

ANALYTICAL HPLC COLUMNS

50 essential selectivities for small organic molecules
Identification, quantification & purification
Ideal for analysts & chemists

Uptisphere® CS Evolution
Uptisphere® Strategy™
Uptisphere® 120Å
puriFlash®



Advion Interchim
scientific

OUR SILICA TECHNOLOGIES

All of our Uptisphere® silicas (120Å, CS Evolution, Strategy™, puriFlash® and puriFlash® Bio) follow rigorous and innovative manufacturing processes. Base silicas are produced in ceramic reactors from standard particles for purification and or totally free of all traces of metals for analysis. Each of the different synthesis steps is strictly controlled.

This rigor 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® and 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. 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 creates a homogeneous and particularly dense functionalization (grafting). This results in very good loading capacity and good stability of these stationary phases under aggressive mobile phase conditions such as basic buffers.

3. High mechanical stability.

Our stationary phases can withstand multiple packing and unpacking 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 research, 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 cemented part of our ideas by developing 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.

SILICAS FOR (U)HPLC, PREP-LC & FLASH COLUMNS

Uptisphere® CS Evolution



Core Shell columns for fast and highly efficient identification and quantification of small molecules.

Uptisphere® Strategy™



(U)HPLC, Analytical and prep LC columns with high surface area for identification, quantification and purification of small molecules and pharma compounds.

Uptisphere® 120Å



HPLC and prep LC columns for the identification, quantification of small molecules and pharma compounds.

puriFlash®

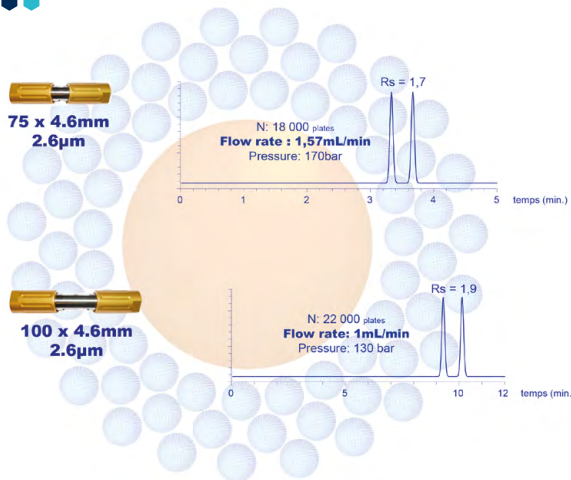


Analytical, prep-LC and Flash columns with high load-ability for routine analysis and easy transfer to purification of small organic molecules in pharma applications.

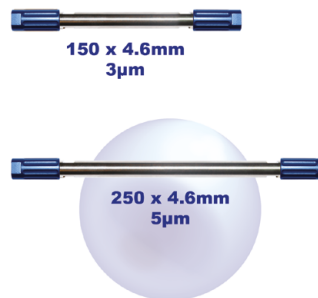


TECHNICAL DATA

Core-shell silica



Totally porous silica

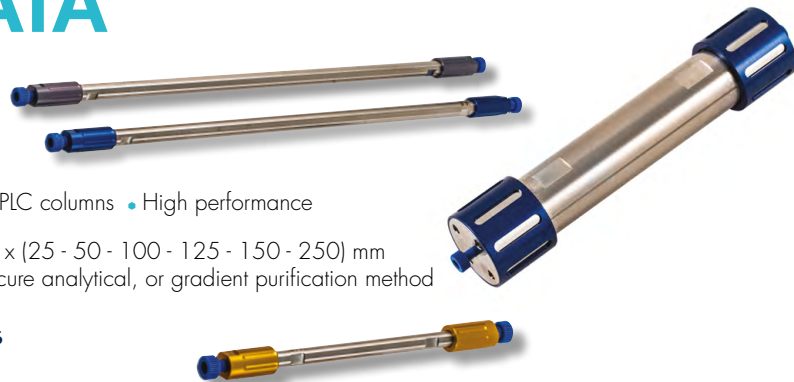


TECHNICAL DATA

High Performance Hardware™

- 1200 bar maximum pressure
- Used for HPLC & UHPLC columns
- High performance

(2.1 - 3.0 - 4.0 - 4.6 - 10.0 - 21.2 - 30.0 - 50.8) mm x (25 - 50 - 100 - 125 - 150 - 250) mm
 Easy transfer from any columns to «ready-to-go» and secure analytical, or gradient purification method



