C: 7.0

End-capping : Non
pH stability: 1.5 to 8.0
Use mode: Reverse

Analysis & Purification of polar Peptides less than 160AA & mw. up to 20KDa under pseudo hilic mode with 85% to- 95% ACN. Analysis & Purification of hydrophobic Peptides with less than 80AA & mw. up to 10KDa.

**puriFlash® BIO C4-AQ**

300 Å - 100 m²/g
3,5 ; 5 ; 10 ; 15 & 30 µm
C4 - butyl
Mono-functional
%C: 3.0

End-capping: Mixte
pH stability: 1.5 to 8.0
Use mode: Reverse

Analysis & Purification of natural Peptides, fatty acids with larger than 80AA & mw. up to 100KDa.

puriFlash® BIO 200 C8-N

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|----------------|-----|-----------------|-----|-----------------|-----|
| 250 x 4.6 mm | PT5C8N-250/P46 | 1 u | PT10C8N-250/P46 | 1 u | PT15C8N-250/P46 | 1 u |
| 150 x 10.0 mm | PT5C8N-150/100 | 1 u | PT10C8N-150/100 | 1 u | PT15C8N-150/100 | 1 u |
| 250 x 10.0 mm | PT5C8N-250/100 | 1 u | PT10C8N-250/100 | 1 u | PT15C8N-250/100 | 1 u |
| 50 x 21.2 mm | PT5C8N-050/212 | 1 u | PT10C8N-050/212 | 1 u | PT15C8N-050/212 | 1 u |
| 100 x 21.2 mm | PT5C8N-100/212 | 1 u | PT10C8N-100/212 | 1 u | PT15C8N-100/212 | 1 u |
| 150 x 21.2 mm | PT5C8N-150/212 | 1 u | PT10C8N-150/212 | 1 u | PT15C8N-150/212 | 1 u |
| 250 x 21.2 mm | PT5C8N-250/212 | 1 u | PT10C8N-250/212 | 1 u | PT15C8N-250/212 | 1 u |
| 50 x 30.0 mm | PT5C8N-050/300 | 1 u | PT10C8N-050/300 | 1 u | PT15C8N-050/300 | 1 u |
| 100 x 30.0 mm | PT5C8N-100/300 | 1 u | PT10C8N-100/300 | 1 u | PT15C8N-100/300 | 1 u |
| 150 x 30.0 mm | PT5C8N-150/300 | 1 u | PT10C8N-150/300 | 1 u | PT15C8N-150/300 | 1 u |
| 250 x 30.0 mm | PT5C8N-250/300 | 1 u | PT10C8N-250/300 | 1 u | PT15C8N-250/300 | 1 u |
| 50 x 50.0 mm | PT5C8N-050/500 | 1 u | PT10C8N-050/500 | 1 u | PT15C8N-050/500 | 1 u |
| 250 x 50.0 mm | PT5C8N-250/500 | 1 u | PT10C8N-250/500 | 1 u | PT15C8N-250/500 | 1 u |

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|----------------|-----|----------------|-----|
| F0004 | PT-15C8N-F0004 | 4 u | PT-30C8N-F0004 | 4 u |
| F0012 | PT-15C8N-F0012 | 2 u | PT-30C8N-F0012 | 2 u |
| F0025 | PT-15C8N-F0025 | 1 u | PT-30C8N-F0025 | 1 u |
| F0040 | PT-15C8N-F0040 | 1 u | PT-30C8N-F0040 | 1 u |
| F0080 | PT-15C8N-F0080 | 1 u | PT-30C8N-F0080 | 1 u |
| F0120 | PT-15C8N-F0120 | 1 u | PT-30C8N-F0120 | 1 u |
| F0220 | PT-15C8N-F0220 | 1 u | PT-30C8N-F0220 | 1 u |
| F0330 | PT-15C8N-F0330 | 1 u | PT-30C8N-F0330 | 1 u |
| F0800 | --- | --- | PT-30C8N-F0800 | 1 u |
| F1600 | --- | --- | PT-30C8N-F1600 | 1 u |

puriFlash® BIO 300 C4-AQ

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|-----------------|-----|------------------|-----|------------------|-----|
| 250 x 4.6 mm | PP5C4AQ-250/P46 | 1 u | PP10C4AQ-250/P46 | 1 u | PP15C4AQ-250/P46 | 1 u |
| 150 x 10.0 mm | PP5C4AQ-150/100 | 1 u | PP10C4AQ-150/100 | 1 u | PP15C4AQ-150/100 | 1 u |
| 250 x 10.0 mm | PP5C4AQ-250/100 | 1 u | PP10C4AQ-250/100 | 1 u | PP15C4AQ-250/100 | 1 u |
| 50 x 21.2 mm | PP5C4AQ-050/212 | 1 u | PP10C4AQ-050/212 | 1 u | PP15C4AQ-050/212 | 1 u |
| 100 x 21.2 mm | PP5C4AQ-100/212 | 1 u | PP10C4AQ-100/212 | 1 u | PP15C4AQ-100/212 | 1 u |
| 150 x 21.2 mm | PP5C4AQ-150/212 | 1 u | PP10C4AQ-150/212 | 1 u | PP15C4AQ-150/212 | 1 u |
| 250 x 21.2 mm | PP5C4AQ-250/212 | 1 u | PP10C4AQ-250/212 | 1 u | PP15C4AQ-250/212 | 1 u |
| 50 x 30.0 mm | PP5C4AQ-050/300 | 1 u | PP10C4AQ-050/300 | 1 u | PP15C4AQ-050/300 | 1 u |
| 100 x 30.0 mm | PP5C4AQ-100/300 | 1 u | PP10C4AQ-100/300 | 1 u | PP15C4AQ-100/300 | 1 u |
| 150 x 30.0 mm | PP5C4AQ-150/300 | 1 u | PP10C4AQ-150/300 | 1 u | PP15C4AQ-150/300 | 1 u |
| 250 x 30.0 mm | PP5C4AQ-250/300 | 1 u | PP10C4AQ-250/300 | 1 u | PP15C4AQ-250/300 | 1 u |
| 50 x 50.0 mm | PP5C4AQ-050/500 | 1 u | PP10C4AQ-050/500 | 1 u | PP15C4AQ-050/500 | 1 u |
| 250 x 50.0 mm | PP5C4AQ-250/500 | 1 u | PP10C4AQ-250/500 | 1 u | PP15C4AQ-250/500 | 1 u |

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|-----------------|-----|-----------------|-----|
| F0004 | PP-15C4AQ-F0004 | 4 u | PP-30C4AQ-F0004 | 4 u |
| F0012 | PP-15C4AQ-F0012 | 2 u | PP-30C4AQ-F0012 | 2 u |
| F0025 | PP-15C4AQ-F0025 | 1 u | PP-30C4AQ-F0025 | 1 u |
| F0040 | PP-15C4AQ-F0040 | 1 u | PP-30C4AQ-F0040 | 1 u |
| F0080 | PP-15C4AQ-F0080 | 1 u | PP-30C4AQ-F0080 | 1 u |
| F0120 | PP-15C4AQ-F0120 | 1 u | PP-30C4AQ-F0120 | 1 u |
| F0220 | PP-15C4AQ-F0220 | 1 u | PP-30C4AQ-F0220 | 1 u |
| F0330 | PP-15C4AQ-F0330 | 1 u | PP-30C4AQ-F0330 | 1 u |
| F0800 | --- | --- | PP-30C4AQ-F0800 | 1 u |
| F1600 | --- | --- | PP-30C4AQ-F1600 | 1 u |



puriFlash® 200 C18-AQ

| Flash columns | 15 µm | Qty |
|---------------|------------------|-----|
| F0004 | PT-15C18AQ-F0004 | 4 u |
| F0012 | PT-15C18AQ-F0012 | 2 u |
| F0025 | PT-15C18AQ-F0025 | 1 u |
| F0040 | PT-15C18AQ-F0040 | 1 u |
| F0080 | PT-15C18AQ-F0080 | 1 u |
| F0120 | PT-15C18AQ-F0120 | 1 u |
| F0220 | PT-15C18AQ-F0220 | 1 u |
| F0330 | PT-15C18AQ-F0330 | 1 u |

puriFlash® 200 C8

| Flash columns | 15 µm | Qty |
|---------------|---------------|-----|
| F0004 | PT-15C8-F0004 | 4 u |
| F0012 | PT-15C8-F0012 | 2 u |
| F0025 | PT-15C8-F0025 | 1 u |
| F0040 | PT-15C8-F0040 | 1 u |
| F0080 | PT-15C8-F0080 | 1 u |
| F0120 | PT-15C8-F0120 | 1 u |
| F0220 | PT-15C8-F0220 | 1 u |
| F0330 | PT-15C8-F0330 | 1 u |

puriFlash® 200 C4

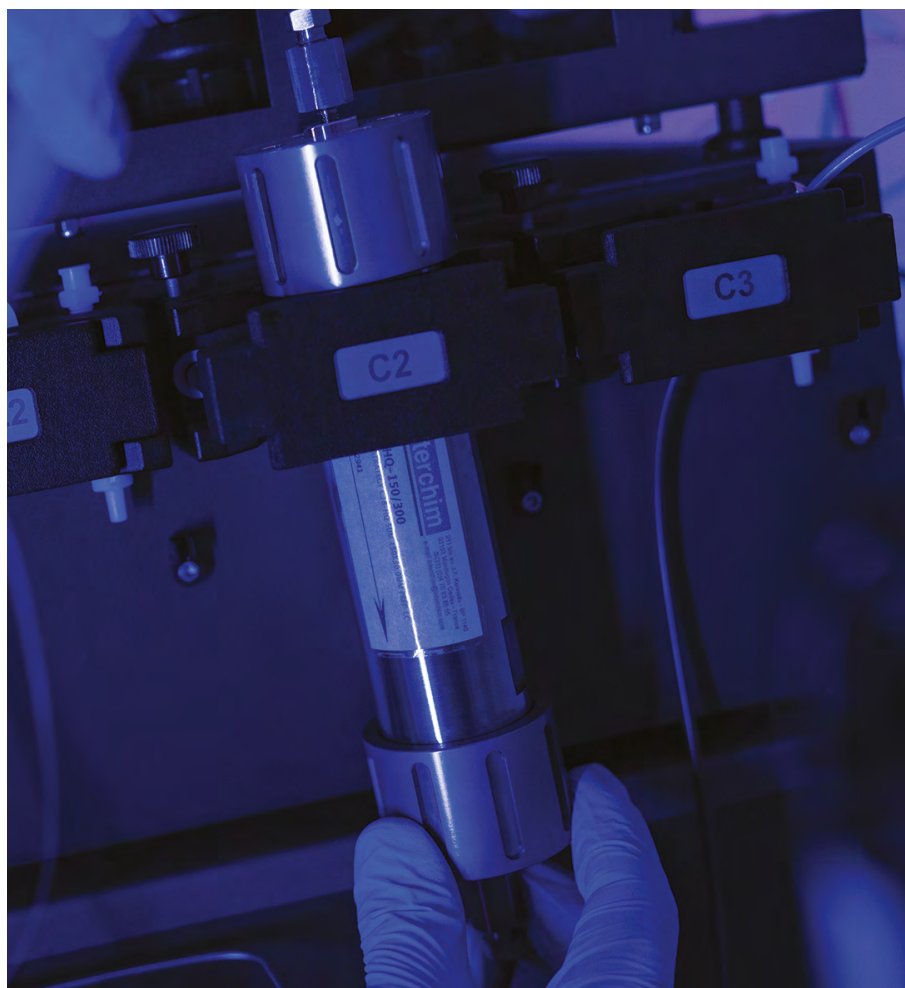
| Flash columns | 15 µm | Qty |
|---------------|---------------|-----|
| F0004 | PT-15C4-F0004 | 4 u |
| F0012 | PT-15C4-F0012 | 2 u |
| F0025 | PT-15C4-F0025 | 1 u |
| F0040 | PT-15C4-F0040 | 1 u |
| F0080 | PT-15C4-F0080 | 1 u |
| F0120 | PT-15C4-F0120 | 1 u |
| F0220 | PT-15C4-F0220 | 1 u |
| F0330 | PT-15C4-F0330 | 1 u |

puriFlash® 300 C4

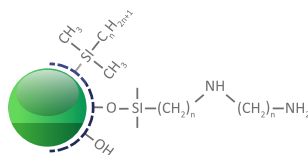
| Flash columns | 15 µm | Qty |
|---------------|---------------|-----|
| F0004 | PP-15C4-F0004 | 4 u |
| F0012 | PP-15C4-F0012 | 2 u |
| F0025 | PP-15C4-F0025 | 1 u |
| F0040 | PP-15C4-F0040 | 1 u |
| F0080 | PP-15C4-F0080 | 1 u |
| F0120 | PP-15C4-F0120 | 1 u |
| F0220 | PP-15C4-F0220 | 1 u |
| F0330 | PP-15C4-F0330 | 1 u |

puriFlash® 300 C18

| Flash columns | 15 µm | Qty |
|---------------|----------------|-----|
| F0004 | PP-15C18-F0004 | 4 u |
| F0012 | PP-15C18-F0012 | 2 u |
| F0025 | PP-15C18-F0025 | 1 u |
| F0040 | PP-15C18-F0040 | 1 u |
| F0080 | PP-15C18-F0080 | 1 u |
| F0120 | PP-15C18-F0120 | 1 u |
| F0220 | PP-15C18-F0220 | 1 u |
| F0330 | PP-15C18-F0330 | 1 u |



Flash and preparative columns - Oligonucleotide purification



puriFlash® BIO RPNH

100 Å - 320 m²/g
 3.5 ; 5 ; 10 ; 15 & 30 µm
 RP - Alkyl chain/Amines
 Mono-functional
 %C: 4.0
 End-capping: Non
 pH stability: 1.5 to 8.0
 Use mode: Reverse/Ion Exchange
Ultra fast & efficient analysis of oligonucleotides up to 25 mer.

