

Capital HPLC Columns and HPLC Cartridges



Specialty Columns

Optimal	Inertpak	Spherisil	Inertsil ODS-3	Type-C Silica
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[Download Capital Catalog](#)

HPLC Columns & HPLC Cartridges

<u>Adsorbosphere</u>	<u>Apex</u>	<u>Chromegabond</u>	<u>Diasogel</u>	<u>Exsil</u>
<u>Hypersil</u>	<u>Inertsil ODS-2</u>	<u>Kromasil</u>	<u>Lichrosorb</u>	<u>Nucleosil</u>
<u>Partisil</u>	<u>Rosil</u>	<u>Techsphere</u>	<u>Waters Spherisorb</u>	<u>Zorbax</u>

Optimal HPLC Range



The new range of Optimal HPLC columns from Capital HPLC represents the next step forward in porous silica engineering beyond the so-called new generation high purity materials.

The current new generation materials are based on an alternative synthesis route which yields a high purity product with excellent inertness characteristics.

Optimal is more than just another *new generation* HPLC packing material. Optimal is manufactured using an entirely new process based on well established, tried and tested silica production techniques coupled with new refining technologies which ultimately leads to a superior material combining the advantages of both the new and traditional approaches to silica manufacturing.

Specification

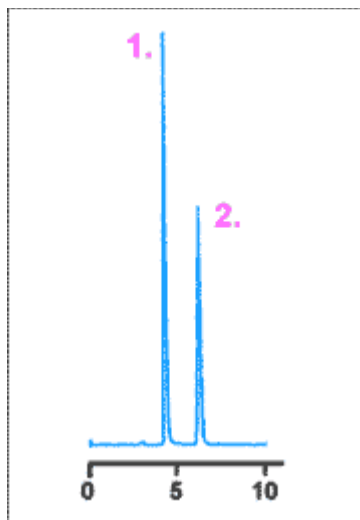
The fact that high purity Optimal is manufactured using well established silica engineering techniques means that a wide range of specifications are possible. As a result, we can supply Optimal in pore sizes ranging from 60% to 1000% with the most popular being 120%. Moreover, Optimal is also available in particle sizes ranging from 3µm up to preparative grade sizes.

Shape	Spherical
Phases	ODS-H, ODS-L, C8 and Silica
Particle Diameter	3µm, 5µm and larger
Carbon Loading	ODS-H (18%), ODS-L (15%)
Pore Diameter	120%, 300Å, 500Å and 1000%

Surface Area	320m ² g ⁻¹ . (120%o material)
Typical Efficiency	75,000 plates/m

Optimal ODS-H

Optimal ODS-H is the most generally applicable of the Optimal phases and can be used for both specialist applications involving acid and basic compounds or mixtures of both. Optimal ODS-H is also particularly well suited to general purpose method development.

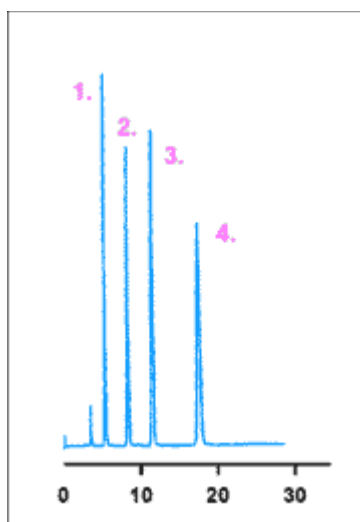


The absence of active silanols in Optimal is illustrated by this standard test mixture which includes both pyridine and phenol. The lack of peak tailing clearly demonstrates the absence of metallic impurities.