Protects all 1.7 up to 5µm silica columns

- 900 bar maximum pressure
- Low dead volume
- High performance



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	---

Guard cartridges	Reverse phase	HILIC mode	Normal phase
1.7µm - 5 x 2.1mm - 3u	UP-RP-1.7-005/021	---	---
1.7µm - 5 x 4.0mm - 3u	UP-RP-1.7-005/046	---	---
2.2µm - 5 x 2.1mm - 3u	UP-RP-2.2-005/021	UP-HILIC-2.2-005/021	UP-NP-2.2-005/021
2.2µm - 5 x 4.0mm - 3u	UP-RP-2.2-005/046	UP-HILIC-2.2-005/046	UP-NP-2.2-005/046
3µm - 5 x 2.1mm - 3u	UP-RP-3-005/021	UP-HILIC-3-005/021	UP-NP-3-005/021
3µm - 5 x 4.0mm - 3u	UP-RP-3-005/046	UP-HILIC-3-005/046	UP-NP-3-005/046
5µm - 5 x 2.1mm - 3u	UP-RP-5-005/021	UP-HILIC-5-005/021	UP-NP-5-005/021
5µm - 5 x 4.0mm - 3u	UP-RP-5-005/046	UP-HILIC-5-005/046	UP-NP-5-005/046

Guard Holder
 P/N : AGHP-5

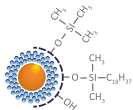
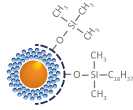
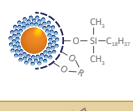
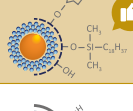


UPTISPHERE® CS EVOLUTION STATIONARY PHASES



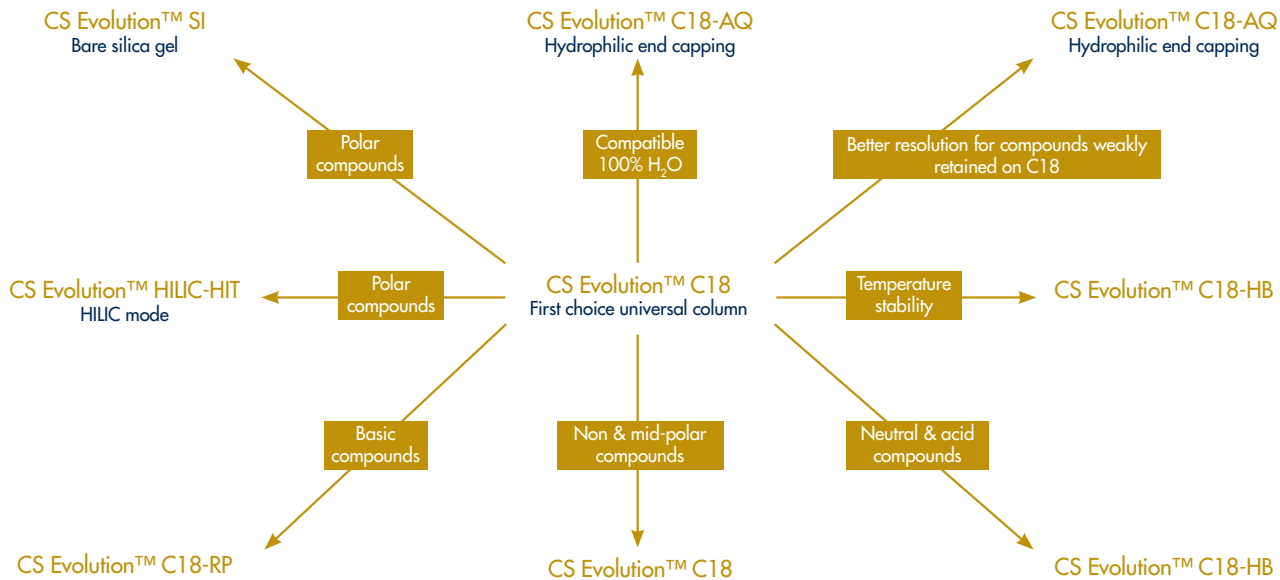
(MOST* Grade)