Oligonucleotides

puriFlash® BIO 100 2.5 µm RP-NH

| Prep-LC columns | 2.1 mm ID | Qty | 3.0 mm ID | Qty | 4.6 mm ID | Qty |
|-----------------|--------------------|-----|--------------------|-----|--------------------|-----|
| 25 mm | PFB2.5RPNH-025/021 | 1 u | PFB2.5RPNH-025/030 | 1 u | PFB2.5RPNH-025/046 | 1 u |
| 50 mm | PFB2.5RPNH-050/021 | 1 u | PFB2.5RPNH-050/030 | 1 u | PFB2.5RPNH-050/046 | 1 u |
| 75 mm | PFB2.5RPNH-075/021 | 1 u | PFB2.5RPNH-075/030 | 1 u | PFB2.5RPNH-075/046 | 1 u |
| 100 mm | PFB2.5RPNH-100/021 | 1 u | PFB2.5RPNH-100/030 | 1 u | PFB2.5RPNH-100/046 | 1 u |
| 125 mm | PFB2.5RPNH-125/021 | 1 u | PFB2.5RPNH-125/030 | 1 u | PFB2.5RPNH-125/046 | 1 u |
| 150 mm | PFB2.5RPNH-150/021 | 1 u | PFB2.5RPNH-150/030 | 1 u | PFB2.5RPNH-150/046 | 1 u |

puriFlash® BIO 200 RP-NH

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|-----------------|-----|------------------|-----|------------------|-----|
| 250 x 4.6 mm | PT5RPNH-250/P46 | 1 u | PT10RPNH-250/P46 | 1 u | PT15RPNH-250/P46 | 1 u |
| 150 x 10.0 mm | PT5RPNH-150/100 | 1 u | PT10RPNH-150/100 | 1 u | PT15RPNH-150/100 | 1 u |
| 250 x 10.0 mm | PT5RPNH-250/100 | 1 u | PT10RPNH-250/100 | 1 u | PT15RPNH-250/100 | 1 u |
| 50 x 21.2 mm | PT5RPNH-050/212 | 1 u | PT10RPNH-050/212 | 1 u | PT15RPNH-050/212 | 1 u |
| 100 x 21.2 mm | PT5RPNH-100/212 | 1 u | PT10RPNH-100/212 | 1 u | PT15RPNH-100/212 | 1 u |
| 150 x 21.2 mm | PT5RPNH-150/212 | 1 u | PT10RPNH-150/212 | 1 u | PT15RPNH-150/212 | 1 u |
| 250 x 21.2 mm | PT5RPNH-250/212 | 1 u | PT10RPNH-250/212 | 1 u | PT15RPNH-250/212 | 1 u |
| 50 x 30.0 mm | PT5RPNH-050/300 | 1 u | PT10RPNH-050/300 | 1 u | PT15RPNH-050/300 | 1 u |
| 100 x 30.0 mm | PT5RPNH-100/300 | 1 u | PT10RPNH-100/300 | 1 u | PT15RPNH-100/300 | 1 u |
| 150 x 30.0 mm | PT5RPNH-150/300 | 1 u | PT10RPNH-150/300 | 1 u | PT15RPNH-150/300 | 1 u |
| 250 x 30.0 mm | PT5RPNH-250/300 | 1 u | PT10RPNH-250/300 | 1 u | PT15RPNH-250/300 | 1 u |
| 50 x 50.0 mm | PT5RPNH-050/500 | 1 u | PT10RPNH-050/500 | 1 u | PT15RPNH-050/500 | 1 u |
| 250 x 50.0 mm | PT5RPNH-250/500 | 1 u | PT10RPNH-250/500 | 1 u | PT15RPNH-250/500 | 1 u |

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|-----------------|-----|-----------------|-----|
| F0004 | PT-15RPNH-F0004 | 4 u | PT-30RPNH-F0004 | 4 u |
| F0012 | PT-15RPNH-F0012 | 2 u | PT-30RPNH-F0012 | 2 u |
| F0025 | PT-15RPNH-F0025 | 1 u | PT-30RPNH-F0025 | 1 u |
| F0040 | PT-15RPNH-F0040 | 1 u | PT-30RPNH-F0040 | 1 u |
| F0080 | PT-15RPNH-F0080 | 1 u | PT-30RPNH-F0080 | 1 u |
| F0120 | PT-15RPNH-F0120 | 1 u | PT-30RPNH-F0120 | 1 u |
| F0220 | PT-15RPNH-F0220 | 1 u | PT-30RPNH-F0220 | 1 u |
| F0330 | PT-15RPNH-F0330 | 1 u | PT-30RPNH-F0330 | 1 u |
| F0800 | --- | --- | PT-30RPNH-F0800 | 1 u |
| F1600 | --- | --- | PT-30RPNH-F1600 | 1 u |

Oligonucleotides < 25 mer.....puriFlash® BIO 100 2.5RPNH
 Oligonucleotides < 40 mer.....puriFlash® BIO 200 RPNH
 Aptamers, DNA.....puriFlash® BIO 300 RPNH

Flash and preparative columns - Oligonucleotides purification & desalting - Host Cell Fishing - Peptide purification



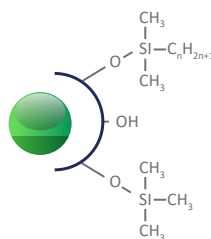
puriFlash® BIO 300 RP-NH

| Prep-LC columns | 5 µm | Qty | 10 µm | Qty | 15 µm | Qty |
|-----------------|-----------------|-----|------------------|-----|------------------|-----|
| 250 x 4.6 mm | PP5RPNH-250/P46 | 1 u | PP10RPNH-250/P46 | 1 u | PP15RPNH-250/P46 | 1 u |
| 150 x 10.0 mm | PP5RPNH-150/100 | 1 u | PP10RPNH-150/100 | 1 u | PP15RPNH-150/100 | 1 u |
| 250 x 10.0 mm | PP5RPNH-250/100 | 1 u | PP10RPNH-250/100 | 1 u | PP15RPNH-250/100 | 1 u |
| 50 x 21.2 mm | PP5RPNH-050/212 | 1 u | PP10RPNH-050/212 | 1 u | PP15RPNH-050/212 | 1 u |
| 100 x 21.2 mm | PP5RPNH-100/212 | 1 u | PP10RPNH-100/212 | 1 u | PP15RPNH-100/212 | 1 u |
| 150 x 21.2 mm | PP5RPNH-150/212 | 1 u | PP10RPNH-150/212 | 1 u | PP15RPNH-150/212 | 1 u |
| 250 x 21.2 mm | PP5RPNH-250/212 | 1 u | PP10RPNH-250/212 | 1 u | PP15RPNH-250/212 | 1 u |
| 50 x 30.0 mm | PP5RPNH-050/300 | 1 u | PP10RPNH-050/300 | 1 u | PP15RPNH-050/300 | 1 u |
| 100 x 30.0 mm | PP5RPNH-100/300 | 1 u | PP10RPNH-100/300 | 1 u | PP15RPNH-100/300 | 1 u |
| 150 x 30.0 mm | PP5RPNH-150/300 | 1 u | PP10RPNH-150/300 | 1 u | PP15RPNH-150/300 | 1 u |
| 250 x 30.0 mm | PP5RPNH-250/300 | 1 u | PP10RPNH-250/300 | 1 u | PP15RPNH-250/300 | 1 u |
| 50 x 50.0 mm | PP5RPNH-050/500 | 1 u | PP10RPNH-050/500 | 1 u | PP15RPNH-050/500 | 1 u |
| 250 x 50.0 mm | PP5RPNH-250/500 | 1 u | PP10RPNH-250/500 | 1 u | PP15RPNH-250/500 | 1 u |

| Flash columns | 15 µm | Qty | 30 µm | Qty |
|---------------|-----------------|-----|-----------------|-----|
| F0004 | PP-15RPNH-F0004 | 4 u | PP-30RPNH-F0004 | 4 u |
| F0012 | PP-15RPNH-F0012 | 2 u | PP-30RPNH-F0012 | 2 u |
| F0025 | PP-15RPNH-F0025 | 1 u | PP-30RPNH-F0025 | 1 u |
| F0040 | PP-15RPNH-F0040 | 1 u | PP-30RPNH-F0040 | 1 u |
| F0080 | PP-15RPNH-F0080 | 1 u | PP-30RPNH-F0080 | 1 u |
| F0120 | PP-15RPNH-F0120 | 1 u | PP-30RPNH-F0120 | 1 u |
| F0220 | PP-15RPNH-F0220 | 1 u | PP-30RPNH-F0220 | 1 u |
| F0330 | PP-15RPNH-F0330 | 1 u | PP-30RPNH-F0330 | 1 u |
| F0800 | --- | --- | PP-30RPNH-F0800 | 1 u |
| F1600 | --- | --- | PP-30RPNH-F1600 | 1 u |

Desalting & Host Cell Fishing
puriFlash® BIO 200 45RP

| Flash columns | 45 µm | Qty |
|---------------|---------------|-----|
| F0004 | PT-45RP-F0004 | 4 u |
| F0012 | PT-45RP-F0012 | 2 u |
| F0025 | PT-45RP-F0025 | 1 u |
| F0040 | PT-45RP-F0040 | 1 u |
| F0080 | PT-45RP-F0080 | 1 u |
| F0120 | PT-45RP-F0120 | 1 u |
| F0220 | PT-45RP-F0220 | 1 u |
| F0330 | PT-45RP-F0330 | 1 u |
| F0800 | PT-45RP-F0800 | 1 u |
| F1600 | PT-45RP-F1600 | 1 u |

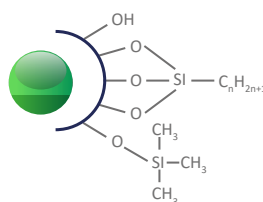


puriFlash® BIO 200 45RP

200 Å - 200 m²/g
45 µm
RP - Alkyl chain
Mono-functional
%C: 5,0
End-capping: Mixte
pH stability: 1.5 to 8.0
Use mode: Reverse
Desalting columns for Synthetic Peptides

puriFlash® BIO 300 50RPT

| Flash columns | 50 µm | Qty |
|---------------|----------------|-----|
| F0004 | PP-50RPT-F0004 | 4 u |
| F0012 | PP-50RPT-F0012 | 2 u |
| F0025 | PP-50RPT-F0025 | 1 u |
| F0040 | PP-50RPT-F0040 | 1 u |
| F0080 | PP-50RPT-F0080 | 1 u |
| F0120 | PP-50RPT-F0120 | 1 u |
| F0220 | PP-50RPT-F0220 | 1 u |
| F0330 | PP-50RPT-F0330 | 1 u |
| F0800 | PP-50RPT-F0800 | 1 u |
| F1600 | PP-50RPT-F1600 | 1 u |



puriFlash® BIO 300 50RPT

300 Å - 100 m²/g
50 µm
RP - Alkyl chain
Tri-functional
%C: 3.0
End-capping: One-step
pH stability: 1.5 to 8.0
Use mode: Reverse
Host Cell Fishing in process scale clarification of cell culture harvests. To remove both host cell protein and host cell DNA from bioprocessing streams containing recombinant monoclonal antibody.

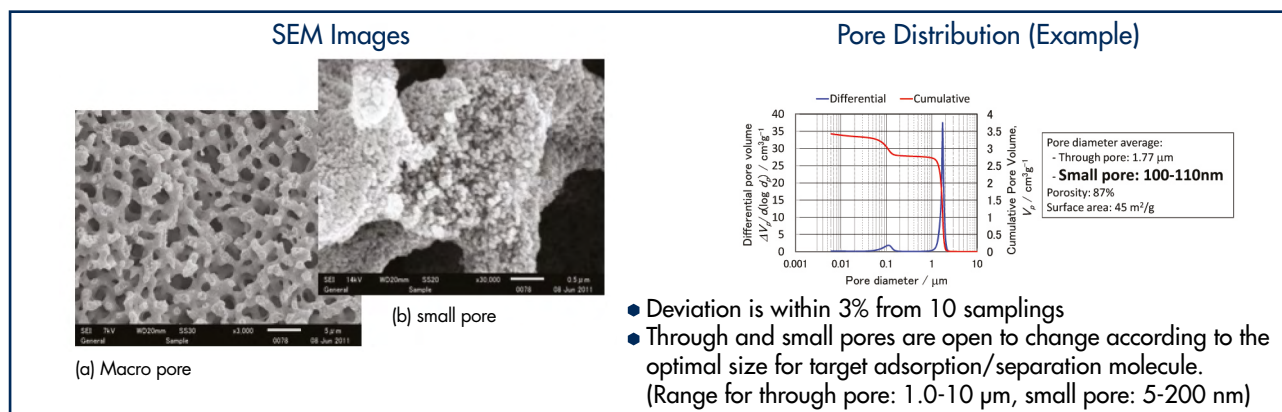


Advion Interchim Scientific columns - Peptides Monolith

Advion Interchim Scientific Peptides monolith column is a pre-packed column with novel silica gel for reversed-phase liquid chromatography that will allow high-speed processing with only a medium to low back pressure. The distinguished structure of Advion Interchim Scientific Peptides monolith (through pores) leads to a faster & deeper solvent perfusion inside the particles themselves. That leads to a more effective purification, especially of macromolecules such as peptides, proteins, and nucleic acids, with an extremely low pressure.

