

# Inertsil<sup>®</sup> ODS Sprint

## An important new column in the Inertsil series

Perfect balance of retention for both polar and non-polar compounds.

1/2 of Inertsil ODS-3 retention for Hydrophobic compounds.

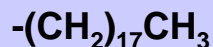
Special new **Sprint HG** column hardware improves peak shape and efficiency

**2.1X20mm Sprint HG column** is ideal for High-Throughput LC/MS Separations.

Superior Inertness.

Compatible with 100% aqueous eluents.

## Bonded-Phase Structure

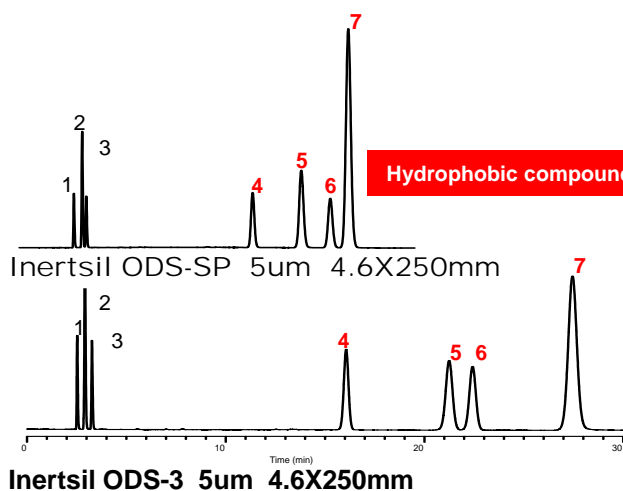


### Base Silica Physical Properties and Chemical Modification

Particle Size:	5µm
Particle Shape:	Spherical
Specific Surface Area:	450m <sup>2</sup> /g
Pore Size:	100Å
Pore Volume:	1.05mL/g
Purity:	99.999%
Bonded Phase:	Octadecyl groups
Endcapped:	Yes
Carbon Load:	8.5%
Recommended pH Range:	2 to 7.5
USP:	L1
Guaranteed Theoretical Plate Numbers for 150 and 250mm Column Length:	100,000/m
QC Tests Employed:	SEM, M, Ph, C, Schro, T, Py, Am, Ac, Cu, D, CP

## Perfectly Balanced Retention

Our newly-developed chemical bonding technology allows **Inertsil ODS Sprint** to retain hydrophilic compounds (see peaks 1 to 3, below) without excessive retention of non-polar compounds (see peaks 4 to 7).



<b>System:</b>	GL7400 HPLC system
<b>Eluent</b>	CH <sub>3</sub> OH / H <sub>2</sub> O = 80 / 20
<b>Flow rate:</b>	1.0 mL/min
<b>Col.Temp.:</b>	40C
<b>Detection:</b>	245nm

- 1) Uracil
- 2) Caffein
- 3) Phenol
- 4) **n-Butylbenzene**
- 5) **o-Terphenyl**
- 6) **n-Amylbenzene**
- 7) **Triphenylene**

## Sprint HG High Performance Column Hardware

To help maximize the performance of Inertsil Sprint, GL Sciences developed a completely new column hardware design, called Sprint HG hardware. This hardware provides far less column dead-volume compared to other designs, resulting in higher theoretical number of plates and better peak shape. Sprint HG column hardware guarantees at least 100,000 plates/m for 150 and 250mm column lengths. The 2.1X20mm Sprint HG column combines sharp peaks with fast elution time and is ideal for High-Throughput LC/MS Separations.

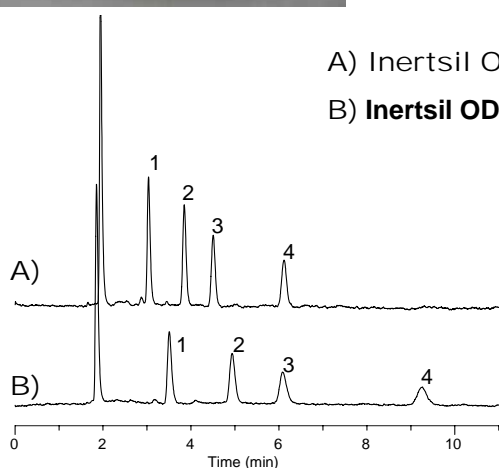


→ **New HG type hardware**

→ **The current hardware EX type**



→ **20mm length column can be packed too!!!**



A) Inertsil ODS-SP 5um 4.6X150mm

B) Inertsil ODS-3 5um 4.6X150mm

Theoretical Plates Number of Peak No. 4  
= **15,295**

↑ **Sharper Peaks!!!**

Theoretical Plates Number of Peak No. 4  
= **11,320**

**System:** GL7400 HPLC system  
**Eluent:** A) CH<sub>3</sub>CN B) 0.1% H<sub>3</sub>PO<sub>4</sub>  
A:B=95:5  
**Flow rate:** 1.0 mL/min  
**Col. Temp.:** 40  
**Detection:** 245 nm  
**Injection Vol.:** 5mL