* MOST: Maximum Operational Surface Technology

	USP code	Ø pore	Surface	2.6µm	Bonding	Functiona- lization	% carbon	End- capping	pH stability	Use mode	Application	
	C18	L1	85Å	130m ² /g	x	C18 -octadecyl	mono- functional	9.0%	One step	1.5 - 7.5	RP	Serves a broad-ship of analytical & prep LC requirements for separating non polar compounds.
	C18- HB	L1	85Å	130m ² /g	x	C18 -octadecyl	mono- functional	8.0%	One step	1.5 - 8.0	RP	Suitable for non polar compound separation. Exhibits a very hydrophobic surface. HB shows excellent stability under high temperature.
	C18- RP	L1	85Å	130m ² /g	x	C18 -octadecyl	mono- functional	6.0%	Mixed	1.5 - 8.0	RP	Suitable for mid & non polar compound separation. RP shows excellent mechanical stability that make it an excellent tool for analysis under acidic or basic conditions.
	C18- AQ	L1	85Å	130m ² /g	x	C18 -octadecyl	mono- functional	6.5%	Mixed	1.5 - 7.0	RP	Suitable for mid & non polar compound separation. Shows excellent stability under 100% aqueous mobile phase condition.
	HIT	L3	85Å	130m ² /g	x	Proprietary	Proprietary	---	Propri- etary	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.

SELECTION GUIDE

Uptisphere® (U)HPLC Core Shell Silicas

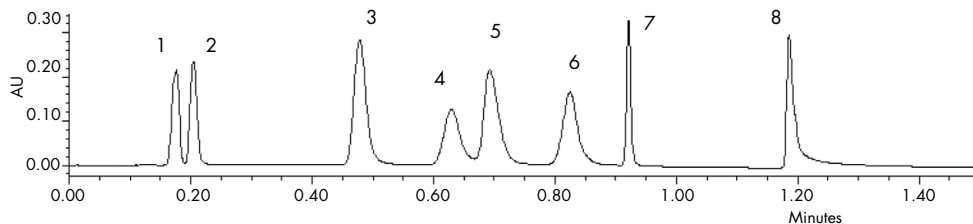


* MOST: Maximum Operational Surface Technology



APPLICATION

Nucleobases, nucleosides & nucleotides



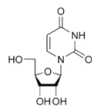
Column Uptisphere® CS Evolution™ 2.6µm HIT 50 x 2.1 mm

Gradient: ACN / 20mM ammonium formate pH 3

Flow rate: 1 mL/min, Temp.: 30°C, UV 254nm



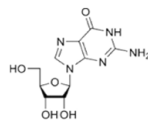
Uracil (1)



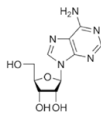
Uridine (2)



Adenine (3)



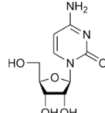
Guanosine (4)



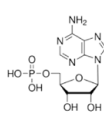
Adenosine (5)



Cytidine (6)



Cytosine (7)



AMP(8)

	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

ENVIRONMENTAL APPLICATION

Automatic, simultaneous and rapid analysis of pesticides in surface and underground water by online SPE and UHPLC-MS/MS