- High Purity and Low Pressure
- High Throughput
- Better resolution than conventional 15 μm media only with less than 1/4 back pressure

Crack-Free controlled manufacturing > 500 mL With Sharp Pore Distribution



High Resolution & High Yield

- Effective for both small and large molecules in a gradient method
- Easy scaling up of the batch size

Ultra High-Throughput

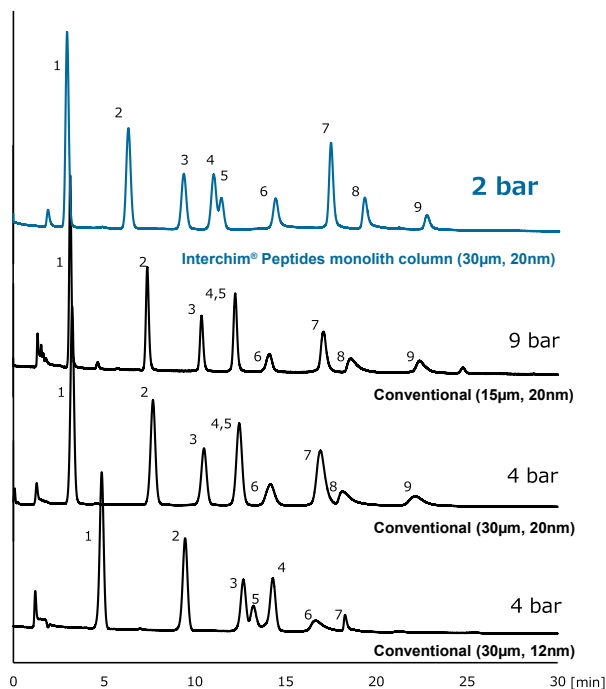
- ~80% reduction of purification time

Green & Eco Purification

- Acetonitrile & methanol free
- Free from toxic solvents

Enhanced Performance With Any System!

- Applicable even to a low-pressure pump system for better performance



Comparative chromatogram by each ODS column for standard peptide/protein mixture separation

Acetonitrile: water (0.1% TFA) = 5:95-60:40(v/v), $t_{\text{g}}=0-30\text{min}$, 2mL/min, 40 °C, 280nm, 250-4.6 mmID, Injection 10 μL , Mixture of Peptide standard (0.25 mg/mL) and Protein standard (0.5mg/mL).

1. Gly-Tyr (238 Da)
2. Val-Tyr-Val (380 Da)
3. Met-Enkephalin (574 Da)
4. Leu-enkephalin (556 Da)
5. Angiotensin II acetate (1 kDa)
6. Ribonuclease A(13.7 kDa)
7. Cytochrome c (12 kDa)
8. Holo-transferrin (80 kDa)
9. Apomyoglobin (16.95 kDa)



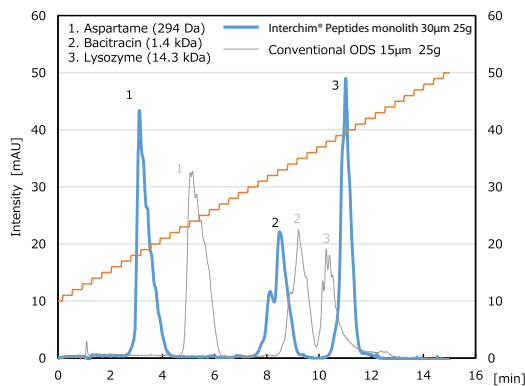
High Resolution & High Yield

High Resolution from Small to Large Molecules

Advion Interchim Scientific Peptides monolith column demonstrates high separation performance for a wide range of molecules. Particularly in a gradient mode, Advion Interchim Scientific Peptides monolith column having a particle diameter of 30 μm shows equivalent or even better resolution than a conventional 15 μm spherical media.

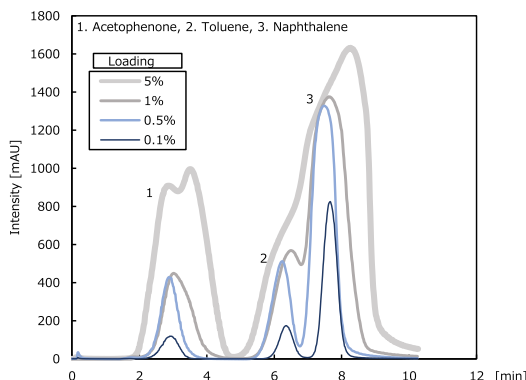
Easy Scale-Up with Larger Column and Loading

Advion Interchim Scientific Peptides monolith column can solve the dilemma of giving up a high resolution purification for a larger capacity column due to the pressure limit. An extremely low back pressure profile makes easy to play with the column size increase in parallel with the increase of the loading amount to get both high resolution and high yield



Small to Large Molecule Separation by Reversed Phase

Eluant : Acetonitrile/water(0.1% TFA)
Gradient : 10:90-50:50 in 15 min
Loading : 0.1% loading
Detection : 215 nm



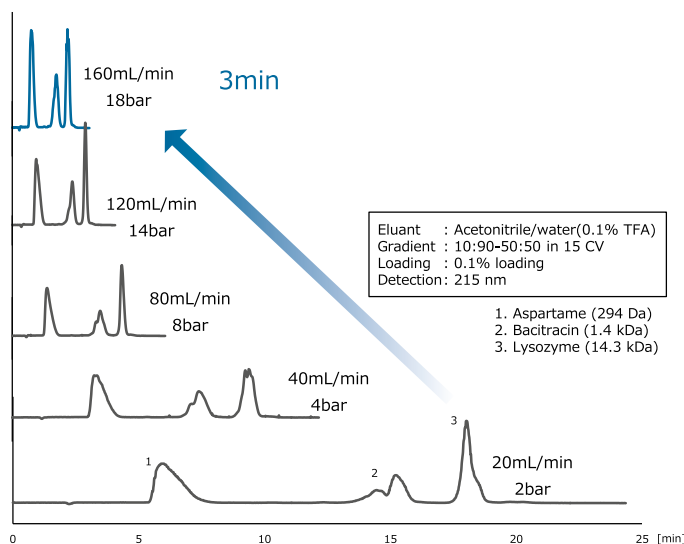
Loading Test with Small Molecules by Interchim® Peptides monolith 30 μm , 12g Column

Eluant : Acetonitrile/water
Gradient : 30:70-70:30 in 10 CV
Detection : 215 nm

Ultra High-Throughput

~80% Reduction of Processing Time

The Advion Interchim Scientific Peptides monolith column is really excellent in response to a gradient condition and shows a superb throughput at a very high flow rate. By raising the flow rate up to the maximum pressure limit of the system, the processing time of purification can be thoroughly shortened.



Ultra High Throughput Example by Interchim® Peptides monolith 30 μm , 25g Column

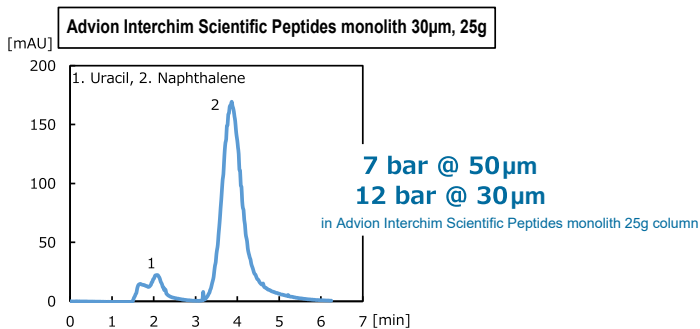


Advion Interchim Scientific columns - Peptides Monolith

Green & Eco Purification

2-Propanol for Eluant / Free from Toxic Reagents

Thanks to its very low back pressure profile, Advion Interchim Scientific Peptides monolith column can achieve reverse phase purification using 2-propanol without giving up a high resolution. Green and eco processing free from toxic solvents like acetonitrile and methanol now comes true.



Reversed Phase Example Using 2-Propanol

Eluant : Isopropanol/water = 50:50
Loading : 0.1% loading
Detection: 215 nm

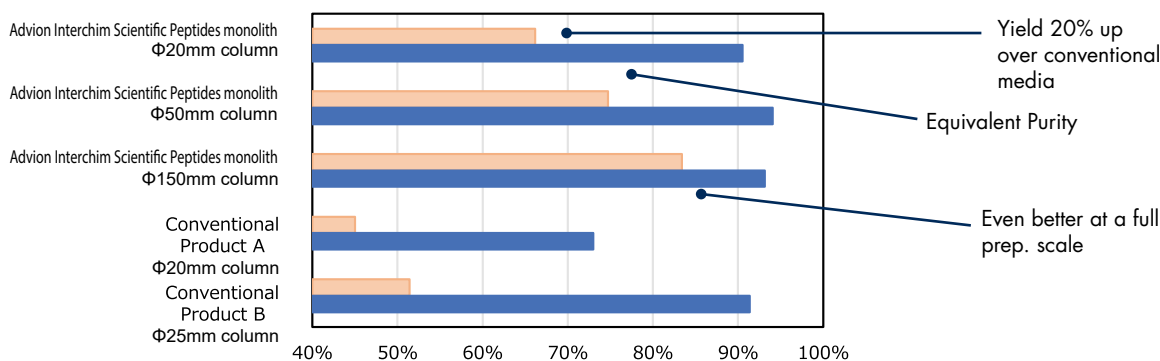
Enhanced Performance with Any System!

Compatible with Low / Medium Pressure Pump

Even in reverse phase purification, the pressure of Advion Interchim Scientific Peptides monolith column is as low as 2 bar or less at a standard flow rate. It can be adapted to any low / medium pressure machine like Advion Interchim Scientific machines and a syringe pump. More over, it is quite easy to improve the separation performance by stacking 2 or more columns.

Prep. Scale Can Also Run at Low Pressure

Extremely low pressure profile of Advion Interchim Scientific Peptides monolith column enables very easy scale-up to a semi-preparative or preparative column without worrying about the pressure limit. It is already demonstrated in production plant with a 150 mm OD column for purification of peptide active substance (about 4kDa) which contains many impurities very tough to purify.



Comparison with Conventional Media in Actual Peptide API Production

(Particle Diameter) Advion Interchim Scientific Peptides monolith : 30 μ m, Conventional A: 45 μ m, B: 20 μ m

(Supported by Hamari Chemicals, Ltd. Japan)



| Flash columns | Stationary phases | Particle sizes | Column format | P/N | Qty |
|---------------|-------------------|----------------|---------------|----------------|-----|
| | Monolith C18 | 30 µm | F0004 | PM-30C18-F0004 | 1 u |
| | Monolith C18 | 30 µm | F0012 | PM-30C18-F0012 | 1 u |
| | Monolith C18 | 30 µm | F0025 | PM-30C18-F0025 | 1 u |
| | Monolith C18 | 30 µm | F0040 | PM-30C18-F0040 | 1 u |
| | Monolith C18 | 30 µm | F0080 | PM-30C18-F0080 | 1 u |
| | Monolith C18 | 30 µm | F0120 | PM-30C18-F0120 | 1 u |
| | Monolith C18 | 30 µm | F0220 | PM-30C18-F0220 | 1 u |
| | Monolith C18 | 30 µm | F0330 | PM-30C18-F0330 | 1 u |
| | | | | | |
| | Monolith C18 | 50 µm | F0004 | PM-50C18-F0004 | 1 u |
| | Monolith C18 | 50 µm | F0012 | PM-50C18-F0012 | 1 u |
| | Monolith C18 | 50 µm | F0025 | PM-50C18-F0025 | 1 u |
| | Monolith C18 | 50 µm | F0040 | PM-50C18-F0040 | 1 u |
| | Monolith C18 | 50 µm | F0080 | PM-50C18-F0080 | 1 u |
| | Monolith C18 | 50 µm | F0120 | PM-50C18-F0120 | 1 u |
| | Monolith C18 | 50 µm | F0220 | PM-50C18-F0220 | 1 u |
| | Monolith C18 | 50 µm | F0330 | PM-50C18-F0330 | 1 u |

| Prep-LC columns | Stationary phases | Particle sizes | Column format | P/N | Qty |
|-----------------|-------------------|----------------|---------------|-----------------|-----|
| | Monolith C18 | 15 µm | 100 x 4,6 mm | PM15C18-100/P46 | 1 u |
| | Monolith C18 | 15 µm | 150 x 4,6 mm | PM15C18-150/P46 | 1 u |
| | Monolith C18 | 15 µm | 250 x 4,6 mm | PM15C18-250/P46 | 1 u |
| | Monolith C18 | 15 µm | 100 x 10,0 mm | PM15C18-100/100 | 1 u |
| | Monolith C18 | 15 µm | 150 x 10,0 mm | PM15C18-150/100 | 1 u |
| | Monolith C18 | 15 µm | 250 x 10,0 mm | PM15C18-250/100 | 1 u |
| | Monolith C18 | 15 µm | 150 x 21,2 mm | PM15C18-150/212 | 1 u |
| | Monolith C18 | 15 µm | 250 x 21,2 mm | PM15C18-250/212 | 1 u |
| | Monolith C18 | 15 µm | 250 x 30,0 mm | PM15C18-250/300 | 1 u |
| | | | | | |
| | Monolith C18 | 30 µm | 100 x 4,6 mm | PM30C18-100/P46 | 1 u |
| | Monolith C18 | 30 µm | 150 x 4,6 mm | PM30C18-150/P46 | 1 u |
| | Monolith C18 | 30 µm | 250 x 4,6 mm | PM30C18-250/P46 | 1 u |
| | Monolith C18 | 30 µm | 100 x 10,0 mm | PM30C18-100/100 | 1 u |
| | Monolith C18 | 30 µm | 150 x 10,0 mm | PM30C18-150/100 | 1 u |
| | Monolith C18 | 30 µm | 250 x 10,0 mm | PM30C18-250/100 | 1 u |
| | Monolith C18 | 30 µm | 150 x 21,2 mm | PM30C18-150/212 | 1 u |
| | Monolith C18 | 30 µm | 250 x 21,2 mm | PM30C18-250/212 | 1 u |
| | Monolith C18 | 30 µm | 250 x 30,0 mm | PM30C18-250/300 | 1 u |



Advion Interchim Scientific Flash Prep silica type HP

Advion Interchim Scientific offers a range of silicas specially dedicated to preparative and flash purification. The puriFlash® silicas are available in several particle sizes ranging from 5 µm to 50 µm. While maintaining the same chemistry, direct scale-up from an analytical column to preparative and flash formats are possible.