1. Sudan 1 (0.5ug/mL)  
2. Sudan 2 (0.5ug/mL)  
3. Sudan 3 (0.5ug/mL)  
4. Sudan 4 (0.5ug/mL)

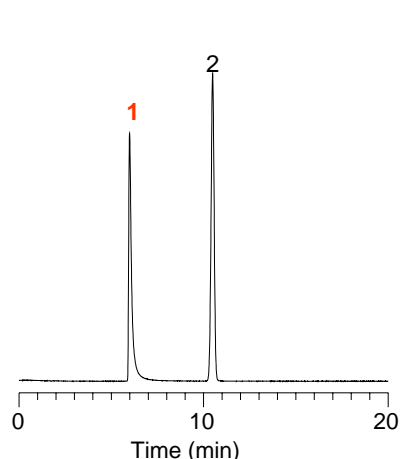
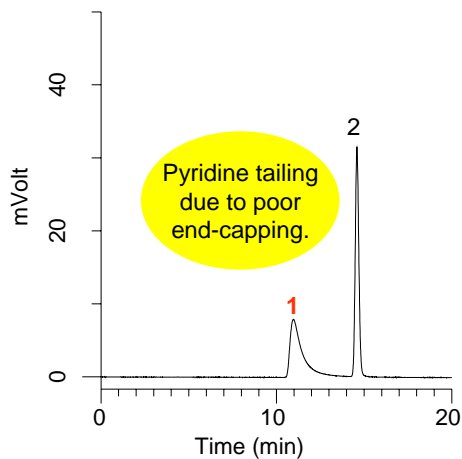
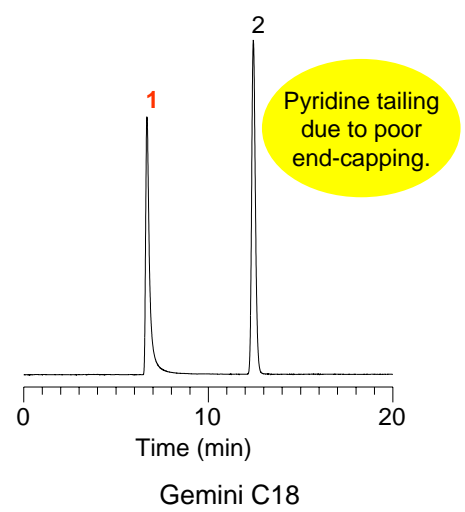
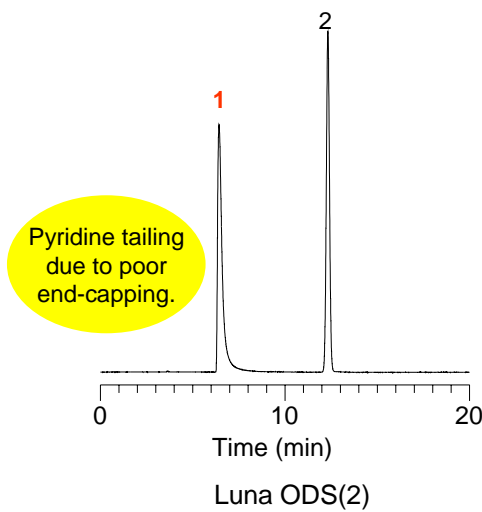
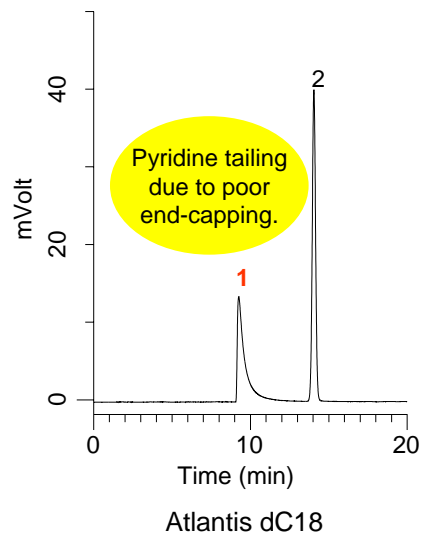
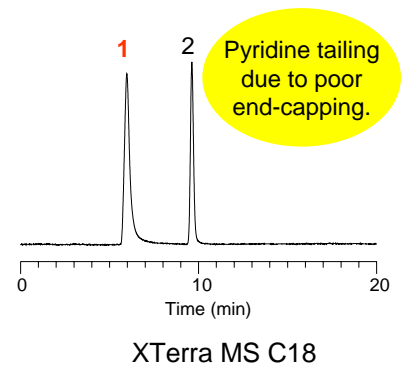
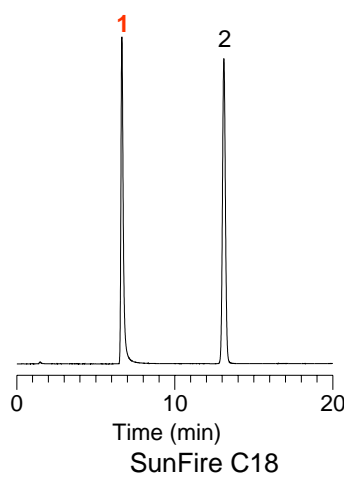
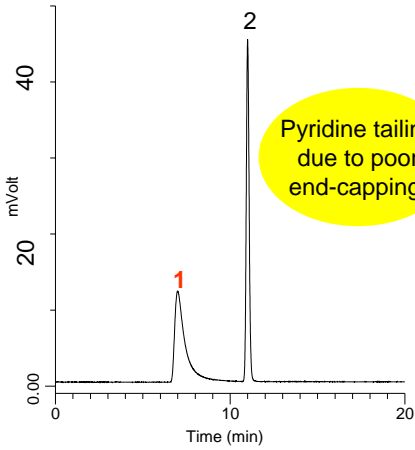
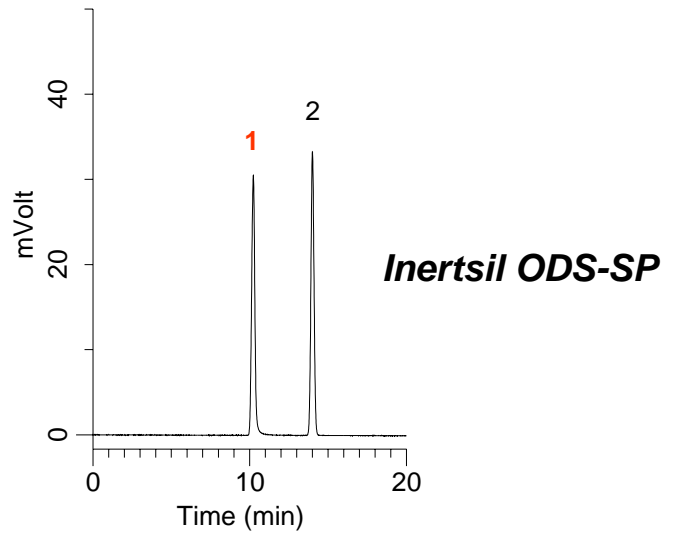
## Superior Inertness