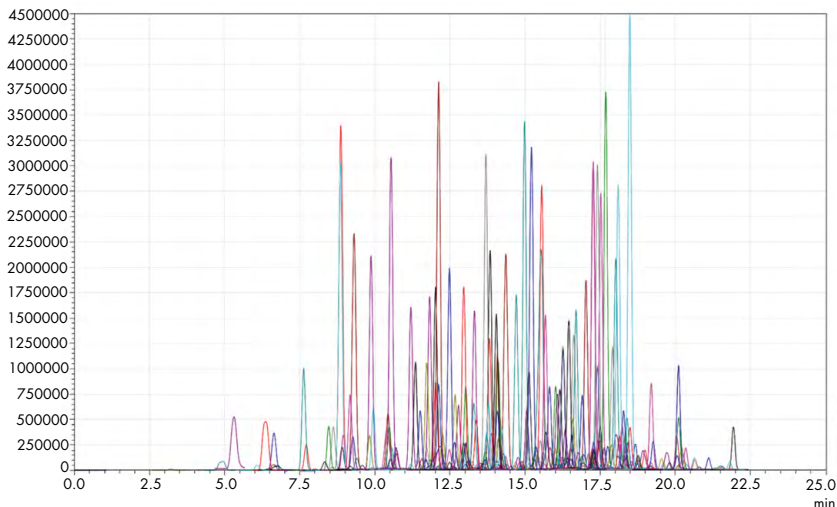


Doriane Toinon, Alban Huteau, SHIMADZU France, le Lizard II, bat A, Bd Allende, Noisiel, 77448 Marne La Vallée cedex 2, France.

Uptisphere® CS Evolution 2.6µm C18-AQ 150x3.0mm

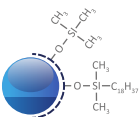
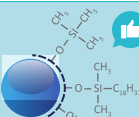
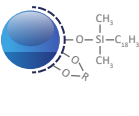
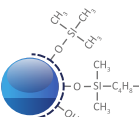
A: water + 0.002% formic acid
+ 2mM ammonium formate
B: 50/50 acetonitrile/Methanol
+ 0.002% formic acid
+ 2mM ammonium formate
Flow: 0.7mL/min, 40°C
System: Shimadzu Nexera X2

Method validated
with LOQ up to 1ng/L
for 272 pesticides
on water matrix



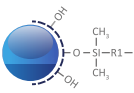
UPTISPHERE® STRATEGY™ STATIONARY PHASES



	USP code	Ø pore	Surface	1.7 µm	2.2 µm	3 µm	5 µm	Bonding	Functionalization	% carbon	End-capping	pH stability	Use mode	Application
 <p>C18-3</p>	L1	100Å	425m ² /g	---	---	x	x	C18 - octadecyl	Mono-functional	22.0%	Multi step	1.0 - 12	RP	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.
 <p>C18-HQ</p>	L1	100Å	425m ² /g	x	x	x	x	C18 - octadecyl	Mono-functional	19.0%	Multi step	1.0 - 10	RP	This utility phase serves many pharmaceutical applications. Its 425m²/g surface area provides excellent loading capacity.
 <p>C18-RP</p>	L1	100Å	425m ² /g	---	x	x	x	C18 - octadecyl	Mono-functional	16.0%	Multi step Mixed	1.5 - 8.0	RP	Suitable for mid & non polar compounds separation. RP shows excellent mechanical stability that make it an excellent tool for purification under acidic or basic conditions.
 <p>C12</p>	---	100Å	425m ² /g	---	x	---	x	C12 - dodecyl	Mono-functional	16.0%	One step	1.5 - 8.0	RP	Non polar compounds. Less retentive than C18 with greater capacity.

UPTISPHERE® STRATEGY™ STATIONARY PHASES

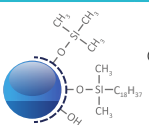
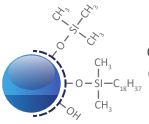
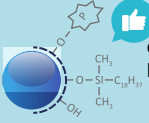
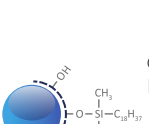


	USP code	∅ pore	Surface	2.2 μm	3 μm	5 μm	Bonding	Functionalization	End-capping	pH stability	Use mode	Application
 <p>PHC4</p>	L11	100Å	300m ² /g	x	x	x	Phenyl-Butyl	Mono-functional	One step	1.5 - 7.5	RP	Very selective for compounds with aromatic cycles and mid-polar compounds.
 <p>HILIC-HIT</p>	L3	100Å	425m ² /g	x	x	x	Proprietary	Proprietary	Proprietary	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.
 <p>HILIC-HIA</p>	L3	100Å	300m ² /g	x	x	x	Proprietary	Proprietary	Proprietary	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.
 <p>SI</p>	L3	100Å	425m ² /g	x	x	x	Ultra pure silica	---	None	1.5 - 7.0	NP	Non-ionic, polar organic compounds.