PURIFLASH® SI-HP

Type: Spherical Silica
 Porosity: 60 Å
 Surface: 500 m²/g
 Bonding: Silica, grade HP
 pH stability: 1.5 to 6.5
 Applications: non-ionic molecules and polar organic molecules.
 High efficiency.

PURIFLASH® C18-HP

Type: Spherical Silica
 Porosity: 100 Å
 Surface: 300 m²/g
 Bonding: C18 - octadecyl mono-fonctionnel
 %C: 16.5 %
 End-capping: One-step
 pH stability: 1.5 to 7.5
 Applications: Pharmaceutical
 Excellent choice for routine reverse phase purifications.

Particle size: 5 µm

| | |
|------------|---------------|
| P/N /100 g | PF-5SIHP-100G |
| P/N /500 g | PF-5SIHP-500G |
| P/N /1 kg | PF-5SIHP-1KG |
| P/N /5 kg | PF-5SIHP-5KG |

Particle size: 10 µm

| | |
|------------|----------------|
| P/N /100 g | PF-10SIHP-100G |
| P/N /500 g | PF-10SIHP-500G |
| P/N /1 kg | PF-10SIHP-1KG |
| P/N /5 kg | PF-10SIHP-5KG |

Particle size: 15 µm

| | |
|------------|----------------|
| P/N /100 g | PF-15SIHP-100G |
| P/N /500 g | PF-15SIHP-500G |
| P/N /1 kg | PF-15SIHP-1KG |
| P/N /5 kg | PF-15SIHP-5KG |

Particle size: 30 µm

| | |
|------------|----------------|
| P/N /100 g | PF-30SIHP-100G |
| P/N /500 g | PF-30SIHP-500G |
| P/N /1 kg | PF-30SIHP-1KG |
| P/N /5 kg | PF-30SIHP-5KG |

Particle size: 50 µm

| | |
|------------|----------------|
| P/N /100 g | PF-50SIHP-100G |
| P/N /500 g | PF-50SIHP-500G |
| P/N /1 kg | PF-50SIHP-1KG |
| P/N /5 kg | PF-50SIHP-5KG |
| P/N /25 kg | PF-50SIHP-25KG |

Particle size: 5 µm

| | |
|------------|----------------|
| P/N /100 g | PF-5C18HP-100G |
| P/N /500 g | PF-5C18HP-500G |
| P/N /1 kg | PF-5C18HP-1KG |

Particle size: 10 µm

| | |
|------------|-----------------|
| P/N /100 g | PF-10C18HP-100G |
| P/N /500 g | PF-10C18HP-500G |
| P/N /1 kg | PF-10C18HP-1KG |

Particle size: 15 µm

| | |
|------------|-----------------|
| P/N /100 g | PF-15C18HP-100G |
| P/N /500 g | PF-15C18HP-500G |
| P/N /1 kg | PF-15C18HP-1KG |
| P/N /5 kg | PF-15C18HP-5KG |

Particle size: 30 µm

| | |
|------------|-----------------|
| P/N /100 g | PF-30C18HP-100G |
| P/N /500 g | PF-30C18HP-500G |
| P/N /1 kg | PF-30C18HP-1KG |
| P/N /5 kg | PF-30C18HP-5KG |

Particle size: 50 µm

| | |
|------------|-----------------|
| P/N /100 g | PF-50C18HP-100G |
| P/N /500 g | PF-50C18HP-500G |
| P/N /1 kg | PF-50C18HP-1KG |
| P/N /5 kg | PF-50C18HP-5KG |



Advion Interchim Scientific Flash Prep silica C18-HQ/NH2/DIOL

PURIFLASH® C18-HQ

Type: Spherical Silica
 Porosity: 100 Å
 Surface: 300 m²/g
 Bonding: C18 - octadecyl monofunctional
 %C: 14.0%
 End-capping: Mixte
 pH stability: 2.0 to 7.5
 Applications: The bonding chemistry makes possible to start the gradient at a 100% of water. Suitable for the separation and purification of moderately polar and non-polar molecules.

PURIFLASH® NH2

Type: Spherical Silica
 Porosity: 100 Å
 Surface: 300 m²/g
 Bonding: NH2 - amino monofunctional
 %C: 4.0%
 End-capping: One-step
 pH stability: 2.0 to 6.5
 Applications: Can be both a weak anion exchanger for strong acids or a polar phase that can interact with the OH, NH, SH...functions.

PURIFLASH® DIOL

Type: Spherical Silica
 Porosity: 60 Å
 Surface: 500 m²/g
 Bonding: Diol monofunctional
 End-capping: none
 pH stability: 1.5 to 6.5
 Applications: The Diol function imparts a globally neutral surface to the silica. It allows a better separation of basic molecules in normal phase.

Particle size: 5 µm

| | |
|------------|----------------|
| P/N /100 g | PF-5C18AQ-100G |
| P/N /500 g | PF-5C18AQ-500G |
| P/N /1 kg | PF-5C18AQ-1KG |

Particle size: 10 µm

| | |
|------------|-----------------|
| P/N /100 g | PF-10C18AQ-100G |
| P/N /500 g | PF-10C18AQ-500G |
| P/N /1 kg | PF-10C18AQ-1KG |

Particle size: 15 µm

| | |
|------------|-----------------|
| P/N /100 g | PF-15C18AQ-100G |
| P/N /500 g | PF-15C18AQ-500G |
| P/N /1 kg | PF-15C18AQ-1KG |

Particle size: 30 µm

| | |
|------------|-----------------|
| P/N /100 g | PF-30C18AQ-100G |
| P/N /500 g | PF-30C18AQ-500G |
| P/N /1 kg | PF-30C18AQ-1KG |
| P/N /5 kg | PF-30C18AQ-5KG |

Particle size: 5 µm

| | |
|------------|--------------|
| P/N /100 g | PF-5NH2-100G |
| P/N /500 g | PF-5NH2-500G |
| P/N /1 kg | PF-5NH2-1KG |

Particle size: 10 µm

| | |
|------------|---------------|
| P/N /100 g | PF-10NH2-100G |
| P/N /500 g | PF-10NH2-500G |
| P/N /1 kg | PF-10NH2-1KG |

Particle size: 15 µm

| | |
|------------|---------------|
| P/N /100 g | PF-15NH2-100G |
| P/N /500 g | PF-15NH2-500G |
| P/N /1 kg | PF-15NH2-1KG |
| P/N /5 kg | PF-15NH2-5KG |

Particle size: 30 µm

| | |
|------------|---------------|
| P/N /100 g | PF-30NH2-100G |
| P/N /500 g | PF-30NH2-500G |
| P/N /1 kg | PF-30NH2-1KG |
| P/N /5 kg | PF-30NH2-5KG |

Particle size: 50 µm

| | |
|------------|---------------|
| P/N /100 g | PF-50NH2-100G |
| P/N /500 g | PF-50NH2-500G |
| P/N /1 kg | PF-50NH2-1KG |
| P/N /5 kg | PF-50NH2-5KG |

Particle size: 5 µm

| | |
|------------|-------------|
| P/N /100 g | PF-5OH-100G |
| P/N /500 g | PF-5OH-500G |
| P/N /1 kg | PF-5OH-1KG |

Particle size: 10 µm

| | |
|------------|--------------|
| P/N /100 g | PF-10OH-100G |
| P/N /500 g | PF-10OH-500G |
| P/N /1 kg | PF-10OH-1KG |

Particle size: 15 µm

| | |
|------------|--------------|
| P/N /100 g | PF-15OH-100G |
| P/N /500 g | PF-15OH-500G |
| P/N /1 kg | PF-15OH-1KG |

Particle size: 30 µm

| | |
|------------|--------------|
| P/N /100 g | PF-30OH-100G |
| P/N /500 g | PF-30OH-500G |
| P/N /1 kg | PF-30OH-1KG |
| P/N /5 kg | PF-30OH-5KG |

Particle size: 50 µm

| | |
|------------|--------------|
| P/N /100 g | PF-50OH-100G |
| P/N /500 g | PF-50OH-500G |
| P/N /1 kg | PF-50OH-1KG |
| P/N /5 kg | PF-50OH-5KG |





Advion Interchim Scientific Flash Prep silica type HC

puriFlash® HC silica has an extremely high specific surface area which allows for maximum loading capacity.

PURIFLASH® SI-HC

Type: Spherical Silica
 Porosity: 60 Å
 Surface: 680 m²/g
 Bonding: Silica, grade HC
 pH stability: 1.5 - 6.5
 Applications: Non-ionic molecules and polar organic molecules.
 Better loading capacity & productivity.

PURIFLASH® NH₂-HC

Type: Spherical Silica
 Porosity: 60 Å
 Surface: 680 m²/g
 Bonding: NH₂ - amino polyfunctional
 %C: 4.0 %
 End-capping: none
 pH stability: 1.5 to 6.5
 Applications: Can be both a weak anion exchanger for strong acids or a polar phase that can interact with the OH, NH, SH...functions.

Particle size: 15 µm

| | |
|------------|----------------|
| P/N /100 g | PF-15SIHC-100G |
| P/N /500 g | PF-15SIHC-500G |
| P/N /1 kg | PF-15SIHC-1KG |
| P/N /5 kg | PF-15SIHC-5KG |

Particle size: 50 µm

| | |
|-----------|-----------------|
| P/N /100g | PF-50NH2HC-100G |
| P/N /500g | PF-50NH2HC-500G |
| P/N /1kg | PF-50NH2HC-1KG |
| P/N /kg | PF-50NH2HC-5KG |

Particle size: 25 µm

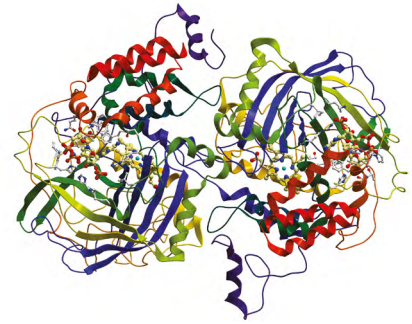
| | |
|------------|----------------|
| P/N /100 g | PF-25SIHC-100G |
| P/N /500 g | PF-25SIHC-500G |
| P/N /1 kg | PF-25SIHC-1KG |
| P/N /5 kg | PF-25SIHC-5KG |
| P/N /25 kg | PF-25SIHC-25KG |

Particle size: 50 µm

| | |
|------------|----------------|
| P/N /100 g | PF-50SIHC-100G |
| P/N /500 g | PF-50SIHC-500G |
| P/N /1 kg | PF-50SIHC-1KG |
| P/N /5 kg | PF-50SIHC-5KG |
| P/N /25 kg | PF-50SIHC-25KG |



Advion Interchim Scientific Flash Prep silicas for biological purification
puriFlash® BIO silicas are specially developed to ensure perfect selectivity with peptides and oligonucleotides. Multiple bonding options are available.



PURIFLASH® BIO 100 C18-N

Type: Spherical Silica
Porosity: 100 Å
Surface: 300 m²/g
Bonding: C18 - octadecyl mono-functional
%C: 15 %
End-capping: none
pH stability: 1.5 to 8.0
Applications: AQ/CC of peptide synthesis.
Analysis and purification of polar peptides of less than 40 AA up to 5 kD.

PURIFLASH® BIO 200 C18T

Type: Spherical Silica
Porosity: 200 Å
Surface: 200 m²/g
Bonding: C18 - octadecyl polyfunctional
End-capping: none
pH stability: 1.5 to 8.0
Applications: QA/QC of peptide synthesis.
Analysis and purification of peptides of more than 80 AA to 10 kD.

PURIFLASH® 100 C18XS

Type: Spherical Silica
Porosity: 100 Å
Surface: 300 m²/g
Bonding: C18 - octadecyl mono-functional
%C: 17 %
End-capping: none
pH stability: 1.0 to 10.0
Applications: Analysis and purification of peptides mid-polar and apolar peptides of less than 40 AA to 5 kD.

Particle size: 5 µm

| | |
|------------|----------------|
| P/N /100 g | PFB-5C18N-100G |
| P/N /500 g | PFB-5C18N-500G |
| P/N /1 kg | PFB-5C18N-1KG |

Particle size: 5 µm

| | |
|------------|---------------|
| P/N /100 g | PT-5C18T-100G |
| P/N /500 g | PT-5C18T-500G |
| P/N /1 kg | PT-5C18T-1KG |

Particle size: 5 µm

| | |
|------------|-----------------|
| P/N /100 g | PFB-5C18XS-100G |
| P/N /500 g | PFB-5C18XS-500G |
| P/N /1 kg | PFB-5C18XS-1KG |

Particle size: 10 µm

| | |
|------------|-----------------|
| P/N /100 g | PFB-10C18N-100G |
| P/N /500 g | PFB-10C18N-500G |
| P/N /1 kg | PFB-10C18N-1KG |

Particle size: 10 µm

| | |
|------------|----------------|
| P/N /100 g | PT-10C18T-100G |
| P/N /500 g | PT-10C18T-500G |
| P/N /1 kg | PT-10C18T-1KG |

Particle size: 10 µm

| | |
|------------|------------------|
| P/N /100 g | PFB-10C18XS-100G |
| P/N /500 g | PFB-10C18XS-500G |
| P/N /1 kg | PFB-10C18XS-1KG |

Particle size: 15 µm

| | |
|------------|-----------------|
| P/N /100 g | PFB-15C18N-100G |
| P/N /500 g | PFB-15C18N-500G |
| P/N /1 kg | PFB-15C18N-1KG |

Particle size: 15 µm

| | |
|------------|----------------|
| P/N /100 g | PT-15C18T-100G |
| P/N /500 g | PT-15C18T-500G |
| P/N /1 kg | PT-15C18T-1KG |

Particle size: 15 µm

| | |
|-----------|------------------|
| P/N /100g | PFB-15C18XS-100G |
| P/N /500g | PFB-15C18XS-500G |
| P/N /1kg | PFB-15C18XS-1KG |

Particle size: 30 µm

| | |
|------------|-----------------|
| P/N /100 g | PFB-30C18N-100G |
| P/N /500 g | PFB-30C18N-500G |
| P/N /1 kg | PFB-30C18N-1KG |
| P/N /5 kg | PFB-30C18N-5KG |

Particle size: 30 µm

| | |
|------------|----------------|
| P/N /100 g | PT-30C18T-100G |
| P/N /500 g | PT-30C18T-500G |
| P/N /1 kg | PT-30C18T-1KG |
| P/N /5 kg | PT-30C18T-5KG |

Particle size: 30 µm

| | |
|------------|------------------|
| P/N /100 g | PFB-30C18XS-100G |
| P/N /500 g | PFB-30C18XS-500G |
| P/N /1 kg | PFB-30C18XS-1KG |
| P/N /5 kg | PFB-30C18XS-5KG |





Dynamic axial compression column, DAC

The DAC (Dynamic Axial Compression) column, is a unique combination of preparative column and packing system. Very simple, the column can be used inline when packed. The piston of the column produces a constant on the phase bed which prevents from collapse or rapid deterioration. They can be packed with small particle sizes to achieve high performance levels.