Inertsil Sprint is created by using a completely new bonding technique invented by GL Sciences. After bonding octadecyl silane (ODS) to highly purified base-silica gel, intensive end-capping is performed to eliminate residual silanols, creating an exceptionally inert column for reverse phase chromatography. Inertsil ODS Sprint phase shows excellent peak shapes for a wide range of polar analytes, including both basic compounds and acidic compounds, as shown in the chromatograms below.

*See the difference for yourself!!!*

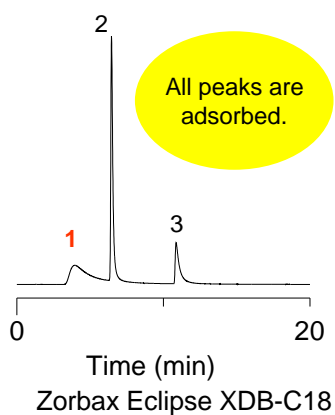
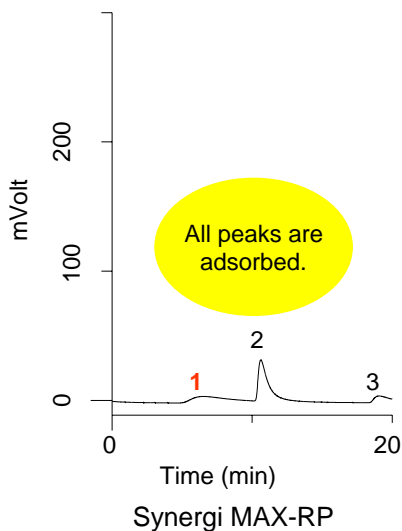
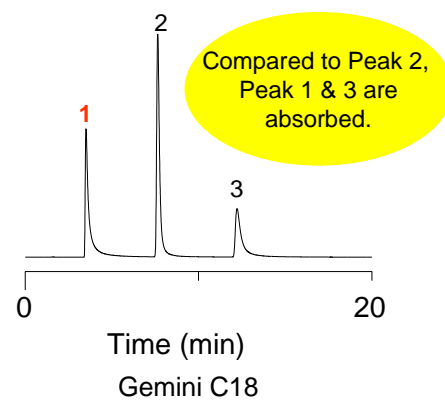
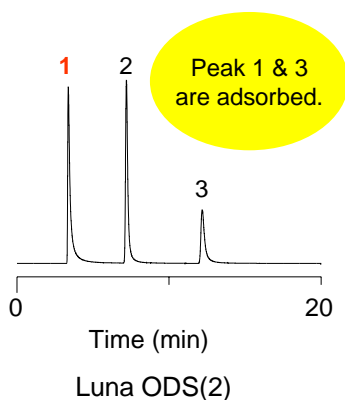
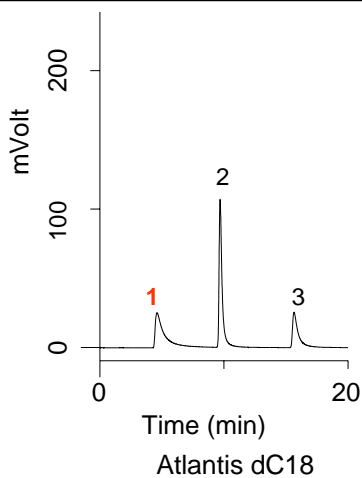
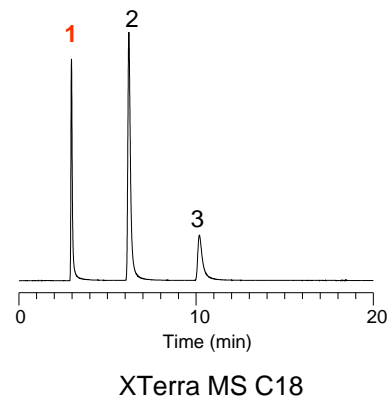
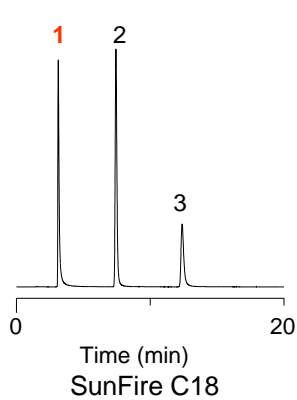
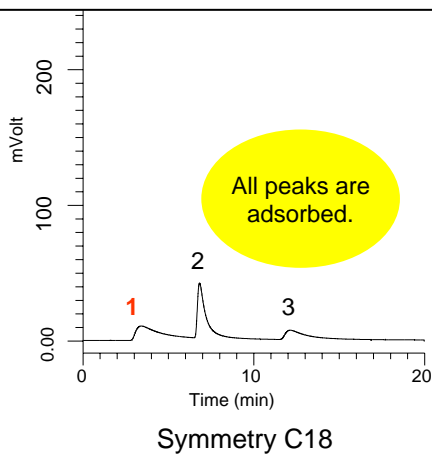
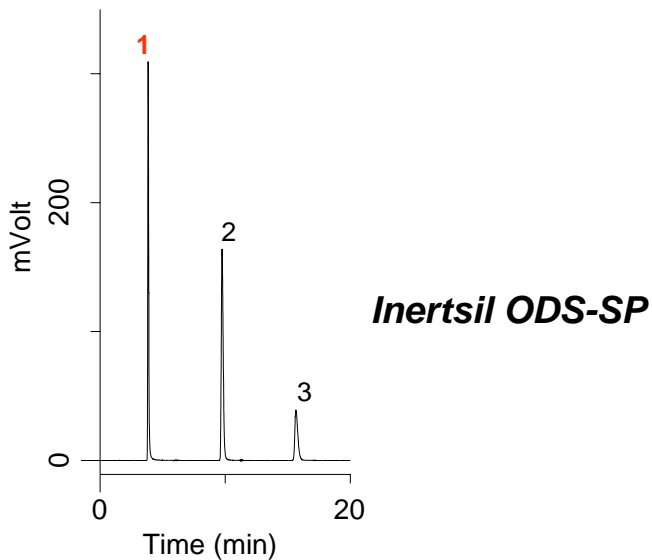
# Pyridine Test for Base Deactivation