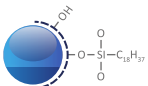
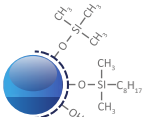
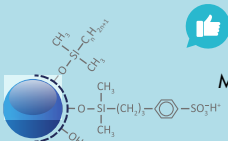
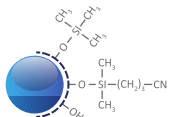
UPTISPHERE® 120Å STATIONARY PHASES



	USP code	Ø pore	Surface	2.2 µm	3 µm	5 µm	Bonding	Functionalization	% carbon	End-capping	pH stability	Use mode	Application
 <p>C18-HSC</p>	L1	60Å	---	---	x	x	C18-octadecyl	Mono-functional	20.0%	Multi step	1.5 - 8.0	RP	Non-polar compounds.
 <p>C18-ODB</p>	L1	120Å	320m ² /g	x	x	x	C18-octadecyl	Mono-functional	18.0%	One step	1.5 - 7.0	RP	Serves a broad-scope of analytical & prep LC requirements for separating non polar compounds.
 <p>C18-HDO</p>	L1	120Å	320m ² /g	x	x	x	C18-octadecyl	Mono-functional	17.0%	Mixed	1.5 - 7.0	RP	Suitable for mid & non polar compound separation. Shows excellent stability under 100% aqueous mobile phase condition.
 <p>C18-NEC</p>	L1	120Å	320m ² /g	x	x	x	C18-octadecyl	Mono-functional	16.0%	None	1.5 - 6.5	RP	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.

UPTISPHERE® 120Å STATIONARY PHASES







	USP code	Ø pore	Surface	3µm	5µm	Bonding	Functionalization	% carbon	End-capping	pH stability	Use mode	Application	
	C18-TF	L1	---	---	x	C18 - octadecyl	Poly-functional	14.0%	One step	1.5 - 8.0	RP	Alternative selectivity for challenging separations & for - but not limited to - aromatic, polyphenol, PAHs etc.	
	C8	L7	120Å	320m ² /g	x	x	C8 - octyl	Mono-functional	11.0%	One step	2.0 - 7.0	RP	Mid-polar and non polar compounds. Less retentive than C18.
	MM1	L44	120Å	320m ² /g	---	x	C8 / SCX	Mono-functional	---	One step	2.0 - 6.5	RP / EI	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.
	CN	L10	120Å	320m ² /g	x	x	CN - cyano	Mono-functional	8.0%	One step	2.0 - 7.0	RP / NP	CN functional groups can be used either in normal phase to purify polar compounds or in reverse phase for mid-polar compounds.



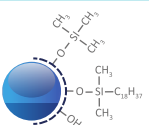
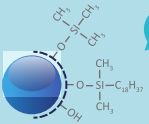
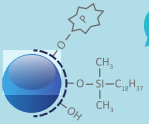
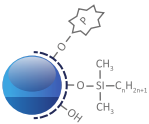
UPTISPHERE® 120Å STATIONARY PHASES