50 mm column

| DAC50 | |
|--|---------------------------|
| P/N | KV7351 |
| Start up install kit P/N | KV7361 |
| Column ID | 50 mm |
| Column length | 650 mm |
| Column inner wall roughness (μm) | $\leq 0.1 \mu\text{m}$ |
| Effective packing height | $\leq 450 \text{ mm}$ |
| Column end cap connection type Quick chain clamp locking | Quick chain clamp locking |
| | SUS316L |
| Wetted material | Outside dimension |
| | Packing method |
| Outside dimension | 650 x 650 x 2021 mm |
| Packing method | Down packing method |



80 mm column

| DAC80 | |
|--|---------------------------|
| P/N | KV7371 |
| Start up install kit P/N | KV7381 |
| Column ID | 80 mm |
| Column length | 650 mm |
| Column inner wall roughness (μm) | $\leq 0.1 \mu\text{m}$ |
| Effective packing height | $\leq 450 \text{ mm}$ |
| Column end cap connection type Quick chain clamp locking | Quick chain clamp locking |
| | SUS316L |
| Wetted material | Outside dimension |
| | Packing method |
| Outside dimension | 650 x 650 x 2300 mm |
| Packing method | Down packing method |



100 mm column

| DAC100 | |
|--|---------------------------|
| P/N | KV7391 |
| Start up install kit P/N | KV7381 |
| Column ID | 100 mm |
| Column length | 650 mm |
| Column inner wall roughness (µm) | ≤ 0.1 µm |
| Effective packing height | ≤ 450 mm |
| Column end cap connection type Quick chain clamp locking | Quick chain clamp locking |
| | SUS316L |
| Wetted material | Outside dimension |
| | Packing method |
| Outside dimension | 600 x 600 x 2300 mm |
| Packing method | Down packing method |

150 mm column

| DAC150 | |
|--|---------------------------|
| P/N | KV7411 |
| Start up install kit P/N | KV7381 |
| Column ID | 150 mm |
| Column length | 650 mm |
| Column inner wall roughness (µm) | ≤ 0.1 µm |
| Effective packing height | ≤ 450 mm |
| Column end cap connection type Quick chain clamp locking | Quick chain clamp locking |
| | SUS316L |
| Wetted material | Outside dimension |
| | Packing method |
| Outside dimension | 650 x 650 x 2345 mm |
| Packing method | Down packing method |

200 mm column

| DAC200 | |
|--|---------------------------|
| P/N | B4ZBP1 |
| Start up install kit P/N | B8DB00 |
| Column ID | 200 mm |
| Column length | 680 mm |
| Column inner wall roughness (µm) | ≤ 0.2 µm |
| Effective packing height | ≤ 450 mm |
| Column end cap connection type Quick chain clamp locking | Quick chain clamp locking |
| | SUS316L |
| Wetted material | Outside dimension |
| | Packing method |
| Outside dimension | 650 x 650 x 2435 mm |
| Packing method | Down packing method |



| | |
|--|----------------|
| expression® CMS | J.2-J.8 |
| Overview | J.2 |
| Features | J.3 |
| ESI, APCI sources | J.4 |
| Softwares | J.5 |
| Plate Express™, FIA, ASAP, AVANT™, vAPCI, iASAP, | |
| Touch Express™ OPSI | J.6 - J.7 |
| Accessories | J.8 |

| | |
|--|-----------------|
| Triversa NanoMate® LESA® | J.9-J.11 |
| ESI Chips | J.9 |
| Direct infusion | J.9 |
| LC/MS with Fraction Collection for re-analysis by Infusion | J.10 |
| Liquid Extraction Surface Analysis (LESA®) | J.10 |
| Liquid Extraction Surface analysis coupled with LC | |
| LESAplus LC) | J.11 |
| ChipSoft® Operating Software and Developers Kit Option | J.11 |





Unrivalled Utility and Flexibility

The **expression**[®] family of compact mass spectrometers was developed with maximum versatility in mind. They allow users to switch rapidly between the many different sample introduction techniques required throughout the chemist's workflow ; from simple direct probe analysis to ultra-high performance liquid chromatography and prep-scale purification.



ASAP[®]: Atmospheric Solids Analysis Probe

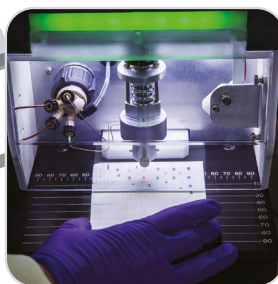


Plate Express[™]: TLC/CMS Mass Analysis of TLC spots



AVANT[™] Chromatography Systems: (U)HPLC/CMS



iASAP: Direct Analysis of Air-Sensitive Compounds

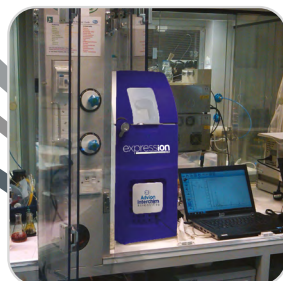


Direct Injection (FIA)



vAPCI: Volatile APCI for Gas Analysis

High performance compact mass spec designed especially for chemists



Flow Chemistry Monitoring & Automated, Real-Time, Optimization



Purification by Flash, SFC, or Prep-LC/CMS



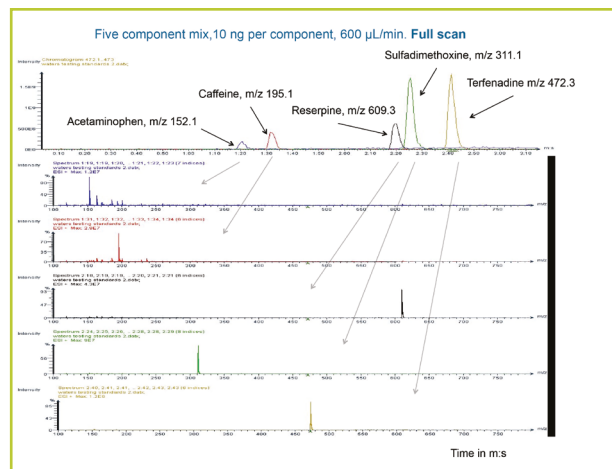
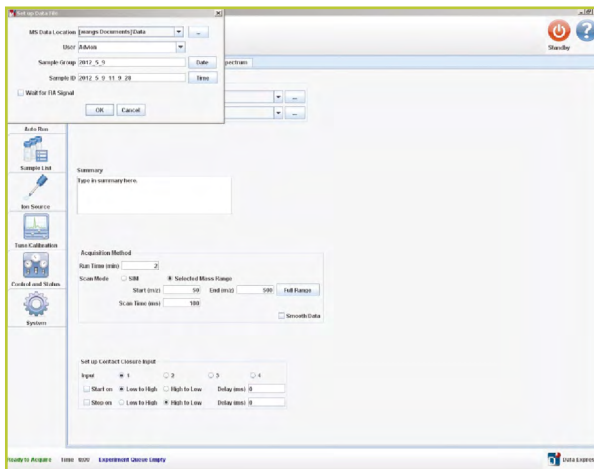
Touch Express[™] Open Port Sampling Interface (OPSI) (FIA)

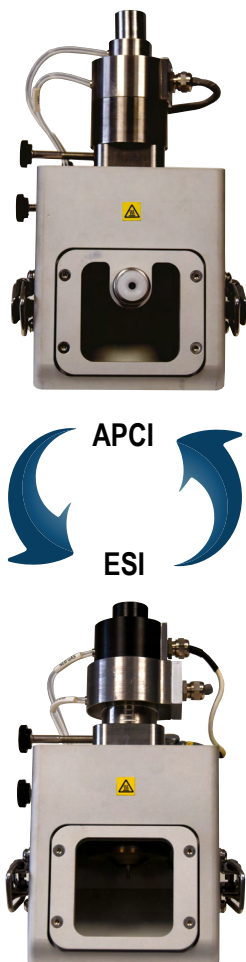


Features:

- Available sources: ESI, ESI-OPSI, APCI & ASAP
- Single quadrupole
- Simultaneous positive/negative ionization
- Flow rate: ESI: 10 µL/min to 1 mL/min
APCI: 10 µL/min to 2 mL/min
- Masse Range (m/z): **expression® S** m/z 1 200
expression® L m/z 2 000
- Scan Speed: 10,000 m/z units/sec
- Sensitivity: 10 pg Reserpine (FIA - 5 µL injection at 100 µL/min)
100:1 S/N (RMS) with SIM m/z 609.3
- Resolution: 0.5 - 0.7 m/z units (FWHM) at 1000 m/z units sec⁻¹
- Accuracy: 0.1 m/z
- Nitrogen consumption 99% pure: 10 L/min at 5.5 bar
- Dimensions: 65 (h) x 55 (d) x 27.5 (w) cm
- Weight: 32 kg

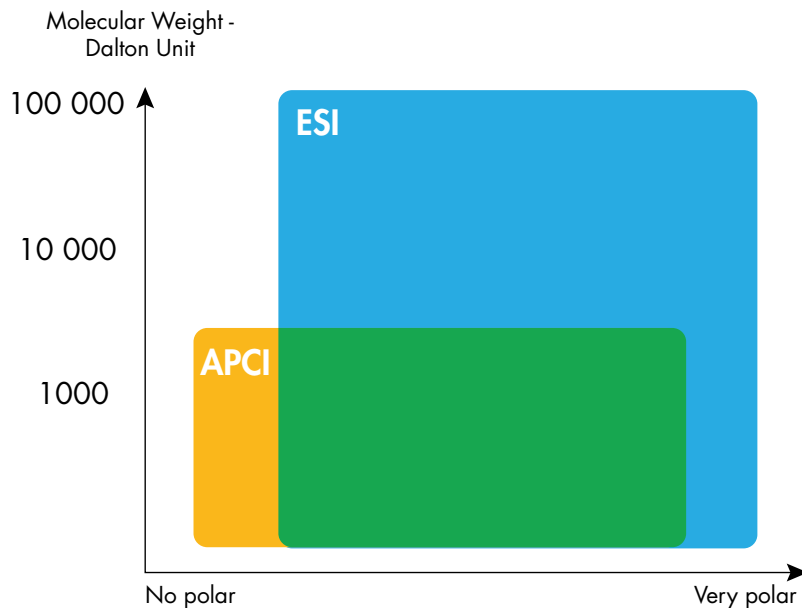
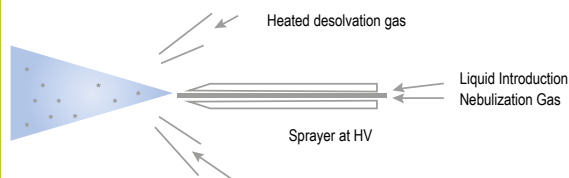
| Description | P/N | Qty |
|-----------------------------------|----------|-----|
| expression® CMS-S m/z 1200 | CMS-S-01 | 1 u |
| expression® CMS-L m/z 2000 | CMS-L-01 | 1 u |



**Source**

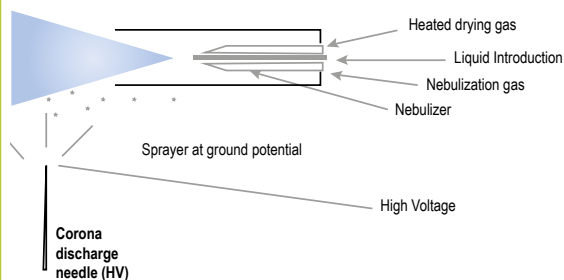
Automatic source recognition

Quick and easy to change

**ELECTROSPRAY IONIZATION (ESI)**

Applications:

Proteins, peptides, sugars, carbohydrates, PPG

ATMOSPHERIC PRESSURE IONIZATION SOURCE (APCI)

Applications:

Small molecules (< 1000 u) volatile, polar and neutral molecules, steroids...

Applications:
Most drugs, metabolites,
aromatic compounds containing at least one
ionizable functional group (NH₂, CO₂H, SO₃H, Ph-OH...)



Full-Feature & Easy-to-Use Software for Simplified Operation and Compound Identification

Advion Interchim Scientific's Full Suite of software products for the expression® CMS

Advion Interchim Scientific offers a full-range of software options for detection to quantitation and more, including:



Mass Express

A user-friendly, intuitive software platform for instrument control and data acquisition.



Data Express

A full feature data processing package to interpret and present mass spectral and chromatographic information in the clearest form using the fewest possible steps.