Column Length: 4.6X250mm 5um  
Eluent: CH3OH / H2O = 30 / 70  
Flow Rate: 1.0 mL/min  
Col.Temp.: 40C  
Detector:: UV254nm  
Sample Volume: 4uL  
Samples: 1) Pyridine 0.09 mg/mL  
2) Phenol 0.41 mg/mL



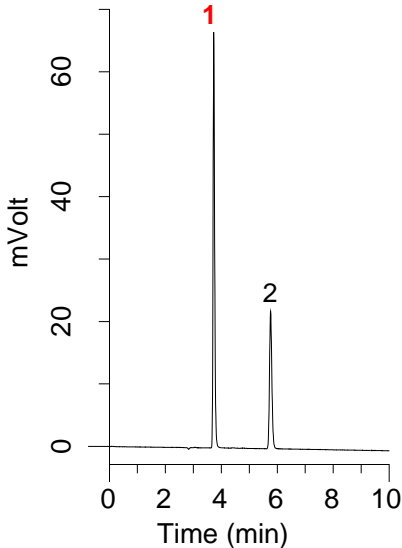
# Aminopyridine Test for Base Deactivation

Column Length: 4.6X250mm 5um  
 Eluent: CH3OH / 20mM Phosphate Buffer (pH7.6) 10:90  
 Flow Rate: 1.0 mL/min  
 Col.Temp.: 40C  
 Detector:: UV254nm  
 Sample Volume: 4uL  
 Samples:  
 1) 4-Aminopyridine 0.1mg/mL  
 2) 3-Aminopyridine 1.0mg/mL  
 3) 2-Aminopyridine 1.0mg/mL

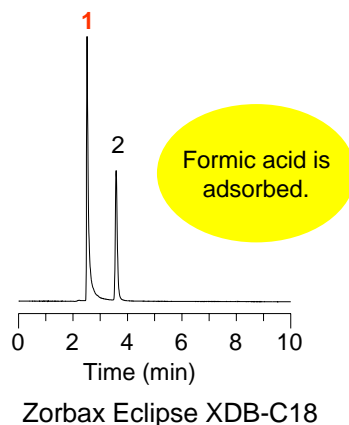
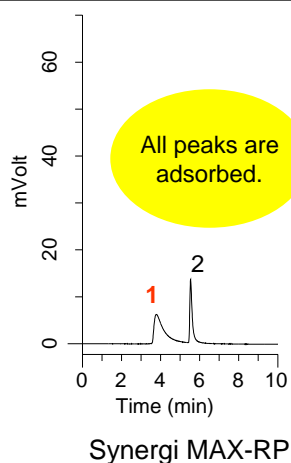
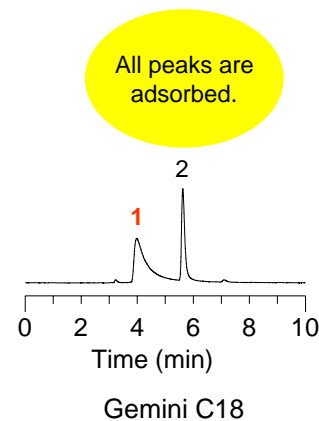
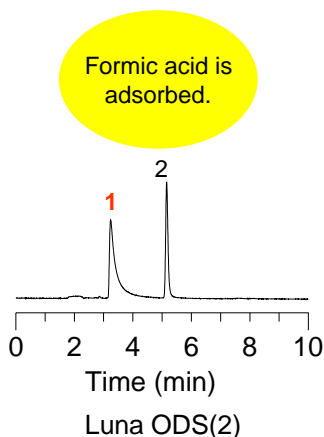
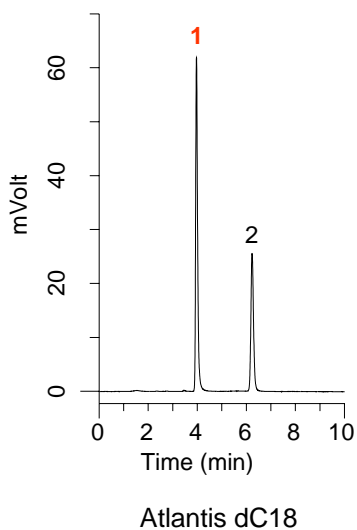
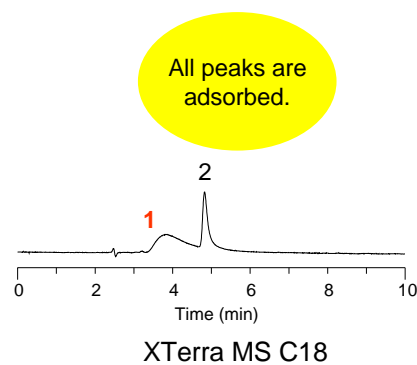
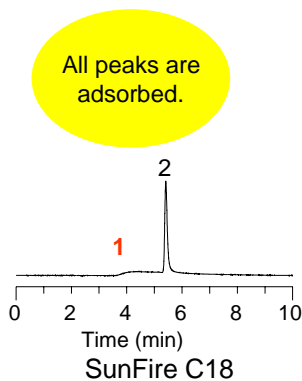
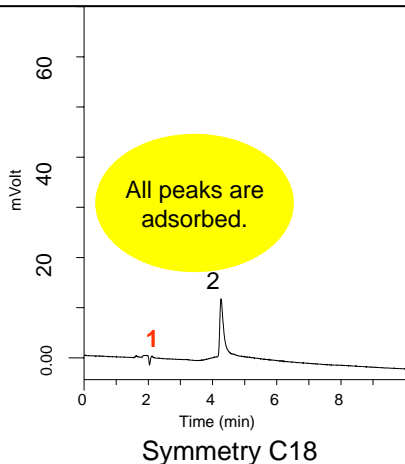