	USP code	Ø pore	Surface	2.2µm	3µm	5µm	Bonding	Functionalization	% carbon	End-capping	pH stability	Use mode	Application
 OH $\text{O}-\text{Si}-(\text{CH}_2)_7-\text{O}-\text{CH}_2-\underset{\text{OH}}{\text{CH}}-\underset{\text{OH}}{\text{CH}_2}$	L20	120Å	320m ² /g	---	---	(x)	OH-diol	Mono-functional	6.0%	None	1.5 - 6.5	RP / NP	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.
 NH_2 $\text{O}-\text{Si}-(\text{CH}_2)_7-\text{NH}_2$	L8	120Å	320m ² /g	x	x	x	NH ₂ -amino	Mono-functional	5.0%	None	2.0 - 6.5	RP / NP / EI	Can be either weak anion exchangers for strong acids, or polar media that can interact with OH, NH, SH...
 SCX $\text{O}-\text{Si}-(\text{CH}_2)_7-\text{SO}_3\text{H}^+$	L50	120Å	320m ² /g	---	---	x	Strong Cation Exchanger	Mono-functional	---	None	1.0 - 7.5	EI	Strong cation exchange (SCX) contains sulfonic acid used to analyze weak basic compounds which have one or more positive charges.
 SAX $\text{O}-\text{Si}-(\text{CH}_2)_7-\text{N}^+(\text{CH}_3)_3$	L14	120Å	320m ² /g	---	---	x	Strong Anion Exchanger	Mono-functional	---	None	1.0 - 7.5	EI	Strong anion exchange (SAX) contains quaternary amine used to analyze weak acid compounds which have one or more negative charged, nucleotides, nucleosides, organic acids...