Quant Express

Quant Express is an add-on to the Mass Express software suite that provides a complete, detailed quantitation application.



LC Express

LC Express provides a seamless interface with the Advion Interchim Scientific AVANT™ (U)HPLC system, with additional capabilities to interface with nearly all LC systems on the market, including Agilent ICF and Data Apex Clarity drivers.



CheMS

The CheMS user interface allows users to quickly select the workflow and type of compound they wish to analyze in just a few clicks of the mouse, automatically optimizing the ion source and data acquisition parameters.

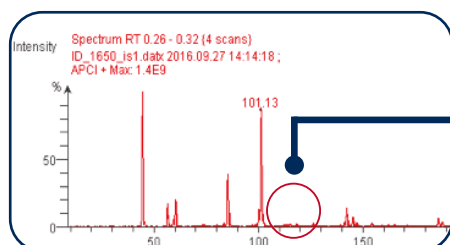
- Single click an instrument icon to set-up, and switch between, a range of sample introduction techniques
- Simplified interpretation of mass spectra with automatic identification of peaks related to your compound of interest
- Works alongside Mass Express for fully capable and versatile instrument control and data processing



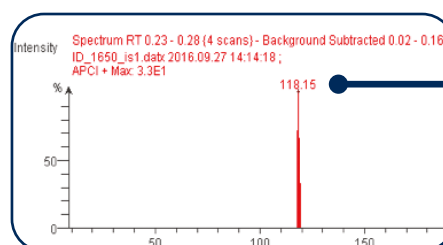
Peak Express™: See more

Introducing a revolutionary new way to view mass spectral data (US patent 9,779,922). Peak Express calculates the relative change of signals and will detect the elution of even the smallest peak against a much larger background of chemical noise, and tell you the m/z .

- Find your compound even in dirty matrices
- Find your compound without knowing its m/z in advance.
- Find minor components in complex mixtures
- Acquire XIC-quality data while collecting the entire mass range



Cannot see your compound because of chemical noise



Only your compound



The Industry's Broadest Range of Innovative Sampling Technique

Advion Interchim Scientific provides an extensive range of innovative sample introduction systems that are fully integrated with the **expression**® CMS to provide solutions for all the chemist's needs. From the simplest, fastest direct probe analysis requiring no sample preparation to ultra-high performance compound separation with state-of-the-art liquid chromatography systems.

Plate Express™ TLC Plate Reader

Plate Express provides a simple, automated means of obtaining mass spectra directly from TLC plates, combined with Advion Interchim Scientific's **expression**® compact mass spectrometer creating a technique known as TLC/CMS. Using this technique chemists can quickly and confidently identify products even in complex mixtures without additional sample preparation.

- Mass analysis of spots in <1 minute, avoiding system bottlenecks
- Avoid the risk of overloading the mass spectrometer - TLC spots contain the ideal amount of sample for mass spectrometry
- Software controlled - spectra obtained within a few mouse clicks
- Simplify the process of obtaining spectra - ideal for multi-user labs

ASAP®: Atmospheric Solids Analysis Probe

The ASAP direct analysis probe provides fast, simple, reliable mass analysis of solid and liquid samples without the need for sample preparation. The chemist simply dips the probe in a liquid, or rubs it on a solid sample, and inserts it through a port directly into the ion source yielding results in seconds. Ideal for:

- Reaction monitoring
- Compound identification
- Food safety
- Forensics
- Natural products
- Tablets



AVANT™ HPLC & UHPLC Chromatography Systems

Advion Interchim Scientific's range of AVANT, high performance, liquid chromatography provides seamlessly integrated LC/CMS under the full control of Advion Interchim Scientific's simple, intuitive Mass Express software suite.

From the simplest manual injection HPLC to a fully automated, streamlined UHPLC system and everything in-between, the AVANT series can be configured to fit your analytical requirements and your budget.

The Advion Interchim Scientific AVANT series offers:

- HPLC and UHPLC
- UV and UV-Vis DAD
- Column oven
- Autosamplers with optional cooling
- Modular and stackable design
- High-pressure mixing with optional degassing



vAPCI: Volatile APCI Headspace & Gas-Phase Analysis

Volatile Atmospheric Pressure Chemical Ionization (vAPCI) combined with Advion Interchim Scientific's **expression**[®] CMS is a fast and easy method to measure gases such as headspace and breath. The vAPCI provides a sample inlet linked by a heated transfer line to an APCI ion source, where the sample is ionized by corona discharge. vAPCI enables chemists to:

- Analyze Volatile Organic Compounds (VOCs) directly in the gas phase
- Solvent-free APCI allows a greater range of compounds to be ionized compared to traditional APCI ion sources

iASAP: Inert Atmospheric Solids Analysis Probe

The inert ASAP[®] (iASAP) is a modification of the ASAP[®] technique, allowing easy sampling of air-sensitive compounds, such as metal catalysts and organometallics, from reactions that are carried out in a glove box or Schlenk line to prevent oxidation. The iASAP probe is designed to provide:

- Safe transfer of air sensitive samples to CMS at the bench
- Mass analysis without sample oxidation
- Answers in <30s
- No sample preparation required

Touch Express[™] Open port sampling interface (OPSI)

The Touch Express[™] Open Port Sampling Interface (OPSI), is designed for simple sampling of surfaces, solids, liquids and sample preparation tips and fibers.

Paired with the electrospray ion source of the **expression**[®] Compact Mass Spectrometer, the solvent forms a meniscus at the open port before being drawn down the inner path into the electrospray ion source of the mass spectrometer under the Venturi effect of the nebulization gas. Any soluble sample touching the port is analyzed by the mass spectrometer in just seconds. Touch Express OPSI offers a fast assay benchtop solution for solid, liquids, and surfaces in a small-footprint, easy-to-use system.

The OPSI source is a unique, prep-free sample technique that offers:

- Compound ID and impurity detection from almost any surface
- Direct assays from sample preparation tips and SPME fibers
- Easy screening applications for drug research, food safety, environmental, forensics
- Large molecule applications including proteins, peptides, oligonucleotides and polymers





| Description | P/N |
|--|--------------|
| expression® CMS | |
| expression ^s Compact Mass Spectrometer <i>m/z</i> 1200 | CMS-S01 |
| expression ^t Compact Mass Spectrometer <i>m/z</i> 2000 | CMS-L01 |
| Roughing pump | |
| Rotary vane pump with oil mist filter and oil return - included with CMS | PMP101 |
| Dry scroll pump - upgrade to oil-free backing pump in place of rotary vane pump | PMP103 |
| Sources | |
| APCI Source | IS-APCI-S01 |
| ESI source | IS-ESI-S01 |
| APCI / ASAP® source | IS-ASAP-S02 |
| iASAP source | IS-ISAP-S02 |
| ASAP®/iASAP source | IS-IASAP-S02 |
| vAPCI source | IS-VAPCI-S01 |
| Positive pressure kit for use with VAPCI-S01 ion source | PPK-VAPCI |
| ESI source + OPSI port | OPSI+IS-S01 |
| ESI source for OPSI | IS-OPSI-S01 |
| OPSI port | OPSI-001 |
| Sources upgrade | |
| ASAP® ion source upgrade for existing APCI and vAPCI ion sources | UP-ASAP-S02 |
| iASAP ion source upgrade for existing APCI ion source | UP-ISAP-S02 |
| ASAP® / iASAP ion source upgrade for existing APCI and vAPCI ion sources | UP-IASAP-S02 |
| Upgrade of existing iASAP ion source to also include standard ASAP® | UP-ISAP-ASAP |
| Upgrade of existing standard ASAP® ion source to also include iASAP | UP-ASAP-ISAP |
| Plate Express™ | |
| Plate Express™ CMS interface for analyzing TLC plates for 250 µm bed depths - (requires ACC374 and ACC361) | PE-001 |
| Isocratic pump, for direct injection, Plate Express™ | ACC361 |
| Bracket for isocratic pump ACC361 if mounted underneath Plate Express™ | ACC364 |
| TLC interface accessory kit containing the required tubing, fittings, and cables | ACC374 |
| Replacement filter for Plate Express™ waste | ACC456 |
| Replacement head for Plate Express™ for 250 µm bed depth | ACC470 |
| Nitrogen generator | |
| Nitrogen generator with compressor 12 L/min - 5 bar | AYUH00 |
| Accessories | |
| Capillary Removal Tool | 1012135 |
| Replacement API Heated Capillary | ACC301 |
| Replacement ESI capillary kit | ACC303 |
| Replacement APCI capillary kit | ACC309 |
| Replacement capillary kit for OPSI electrospray source | ACC314 |
| Corona discharge pin for APCI and ASAP ion sources | 1009975 |
| Glass capillaries for ASAP/iASAP S02, pk 100 | CAP-ASAP |
| Standard mix | |
| ESI Calibration/tune standard mix | IN1420 |
| APCI Calibration/tune standard mix | S19010 |
| Calibration vial replacement | 1009926 |



TriVersa NanoMate® LESA®

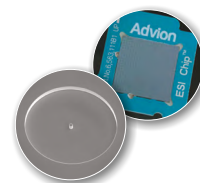
ESi Chip® Technology

The TriVersa NanoMate® LESA® is the latest in chip-based electrospray ionization technology from Advion Interchim Scientific. It combines the benefits of liquid chromatography, mass spectrometry, chip-based infusion, fraction collection and direct surface analysis into one integrated ion source platform. It allows scientists to obtain more information from complex samples than LC/MS alone.

ESI Chip®

The ESI Chip® unleashes the power of mass spectrometry through miniaturization. This microfluidic chip contains 400 nano-electrospray nozzles, etched in a silicon wafer. The fabrication method is highly reproducible to ensure the integrity and equal performance of each nozzle. The electrical field created by the nano-electrospray nozzle results in a highly efficient ionization and long lasting, stable sprays from μL of sample volume.

- Chips are available in three different nozzle emitter sizes from 2.5 μm ID to 5.5 μm ID
- Internal chip void volume in the pL range allows for 15 min spray time from only 3 μL sample
- Automated sample handling can deliver spray solvent from samples in 96, 384 or 1536 sample well plates
- Silicon chip design delivers superior electric field strength and ionization efficiency
- Internal counter-electrode allows spray sensing and recovery feature



Chip-based direct Infusion

The TriVersa NanoMate® is the only automated ion source platform that allows high throughput infusion experiments for small or large analytes in applications ranging from shotgun lipidomics, to non-covalent interaction studies (NCI), to protein characterization.

Benefits

- Zero sample-to-sample carryover due to one tip, one sample, one nozzle workflow
- Stable nESI with long spray times from μL volume of samples
- High ionization efficiency, automated nano-electrospray
- High sample throughput from 96, 384 or 1536 well plates

TYPICAL APPLICATIONS

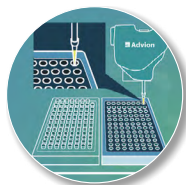
- Lipidomics, Metabolomics
- Top-down Protein Identification and Characterization
- QA/QC of Antibodies
- Non-covalent Interaction studies (NCI)
- Glycan Analysis

3 STEP INFUSION EXPERIMENT



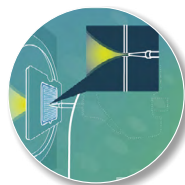
STEP 1

Tip rack and Sample well plate is placed in robot.



STEP 2

Sample pick up from 96, 384 or 1536 well plate with dedicated Tip.



STEP 3

Tip with sample makes contact with ESI chip and Infusion experiment is initiated.



MASS SPECTROMETRY

TriVersa NanoMate® LESA® with ESI chip® technology



LC/MS with Fraction Collection for re-analysis by Infusion

The TriVersa NanoMate® was developed to operate as a nano-ESI ion source for LC/MS applications. Excess LC eluate can be utilized for additional fraction collection to create a physical storage of the LC/MS experiment and allows re-analysis of fractions of interest as identified by the online LC/MS run.

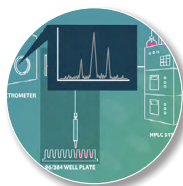
TYPICAL APPLICATIONS

- Metabolite Identification
- Protein Biomarker Discovery
- QA/QC of Antibodies
- Top-down/bottom-up Proteomics
- Protein PTM analysis

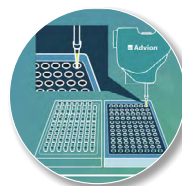
Benefits

- More time across an LC/MS peak for more information from complex samples
- Integration with RAD detectors, external fraction collectors and UV detectors for increased workflow flexibility
- Qualitative and quantitative information with a single LC/MS run

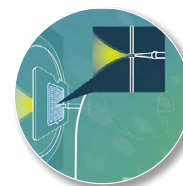
3 STEP LC/MS EXPERIMENT WITH FRACTION COLLECTION



STEP 1
TV connects with HPLC and MS to act as nano-ESI ion source and fraction collector.



STEP 2
Fractions are simultaneously collected during the LC/MS analysis.



STEP 3
Fractions of interest are re-analyzed by Infusion.

Liquid Extraction Surface Analysis (LESA®)

Liquid Extraction Surface Analysis (LESA®) was developed in collaboration with Dr. Gary van Berkel from the Oak Ridge National Laboratories. Its unique surface extraction via a liquid droplet held in suspension (liquid junction) allows a novel approach for spatially resolved analysis of biological and technical surfaces of interest. The pipetting accuracy of the TriVersa NanoMate® enables high sensitivity experiments with a spatial resolution of 1 mm on target.

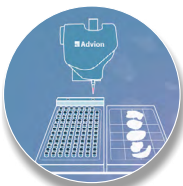
TYPICAL APPLICATIONS

- PK/PD analysis of small molecule drugs
- Spatially resolved Lipidomics
- Biofilm analysis from medical devices
- Direct protein analysis
- Bacteria and fungi from culture

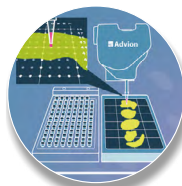
Benefits

- Fast, simple and direct analysis
- 1 mm spatial resolution
- Liquid extraction and nESI based analysis
- High sensitivity due to nESI ionization and analyte extraction into only 1 μ L of solvent

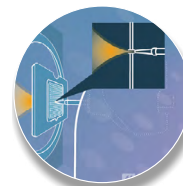
3 STEP LESA® EXPERIMENT



STEP 1
Solvent reservoir is filled, Tips loaded and Surface mounted on Adapter plate.