# Carboxylic Acid Test for Silanol Activity

Column Length: 4.6X250mm 5um  
 Mobile Phase: 0.1% H3PO4(v/v)  
 Flow Rate: 1.0 mL/min  
 Col.Temp.: 40C  
 Detector: UV210nm  
 Sample Volume: 4uL  
 Samples: **1) Formic Acid 0.1 %(v/v)**  
 2) Acetic Acid 0.1 %(v/v)

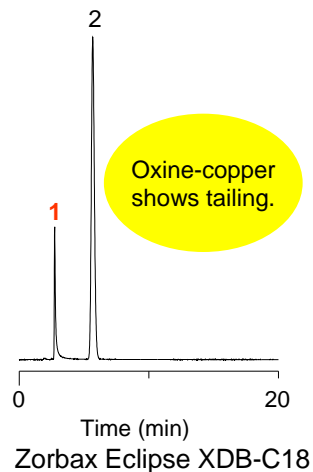
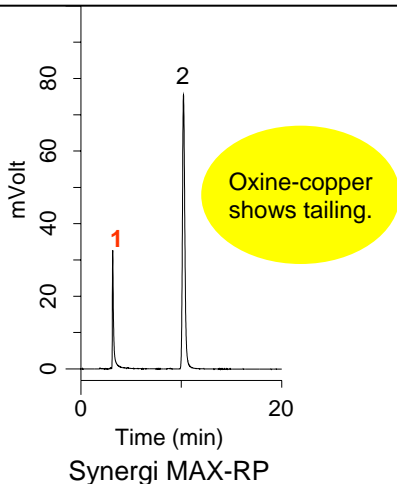
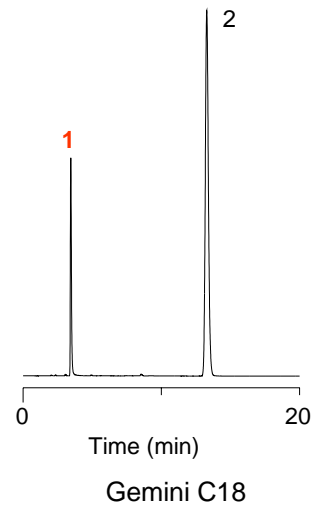
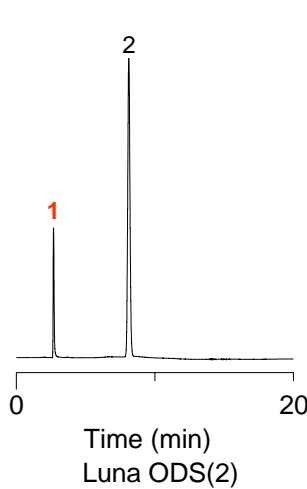
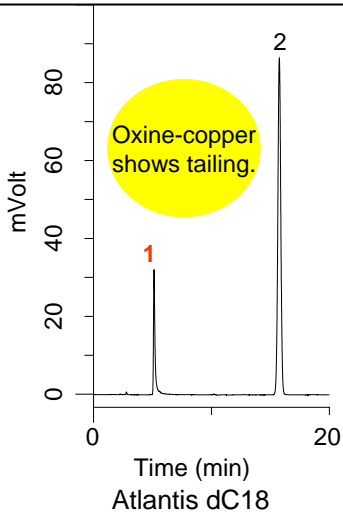
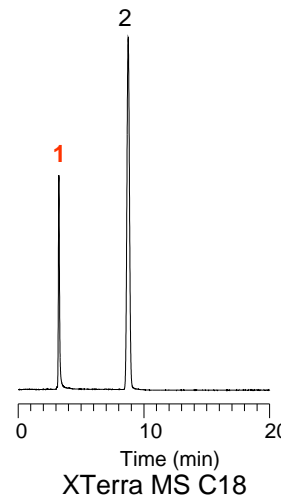
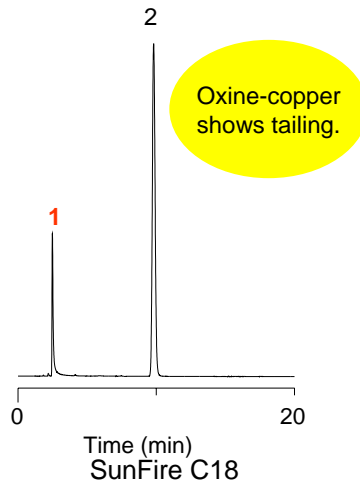
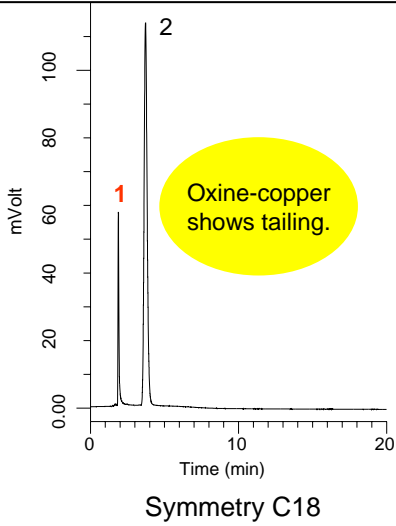
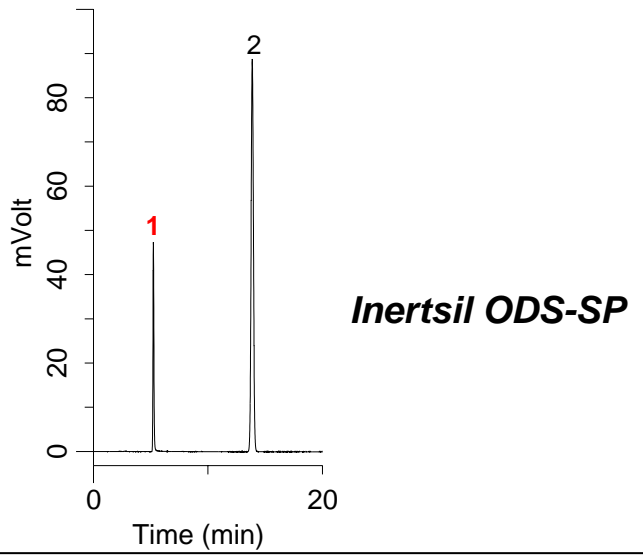