PURIFLASH® STATIONARY PHASES

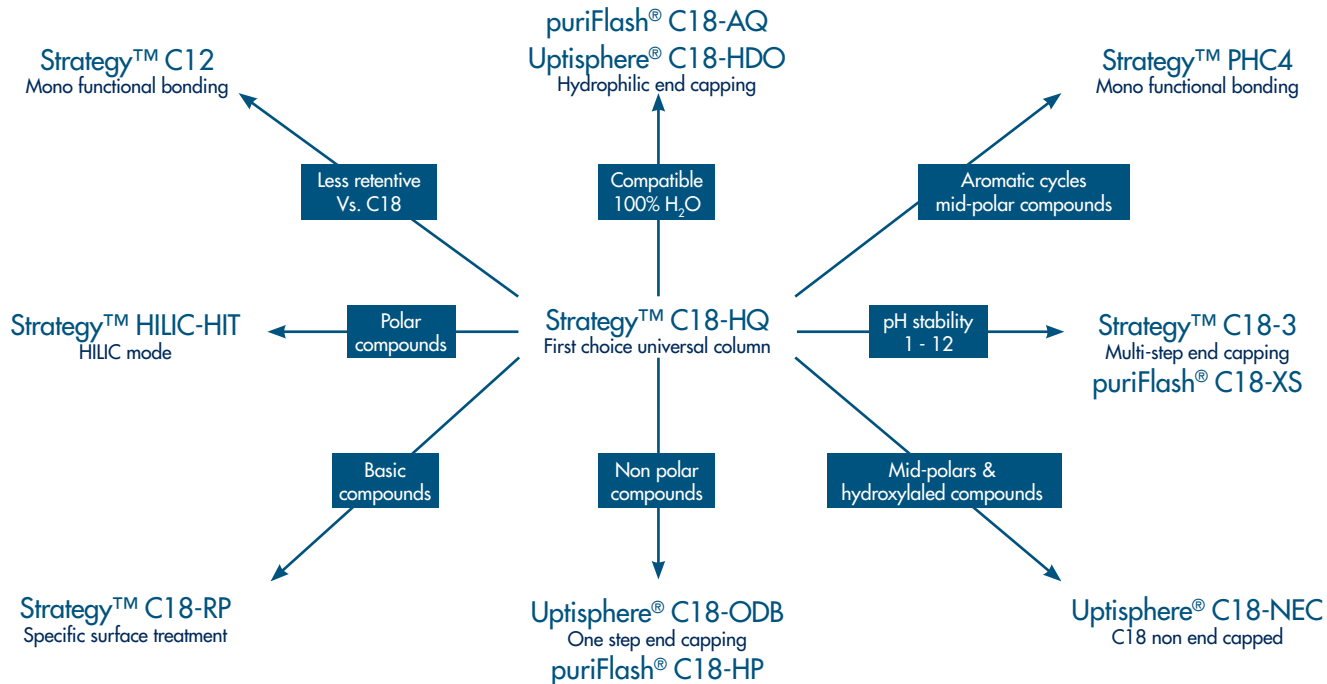


	USP code	Ø pore	Surface	5µm	Bonding	Functionalization	% carbon	End-capping	pH stability	Use mode	Application
 <p>C18-XS</p>	L1	100Å	300m ² /g	x	C18 - octadecyl	Mono-functional	17.0%	Multi-step	1.0 - 10.0	RP	The proprietary multi-step bonding technology guarantees a fully end-capped phase, stable under basic pH conditions up to pH: 10. It's an excellent phase for the integral purification of basic drugs.
 <p>C18-HP</p>	L1	100Å	300m ² /g	x	C18 - octadecyl	Mono-functional	16.5%	One-step	1.5 - 7.5	RP	Serves many pharmaceutical applications. Excellent choice for routine purification in reverse phase mode.
 <p>C18-AQ</p>	L1	100Å	300m ² /g	x	C18 - octadecyl	Mono-functional	14.0%	Mixed	2.0 - 7.5	RP	The bonding chemistry allow to start gradient with 100% of water. Suitable for the purification of mid and non polar compounds.
 <p>RP-AQ</p>	L7	60Å	500m ² /g	x	RPalkyl	Mono-functional	6.0%	Mixed	2.0 - 7.5	RP	The bonding chemistry allow to start gradient with 100% of water. Suitable for the purification of high and mid polar compounds. Compare to C18, peaks are elutes earlier from the beginning of the gradient.



SELECTION GUIDE

(U)HPLC Fully Porous Silicas



APPLICATION

Characterization of Furosemid within rat plasma & broncho-alveolar washing



Uptisphere® Strategy™ 1.7µm C18-HQ, 50 x 2.1 mm

Conditions:

Agilent 1200 RRIC + Qtrap 4000

Solvent A: 0.1% CH₃COOH

Solvent B: ACN + 0.1% CH₃COOH

Isocratic (50/50)

Flow rate: 600µL/min @ 500bar (7000psi)

ID: 2.14µg/L

Injection: 10µL

MS: 329 to 285

System: Shimadzu Nexera X2

Comments:

This study will be published.

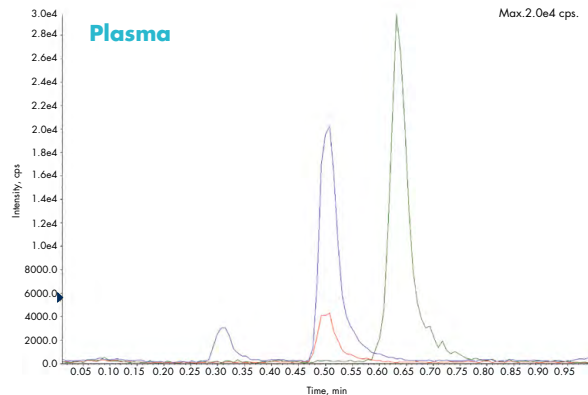
We can see a big peak within the plasma and nothing except the Internal Standard (IS) within the broncho-alveolar washing.

IS run time: 0.5min

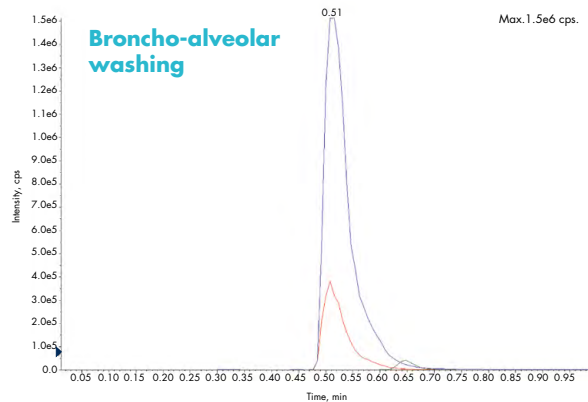
Furosemid run time: 0.64min - a "supposed" metabolite is eluted within the plasma extract at 0.3min.