STEP 2
Robot aspirates extraction solvent into tip and starts extraction process at selected surface location.



STEP 3
Extracted Analytes are ionized by Infusion nano electrospray analysis.



Liquid Extraction Surface analysis coupled with LC (LESAPLUS LC)

LESAPLUS LC experiments can be executed through the Developers Kit software extension and allows for the added benefit of separation. Spatial resolution can be improved to 400 µm on target and once the extract is placed in the loop of the on-board 6 port valve, an nLC/MS experiment can commence.

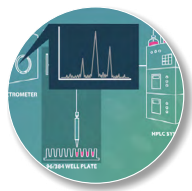
Benefits

- Direct analysis from surface of interest
- 400 µm spatial resolution
- Liquid extraction and ESI based analysis
- High sensitivity due to added chromatographic separation
- Derivatization prior to LESAPLUS experiment
- Analysis of complex mixtures and isobaric compounds

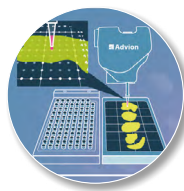
TYPICAL APPLICATIONS

- Spatially resolved Lipidomics
- PK/PD analysis of small molecule drugs
- Peptidomics

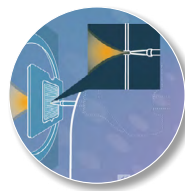
3 STEP LESAPLUS LC EXPERIMENT



STEP 1
TV is reconfigured for LESAPLUS and makes connection with LC system and MS.



STEP 2
Robot dispenses extraction solvent via a fused silica capillary and starts extraction process at selected surface location.



STEP 3
Extract is aspirated into a loop of the on-board 6 port valve and injected into the nLC/MS.

ChipSoft® Operating Software and Developers Kit Option

The TriVersa NanoMate® LESA® is operated by a proprietary software program called ChipSoft®. It is used to set all parameters of system operation including sample volume, spray voltage, pressure and polarity as well as temperature, spray times and extraction parameters for LESA®. ChipSoft® is compatible with all PC architectures and versions of Windows.

| Description | P/N |
|---|-----------------|
| TriVersa NanoMate®. | TV-NMT |
| LESA® enabled TriVersa NanoMate®. | TV-NMTLESA |
| LESA® enabled TriVersa NanoMate® with additional on-board Camera system and Developers Kit interface to run LESAPLUS experiments (LESA-LC). | TV-NMTLESA-Plus |
| Waters | |
| Waters Mounting kit 13 - All Xevo and G2 source instruments, triple quad, TOF, QTOF and Synapt. | BRK114 |
| DualSpray system - providing a TriVersa compatible nanoLockSpray ability for Waters Xevo and Synapt 2 HD and HDMS Mass Spectrometers. | ACC122 |
| Thermo | |
| Thermo Electron Mounting kit 3 (LTQ, LTQ-XL, LTQ FT, LTQ Orbitrap, LXQ, LCQ Fleet, Velos, Velos and Orbitrap). | BRK203 |
| Thermo Electron Moununting kit 9 for Exactive and QExactive. (includes height adjustable cart (1010583) with a table top range of 26 to 36" (66 to 91 cm). | BRK211 |
| Thermo Electron Mounting Kit 10 for Thermo Fusion, Lumos, TSQ Quantiva, TSQ Endura, Orbitrap ID-X, Altis and Exploris 480. (includes height adjustable cart (1010583) with a table top range of 26 to 36" (66 to 91 cm). | BRK212 |
| A-Chips | |
| 5 micron nominal internal diameter nozzle chip. Typical intended flow rate range 100-500 nL/min. Recommended for the majority of TriVersa applications. Includes 1 rack of 384 spray pipette tips. | HD_A_384 |
| 5 micron nominal internal diameter nozzle chip. Typical intended flow rate range 100-500 nL/min. Recommended for the majority of TriVersa applications. Includes 4 racks of 96 spray pipette tips. | HD_A_96 |
| D-Chips | |
| 4 micron nominal internal diameter nozzle chip. Typical intended flow rate range 60-250 nL/min for longer spray times. Includes 1 rack of 384 spray pipette tips. | HD_D_384 |
| 4 micron nominal internal diameter nozzle chip. Typical intended flow rate range 60-250 nL/min for longer spray times. Includes 4 racks of 96 spray pipette tips. | HD_D_96 |
| G-Chips | |
| 2.5 micron nominal internal diameter nozzle chip. Typical intended flow rate range 20-60 nL/min. Includes 1 rack of 384 spray pipette tips. | HD_G_384 |
| 2.5 micron nominal internal diameter nozzle chip. Typical intended flow rate range 20-60 nL/min. Includes 4 racks of 96 spray pipette tips. | HD_G_96 |





Spectroscopy
Solation ICP-MS

K.2 - K.5
K.2-K.5





Inductively coupled plasma mass spectrometry

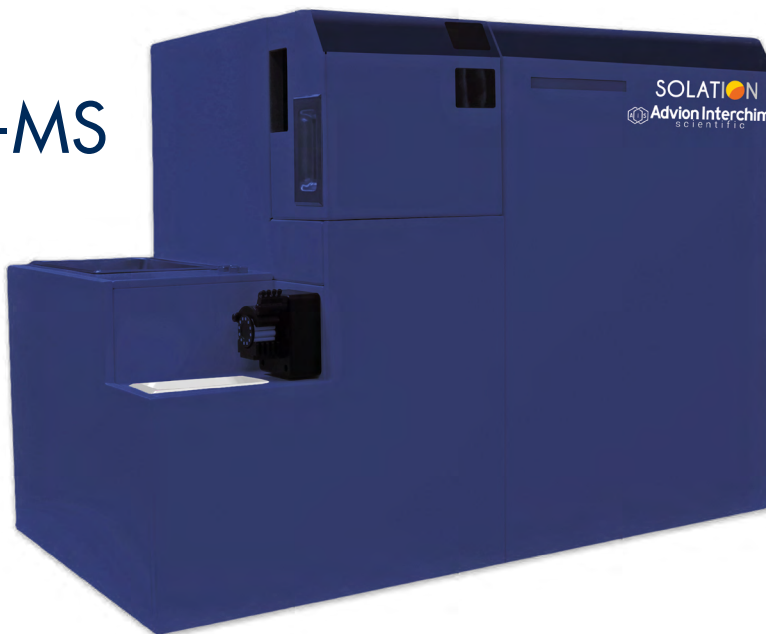
Advion Interchim Scientific has produced the SOLATION® ICP-MS - the ultimate instrument for multi-element analysis, providing high sensitivity measurement of trace elements from a wide range of matrices. Designed for ease-of-use, with intuitive software, the SOLATION® ICP-MS is the ideal instrument for environmental, pharmaceutical, food safety, agricultural, cannabis, hemp, and clinical laboratories everywhere.

Increase your throughput, decrease your workload

The thoughtfully designed SOLATION® ICP-MS puts the power of trace, multi-elemental analysis in your hands by simplifying and optimizing the typical ICP-MS workflow, inside and out.

The SOLATION® ICP-MS offers a state of the art quadrupole deflector that ensures the analyzer and detector stay clean, and improves S/N by preventing neutrals and particles from entering the analyzer.

SOLUTION ICP-MS



Advanced, intuitive software for speed and ease of use

The SOLATION® ICP-MS is delivered with a full suite of robust, intuitive software designed to provide answers with the fewest clicks, including:

- ICP-MS Express: Provides seamless workflow to configure and control the instrument with integrated control of peripherals, including: peristaltic pump, liquid autosampler and rapid sample interface. The program offers an easy to use interface for system control, method development, sample entry and data acquisition.
- Quant Express: Simple user interface for batch processing of ICP-MS data for versatile quantitative analysis and easy creation of reports.



Maximize efficiencies with ICP-MS

For quantitative, elemental analyses, the SOLATION® ICP-MS is the ideal system for high-throughput laboratories seeking the perfect mix of performance and ease-of-use.

Advance your applications with multi-elemental analysis at your fingertips. Adding the SOLATION® ICP-MS to your lab opens up a world of possibilities for environmental, biomedical, food, agriculture and geological testing and research.

Food and Agriculture: Ensure the quality and safety of food and raw ingredients by relying on the power of ICP-MS for full elemental analysis. Ideal for meeting regulatory requirements for cannabis and hemp analysis in all legalized jurisdictions.

Environmental Analysis: Ensure Earth's most precious resources remain viable with the help of ICP-MS technology. Determine purity of drinking water, well water, waste water and soils, and use the system as a tool to monitor industrial site remediation.

Biomedical: Increase your throughput for toxicity and nutrition in biological matrices, including urine, serum, plasma, whole blood and tissue samples. Satisfy the allowable limits in pharmaceutical and clinical applications with a single instrument.



Ion extraction cones

Triple-cone ion extraction. The third extraction cone, followed by an Einzel lens, are electrically controlled to maximize transmission of ions into the vacuum system.

RF coil

Plasma generation with water cooled RF coil using industry standard 27 MHz variable frequency generator for rapid impedance matching and ultimate performance with challenging matrices.

Torch

One-piece, demountable torch with fast, one-step connection of argon and ignitor. Optional shield to prevent secondary discharge.

Nebulizer

High efficiency nebulizer available in quartz for compatibility with the widest range of flow rates and sample composition.

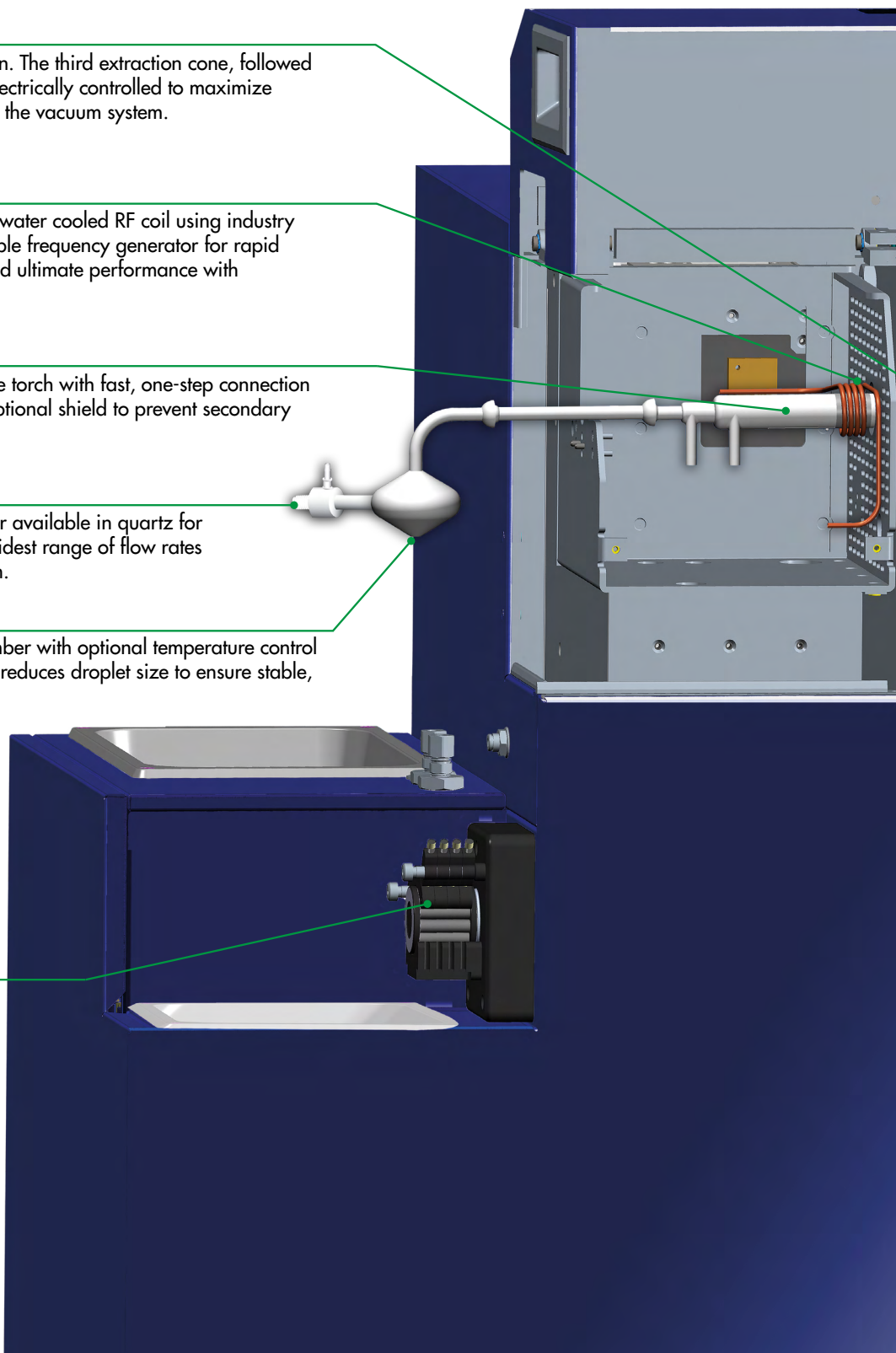
Spray chamber

The cyclonic spray chamber with optional temperature control and dilution gas further reduces droplet size to ensure stable, efficient plasma.

Peristaltic pump

Integrated 4-channel, 12-roller pump for maximum flexibility and ultra-low pulsation.

Software controlled flow rate from low $\mu\text{L}/\text{min}$ to 1 mL/min.