***Inertsil ODS-SP***



# Oxine-copper Test for Silica Purity

Column Length: 4.6X250mm 5um  
Eluent: CH3OH / 20mM H3PO4 (10/90, w:w)  
Flow Rate: 1.0 mL/min  
Col.Temp.: 40C  
Detector:: UV254nm  
Sample Volume: 2.5uL  
Samples: 1) Oxine-copper 0.01 mg/mL  
          2) Caffeine 0.4 mg/mL



# Compatible with 100% aqueous eluents

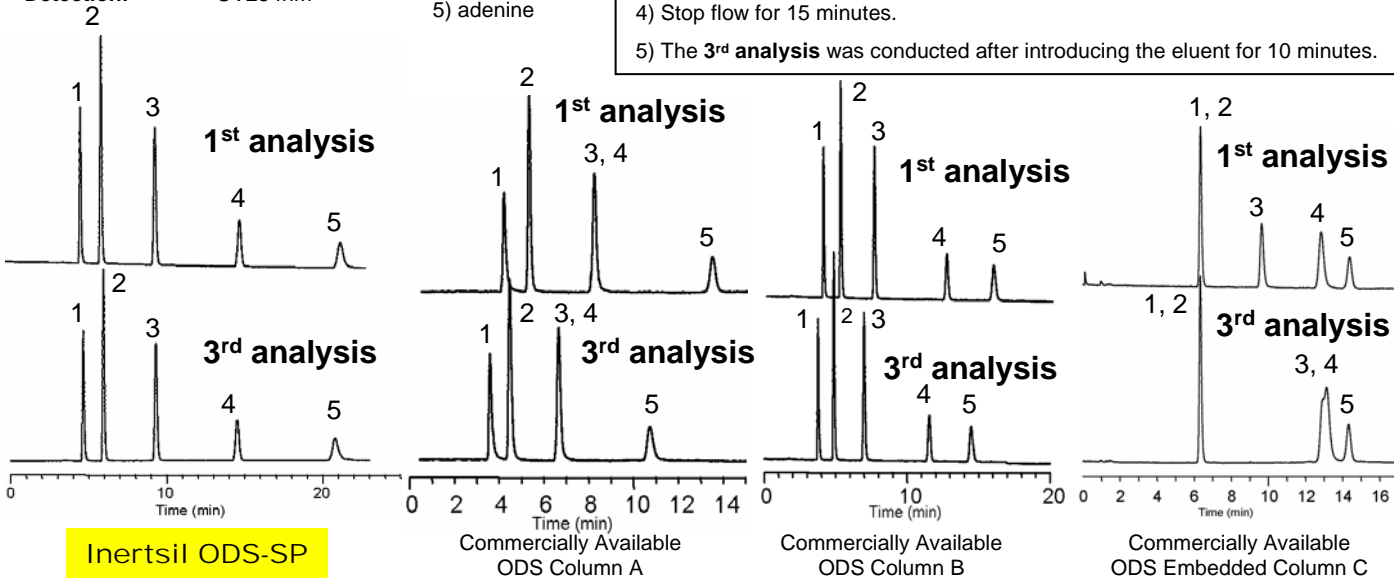
Inertsil ODS Sprint is designed to have enhanced retention of polar compounds without an embedded polar group in the bonded phase ligand. To retain water-soluble organic compounds, the use of mobile phases that contain little or no organic modifier are sometimes needed. Under these highly aqueous conditions, conventional C18 columns often show sudden loss of retention, known as "phase collapse." This phenomenon is caused by "dewetting" of the bonded phase inside the pores of the silica. The following data shows the results of a stop-flow test, which demonstrates Inertsil ODS Sprint's resistance to dewetting and phase collapse.