Total run time: 1 min.

■ XIC of-MRM (3 pairs): 329.0/285.0 amu from Sample 33 (140708030) of 140807.wiff (Turbo Spray)



■ XIC of-MRM (3 pairs): 329.0/285.0 amu from Sample 40 (140807037) of 140807.wiff (Turbo Spray)



Analysis of Furocoumarins in citrus essential oils

Uptisphere® 3µm C18-ODB, 150 x 2.1mm

Conditions:

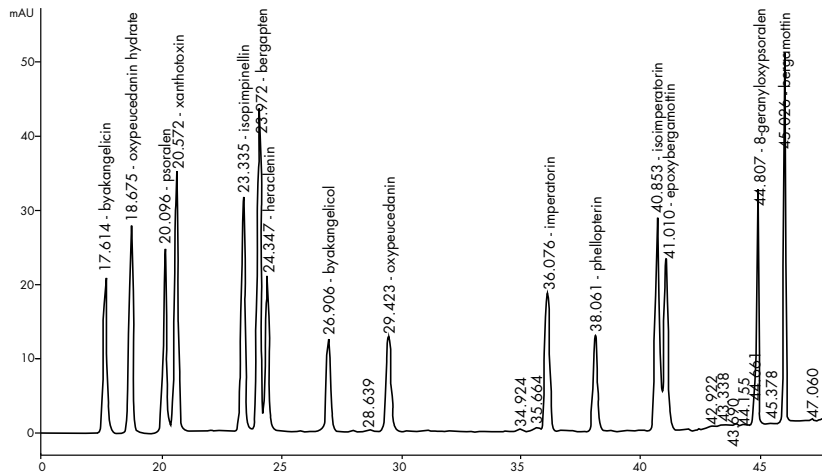
Solvent A: water - acetonitrile - THF (85/10/5)

Solvent B: acetonitrile - methanol - THF (65/30/5)

Flow rate: 0.3mL/min

DAD: 310nm

Time min	0 to 5	5 to 20	20 to 24	24 to 38	38 to 40	Rinse	Equilibra- tion
%B	0	0-32	32	32-55	55-90	90	0
	isocratic	linear	isocratic	linear	linear	10min	10min



APPLICATION

Urea from diesel particles extracts



Uptisphere® Strategy™ 5µm HILIC-HIT,
250 x 4.6mm

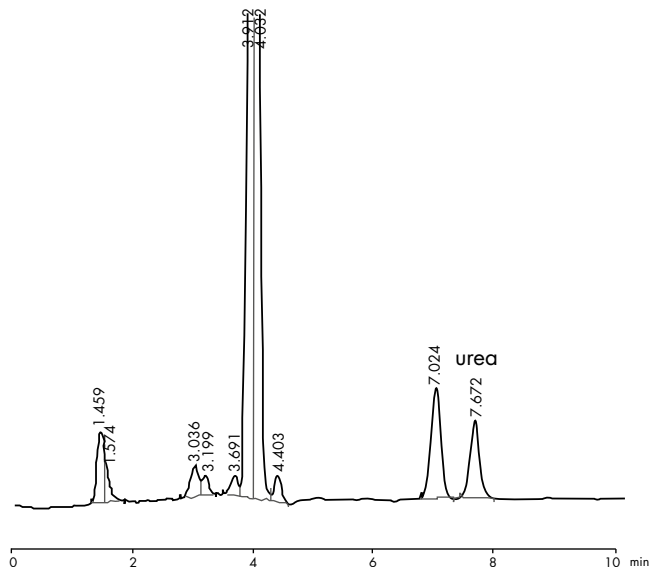
Conditions:

Acetonitrile 100%
Flow rate: 1 mL/min
Temperature: 20°C
DAD: 195nm
Injection: 10µL

Benefits:

The column provides the following advantage in comparison to the previous one.

- Better urea retention
- Deletion of interferences
- Symmetrical urea peak





Advion Interchim

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How to request more information, a quotation or to place an order

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