Gate valve

Allows quick and easy maintenance and replacement of the cones whilst maintaining vacuum integrity.

90° Quadrupole deflector

Ensures that the analyzer and detector are not in line with the plasma beam, preventing neutrals and particles from entering the analyzer, improving S/N and preventing contamination.



Octupole collision cell

Acts as an ion guide and a collision cell with He gas to provide Kinetic Energy Discrimination (KED) to remove interferences.

Quadrupole Analyzer

Unique high frequency mass filter design with the highest stability to simultaneously maximize transmission, resolution, and abundance sensitivity.

Dual function detectors

Measures in both analog and pulse detection modes with seamless transmission between the two, to allow measurement of high and low levels in a single analysis with more than 9 orders of magnitude in linear dynamic range.

Pulse Detection: captures ions generating pulses shorter than 20 ns; accurate and linear to minimum dwell time of less than 100 µs

Analog Detection: used for higher ion signals while deactivating pulse detection to extend detector lifetime.



Other Instrumentation

AVANT™ (U)HPLC
Solvent degasser
HPLC column oven
HPLC pumps

L.2 - L.7
L.2 - L.3
L.4 - L.5
L.6
L.7



AVANT™ (U)HPLC



AVANT™

AVANT™, high-performance, liquid chromatography systems can be used standalone with a UV/Vis detector or with the Advion Interchim Scientific **expression®** Compact Mass Spectrometer (CMS) to provide seamlessly integrated LC/CMS under full control of Advion Interchim Scientific's simple, intuitive Mass Express software suite. Modular, stackable design with many options, AVANT™ provides custom solutions for both HPLC and UHPLC needs. From the simplest manual injection HPLC to a fully automated and streamlined UHPLC system and everything in-between, the AVANT™ series can be configured to fit your analytical requirements and your budget.

PUMPS

The AVANT™ binary gradient pumps are available as 10,000 psi (689 bar) HPLC and 18,850 (1,300 bar) UHPLC options with high-pressure mixing, low delay volume (50 μ L), and a flow rate range from 1 to 4,000 μ L/min. Both systems have full dual piston capability with automated solvent selection from 4 solvents to form a binary gradient.

DETECTOR

High-performance UV/Vis with 20 Hz full spectrum scanning speed over 190 to 800 nm, and up to 8 programmable wavelengths.

COLUMN OVEN

The column oven comes with integrated solvent preheater and has optional automated column selection for up to 6 columns and optional divert valve. It provides accurate, stable temperatures from 10°C above ambient to 90°C (75°C if the column selection valve is installed) at $\pm 0.1^\circ\text{C}$ stability and accuracy.

AUTOSAMPLERS

Autosamplers are available for the HPLC (10,000 psi) pressure range and UHPLC (18,850 psi) pressure range. Both are available with optional cooling (ambient - 3°C to 4°C). They accept two 96 or 384 well plates or two 48 position trays of 2 mL sample vials. They can be operated in full loop, partial loop and μ L pick-up injection modes depending on sample size, injection accuracy, and reproducibility required. Solvent organizer and solvent waste trays are also available.

| Designation | P/N |
|---|----------|
| Pump AVANT™ HPLC Binary Gradient 1 - 4,000 μ L/min at 10,000 psi. Degasser Automated solvent selection valves to select a binary gradient from 4 solvent streams Solvent waste module | A-2012 |
| AVANT™ UHPLC Binary Gradient 1 - 4,000 μ L/min at 18,850 psi. Degasser Automated solvent selection valves to select a binary gradient from 4 solvent streams Solvent waste module | A-2112 |
| Column oven Column oven, 10°C above ambient to 90°C, < 0.1°C accuracy and stability Takes up to 6 x 30 cm columns No column selection valve | A-2031 |
| Column oven, 10°C above ambient to 90°C, < 0.1°C accuracy and stability up to 6 columns 30 cm length Divert valve | A-2031-D |



| Designation | P/N |
|--|----------|
| Column oven Column oven, 10°C above ambient to 90°C, < 0.1°C accuracy and stability up to 6 columns 30 cm length Column selection valve | A-2033 |
| Column oven, 10°C above ambient to 90°C, < 0.1°C accuracy and stability up to 6 columns 30 cm length Column selection valve Divert valve | A-2033-D |
| UV/Vis-DAD UV/Vis-DAD diode array detector. 8 programmable wavelength channels. Full spectrum scanning at up to 20 Hz, 190 - 800 nm WL range. | A-2046 |
| Injection | |
| Autosampler - AVANT™ HPLC | A-2054 |
| Autosampler - AVANT™ HPLC with cooling | A-2055 |
| Autosampler - AVANT™ UHPLC | A-2154 |
| Autosampler - AVANT™ UHPLC with cooling | A-2155 |
| Manual injector valve, 8,700 psi max pressure limit | ACC416 |
| Solvent organizer, up to 4 x 1 L bottles | A-2063 |
| Starter kit for AVANT™ system | ACC415 |
| UHPLC & HPLC interface accessory kit containing required tubing, fittings, and cables. | ACC371 |



Solvent degasser

Gas molecules can form bubbles when pressure or temperature changes. This will affect the accuracy, precision and performance of the equipment.

With a degasser set up in the fluid path, machines for semi-conductor manufacturing or assembly, instruments for immunology, hematology and in-vitro diagnostics will also typically deliver more consistent results.

Online degassing is performed by pumping liquid through a gas-permeable tubular membrane set up in a vacuum degassing chamber. Optimum vacuum degassing performance is achieved thanks to a membrane having high gas-permeability. This ensures efficient and continuous gas removal, even if the liquids are carried through the degassing chamber at high flow rates.

Get the best performance of your instrumentation for a wide range of application areas like - Chromatography - HPLC/UHPLC - GPC - Preparative - Flash

Classics degassers for analytical systems

The Classic model is the first choice for most applications in analytical instrumentation and liquid chromatography. This state-of-the-art, self-contained degasser will provide you with trouble-free vacuum degassing, day after day, with perfect degassing up to 3 mL/min.

The GPC is the best vacuum degasser model when working with 100% organic solvents. Examples of application areas where this degasser excels are gel permeation chromatography (GPC) and normal phase chromatography.

The COMPACT model is a stand-alone degasser that combines advanced technology with a very small footprint at an affordable cost. An efficient degassing up to 2 mL/min can be expected from this model.

Low volume degasser

The MICRO model is the ideal choice when you are working at very small flows and want to minimize the (dead) volumes in your system.

With only 100 μL of internal volume, this model of degasser will still even perform excellent degassing up to about 0.5 mL/min.





High flow degasser

When working at higher flow rates, up to 6 mL/min, we recommend the SEMI-PREP vacuum degasser.

The PREP+ is a unique vacuum degasser designed for the most demanding applications. It can handle higher flow rates of mixed aqueous-organic solvents than any other degasser available today could support.

The HIGH FLOW model provides an efficient degassing process for liquid flow rates up to 500 mL/min. Based on silicone membrane technology, this degasser is designed for aqueous liquids.



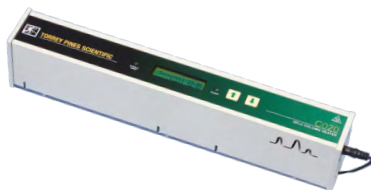
I Selection guide I

| Version | Classic | GPC | Compact | Micro | Semi prep | Prep | Prep + | HighFlow |
|----------------------|---------|-------|---------|-------|-----------|-------|--------|----------|
| Flowrate (mL/min) | 3 | 3 | 2 | 0.5 | 6 | 15 | 75-100 | 500 |
| Internal volume (mL) | 0.480 | 0.480 | 0.285 | 0.100 | 0.925 | 5.300 | 23.000 | 200.000 |
| Nb of Channels | 1-6 | 1-6 | 2,4,6 | 1-6 | 1-6 | 2 | 2-4 | 1 |

| Nb of Channels | 1 | 2 | 3 | 4 | 5 | 6 |
|----------------|--------|--------|--------|--------|--------|--------|
| Classic | BVHU00 | BVHUPO | CG0815 | B4VPV0 | B8JOD0 | AYQVJ0 |
| GPC | BVHUQ0 | BVHURO | JV2611 | DZ8562 | BVHUS0 | AYQVK0 |
| Compact | --- | BVHUW0 | --- | BVHUX0 | --- | BVHUY0 |
| Micro | BVHUT0 | 110271 | 110281 | 110291 | 110301 | AYQVL0 |
| Semi prep | BVHUV0 | 110221 | 110231 | 110241 | 110261 | AYQVM0 |
| Prep | --- | AYQVN0 | --- | --- | --- | --- |
| Prep+ | BVHUZ0 | AYQVO0 | --- | AYQVP0 | --- | --- |
| High flow | BVHV00 | --- | --- | --- | --- | --- |



HPLC column ovens - Control below and above room temperature



Compact column heater from 20°C to 90°C

- Digitally heating control from room temperature to 90.0°C
- Readable and settable to +/- 0.1°C
- Stable to +/- 0.1°C
- Accurate to +/- 0.2°C
- Holds 1-30 cm long by 1/4" or 3/8" diameter column
- Chamber dimension 15.0" (381 mm) long x 0.9" (22.9 mm) wide x 1.25" (31.75 mm) deep

| Model | Temperature range | Capacity | Overall dimensions (cm) | Heating room dimension (cm) | P/N |
|---------|-------------------|---------------------|-------------------------|-----------------------------|--------|
| Compact | 20* to 90°C | 1 analytical column | 40 x 5.7 x 7.6 | 38 x 2.29 x 3.18 | A2XK50 |

* for a room temperature of 20°C.

Chilling/Heating HPLC Column Oven from 4°C to 100°C - Peltier effect

- Fully programmable
- Stores 5 programs of up to 10 steps each for instant recall and use.
- Can control at or near room temperature regardless of changes of the room temperature
- Accuracy: $\pm 0.2^\circ\text{C}$
- Built-in stable temperature light which illuminates when set temperature is reached and is stable

| Model | Temperature range | Capacity | Overall dimensions (cm) | Heating room dimension (cm) | P/N |
|------------------|-------------------|---------------------|-------------------------|-----------------------------|--------|
| Chilling/Heating | 4* to 100°C | 1 analytical column | 42.5 x 20 x 15.8 | 38 x 3.8 x 3.8 | EO2790 |

* for an ambient temperature of 20°C.

Chilling/Heating High Capacity HPLC Column Ovens from 4°C* to 70°C - Peltier effect



- Accurate: +/- 0.2°C
- Stability: +/- 0.2°C
- Heat chamber uniformity: +/- 0.5°C
- Door bulkhead passthrough
- Capacity 4-30 cm by 1" columns with fittings
- Separate drains for valve and spills

| Model | Temperature range | Capacity | Overall dimensions (cm) | Heating room dimension (cm) | P/N |
|---------------|-------------------|---|-------------------------|-----------------------------|--------|
| High capacity | 4* to 70°C | up to 4 columns of 1" OD and 30 cm length | 65 x 22 x 34 | 39 x 16 x 13 | BB2810 |

* for an ambient temperature of 20°C.



HPLC pump - Mono piston

This single piston pump with a flow rate range of 0.02 - 10.00 mL/min and a pressure limit of 400 bar capacity is ideally suited for the washing and regeneration of HPLC columns.

This pump can also be used for classical analytical applications if residual pulsation is not important (or harmful).

Pulsation can be eliminated by external pulsation dampeners.

- Control via OLED display or remote control via PC
- Piston cleaning

| P/N | BS4HNO | BS4HO0 |
|---|---------------------------------------|-------------|
| Pressure sensor | No | Yes |
| Flow rate | 0.02 – 10,00 mL/min. | |
| Pumping system | mono piston dia. 1/8" | |
| Maximum operating pressure | 400 bar (5 800 PSI) | |
| Accuracy of flow-rate (1 mL/min. 12MPa H ₂ O) | ± 2 % | |
| Repeatability of flow-rate (1 mL/min. 12MPa H ₂ O) | ± 0.5 % | |
| Accuracy of pressure measurement | n/a | ± 2 % |
| Adjustable upper pressure limit | n/a | 1 - 400 bar |
| Wetted materials | Inox, céramique, PEEK | |
| Seals | GFP (PTFE)* | |
| Communication | RS232, Ethernet (LAN), USB | |
| Display, keypad | OLED 2.4" 128 x 64 pixels, 10 boutons | |
| Power supply | 100-240V 50/60Hz 60VA | |
| Dimensions (w x h x d) | 200 x 136 x 230 mm | |
| Weight | 4.68 Kg | |

*Seals material: default is GFP (PTFE), recommended optimal seals material are UHMW-PE seals, ask for more information



HPLC pumps

Advion Interchim Scientific offers a wide range of reliable and robust single or double piston pumps.

Wide range of flow rates, from 5 to 100 mL/min for rinsing, sample injection, infusion sample injection, infusion for mass spectrometer, HPLC, semi-prep, solvent distribution, solvent delivery...

- Biocompatible PEEK version or stainless steel version
- Pulsation dampening option
- Pump head cleaning option

Please contact us to find the reference fitting to your needs.



HOW TO REQUEST MORE INFORMATION, A QUOTATION OR TO PLACE AN ORDER

Please see from the list below:



**You need to receive a quotation
or you want to send us a purchase order?**

By Area

Europe, Israël

info.EU@advion-interchim.com
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orders.EU@advion-interchim.com
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Phone: +46 703 108410

**You need technical assistance?
Our scientific experts are here to help.**

For instrumentation: instrumentation@advion-interchim.com
For consumables: consumables.eu@advion-interchim.com

Online

www.advion-interchim.com

All your orders will be recorded & processed as quickly as possible.

Live Demo

Our team will be pleased to give you a live demonstration of our products.
Let's arrange a personal appointment!

Terms and conditions

<https://advion-interchim.com/terms-and-conditions/>



www.advion-interchim.com

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