**Column:** 4.6X250MM 5um  
**Eluent:** Water 100%  
**Col.Temp.:** 40C  
**Flow rate:** 1.0mL/min  
**Detection:** UV254nm

- 1) Cytosine
- 2) Uracil
- 3) guanine
- 4) thymine
- 5) adenine

## Testing Procedure

- 1) The 1<sup>st</sup> analysis was conducted after introducing the eluent for 20 minutes.
- 2) Stop flow for 15 minutes.
- 3) The 2<sup>nd</sup> analysis was conducted after introducing the eluent for 10 minutes.
- 4) Stop flow for 15 minutes.
- 5) The 3<sup>rd</sup> analysis was conducted after introducing the eluent for 10 minutes.



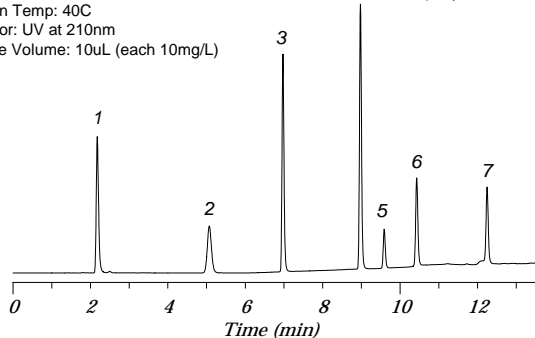
## Applications

### Analysis of Cold Medicine

#### Analytical Condition

System: GL-7400 HPLC System  
 Column: Inertsil ODS-SP 5um 150X4.6 mm I.D.  
 Mobile Phase: A) Acetonitrile B) 0.1% Phosphoric acid  
 (A/B) = (10/90)-2min-(10/90)-10min- (100/0)  
 Flow Rate: 1.0 mL/min  
 Column Temp: 40C  
 Detector: UV at 210nm  
 Sample Volume: 10uL (each 10mg/L)

- 1) Potassium guaiacolsulfonate
- 2) Acetaminophen
- 3) Caffeine
- 4) Ethenzamide
- 5) Allyl isopropyl acetyl urea
- 6) Isopropylantipyrine
- 7) Ibuprofen

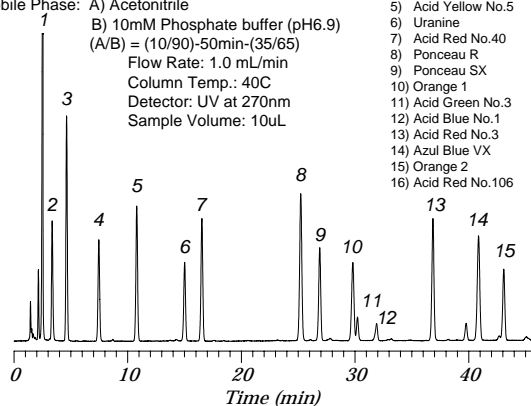


### Analysis of Food Colorants

#### Analytical Condition

System: GL-7400 HPLC System  
 Column: Inertsil ODS-SP 5um 150X4.6 mm I.D.  
 Mobile Phase: A) Acetonitrile B) 10mM Phosphate buffer (pH6.9)  
 (A/B) = (10/90)-50min-(35/65)  
 Flow Rate: 1.0 mL/min  
 Column Temp.: 40C  
 Detector: UV at 270nm  
 Sample Volume: 10uL

- 1) Acid Yellow No.4 7.6mg/L
- 2) Acid Red No.2 3.8mg/L
- 3) Acid Blue No.2 7.6mg/L
- 4) Acid Red No.102 3.8mg/L
- 5) Acid Yellow No.5 5.3mg/L
- 6) Uranine 3.8mg/L
- 7) Acid Red No.40 5.3mg/L
- 8) Ponceau R 7.6mg/L
- 9) Ponceau SX 5.3mg/L
- 10) Orange 1 5.3mg/L
- 11) Acid Green No.3 3.0mg/L
- 12) Acid Blue No.1 3.0mg/L
- 13) Acid Red No.3 5.3mg/L
- 14) Azul Blue VX 3.0mg/L
- 15) Orange 2 7.6mg/L
- 16) Acid Red No.106 3.0mg/L

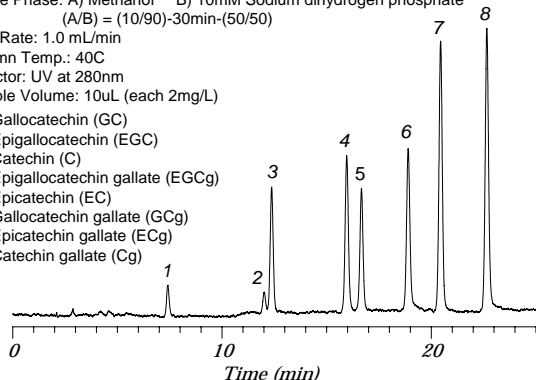


### Analysis of Catechins

#### Analytical Condition

System: GL-7400 HPLC System  
 Column: Inertsil ODS-SP 5um 150X4.6 mm I.D.  
 Mobile Phase: A) Methanol B) 10mM Sodium dihydrogen phosphate  
 (A/B) = (10/90)-30min-(50/50)  
 Flow Rate: 1.0 mL/min  
 Column Temp.: 40C  
 Detector: UV at 280nm  
 Sample Volume: 10uL (each 2mg/L)

- 1) Galliccatechin (GC)
- 2) Epigallocatechin (EGC)
- 3) Catechin (C)
- 4) Epigallocatechin gallate (EGCg)
- 5) Epicatechin (EC)
- 6) Galliccatechin gallate (GCg)
- 7) Epicatechin gallate (ECg)
- 8) Catechin gallate (Cg)

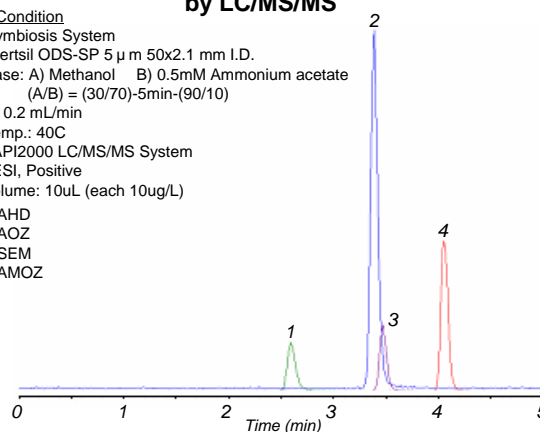


### Analysis of Antibacterial Agents by LC/MS/MS

#### Analytical Condition

System: Symbiosis System  
 Column: Inertsil ODS-SP 5 μm 50x2.1 mm I.D.  
 Mobile Phase: A) Methanol B) 0.5mM Ammonium acetate  
 (A/B) = (30/70)-5min-(90/10)  
 Flow Rate: 0.2 mL/min  
 Column Temp.: 40C  
 Detector: API2000 LC/MS/MS System  
 ESI, Positive  
 Sample Volume: 10uL (each 10ug/L)

- 1) 2-NBA-AHD
- 2) 2-NBA-AOZ
- 3) 2-NBA-SEM
- 4) 2-NBA-AMOZ



## Inertsil ODS-SP Ordering Information

ID(mm)	2.1	4.6	Price
Length(mm)	Cat.No.	Cat.No.	
20	5020-02711	5020-02741	
50	5020-02712	5020-02742	
75	5020-02713	5020-02743	
100	5020-02714	5020-02744	
150	5020-02715	5020-02745	
250	5020-02716	5020-02746	

- \* HG type hardware are used for all the sizes above.
- \* End-fitting is Waters 1/16" type.
- \* For other column sizes, please give us an enquiry. (Upon request)

## Cartridge Guard Column E Ordering Information

Cartridge Guard Column E			Cartridge Guard Column E (2EA. / Set)		Cartridge Guard Column E Holder Set (2 Cartridges & 1 Holder)	
Analytical Column I.D.mm Size	Guard Column I.D.mm Size	Guard Column Length mm Size	Cat.No.	Price	Cat.No.	Price
			2.1 mm	3.0 mm	10 mm	5020-08515
4.6 mm	4.0 mm	10 mm	5020-08510		5020-08520	

- \* When ordering, please specify the packing material and the particle size.
- \* Only Waters 1/16" end-fitting type is compatible for our Cartridge Guard Column E.
- \* Conventional Guard Columns and GL-Cart Guard Columns are also available. For more information, please feel free to contact us.
- \* EX type hardware are used for all the Cartridge Guard Column E columns.

The specification and the column type are subject to change without notice due to continual improvements.  
All brand names and product names are trademarks or registered trademarks of GL Sciences Inc.  
TM or ® are not described in this brochure.

The screenshot shows the Inertsil website interface in Microsoft Internet Explorer. The page title is "Inertsil / GL Sciences Contact Information - Microsoft Internet Explorer - [オフライン作業]". The URL in the address bar is "http://inertsil.com/Contact/Contact\_Index%20HPLC.htm". The website header includes the Inertsil logo and GL Sciences Inc. logo. Navigation links include Phases, Chromatograms, Technical Support, Ordering, News & Events, Search, Contact, and Home. A section titled "Worldwide Contact Information for Inertsil Columns or for GL Sciences Products" contains a "Find Your Country in the Drop Down Menu Below:" with a "Select Country From List" dropdown menu. Below the menu is a world map. At the bottom of the page, there is a copyright notice: "Copyright © 2002-2005 GL Sciences, Inc., Inertsil is a registered trademark of GL Sciences, Inc. Site Terms and Conditions of Use".

**To find your local distributor, please visit to our website**

**[http://inertsil.com/Contact/Contact\\_Index%20HPLC.htm](http://inertsil.com/Contact/Contact_Index%20HPLC.htm)**

**Simply select your country from the list and your local distributor Information will be displayed.**

**ISO14001: Save Energy and Resources!!  
Reduce Amount of Eluent with Smaller ID Inertsil Columns!!**