Column: Optimal ODS-H 5µm

Dimensions: 15cm x 4.6mm
 Mobile Phase: 40:60 Acetonitrile:Water
 Temperature: 40fC
 Flow Rate: 1ml/min
 Detection: UV at 254nm

1. Pyridine, 2. Phenol



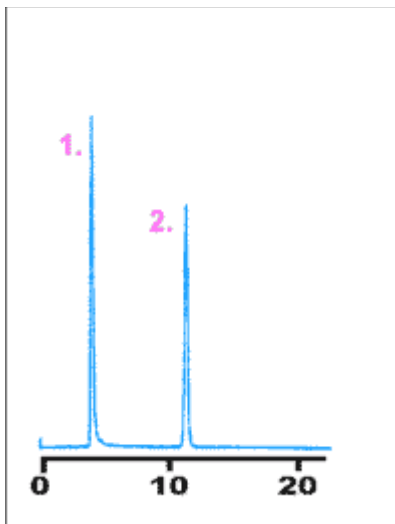
Neutral silanol groups can still occasionally cause problems with certain classes of compound. Theobromine, theophylline and caffeine are particularly prone to this effect. In Optimal this effect is eliminated by full end capping.

Column: Optimal ODS-H 5µm

Dimensions: 15cm x 4.6mm
 Mobile Phase: 25:75 Methanol:Water
 Temperature: 30fC
 Flow Rate: 1ml/min
 Detection: UV at 254nm

**1. Theobromine, 2. Theophylline
 3. Caffeine, 4. Phenol**

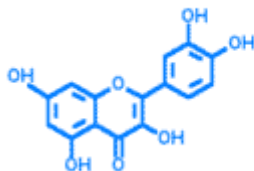
Many compounds such as polyphenols interact irreversibly with the active sites on silica based reversed phase materials. In the case of Optimal ODS-H this problem does not occur, which makes it possible to analyse problematic compounds such as in the example below.



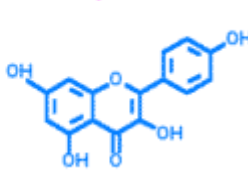
Column: Optimal ODS-H 5µm

Dimensions: 15cm x 4.6mm
 Mobile Phase: THF:Water:Formic Acid (35:60:5)
 Temperature: 40fC
 Flow Rate: 0.65Sl/min
 Detection: UV at 254nm

1. Quercetin



2. Kaemphenol

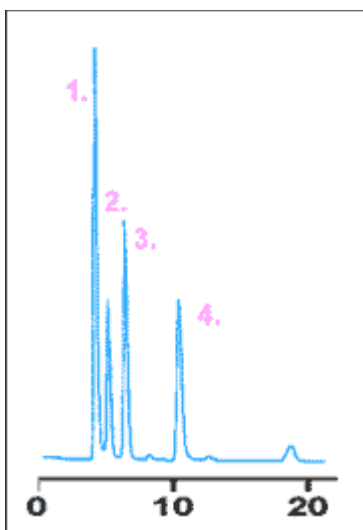


Optimal ODS-L

Optimal ODS-L has a slightly lower carbon loading (15%) than the ODS-H and is useful for the analysis of a wide range of hydrophilic compounds which are normally not retained by other C18 based packing material.

One particular advantage is that even pure water can be used as the eluent without the need for any organic modifier. Highly polar samples only soluble in water may be separated by this packing material, e.g. sugars and other saccharides (see example below). Optimal ODS-L is also useful for analyzing hydrophobic samples which are currently chromatographed on competitor C8 materials. Like ODS-H, this packing material is also fully end-capped.

Optimal ODS-L is also based on the same high purity silica as the Optimal ODS-H material which ensures the high degree of inertness and lack of peak tailing.



Column: Optimal ODS-L 5µm

Dimensions: 15cm x 4.6mm
 Mobile Phase: 100% Water (HPLC Grade)
 Temperature: 40fC
 Flow Rate: 1ml/min
 Detection: Refractive Index

- 1. Sucrose
- 2. Kestose
- 3. Fructotriose
- 4. Fructotetraose

Spherisorb, Spherisil HPLC Columns and UCC Cartridges

Spherisil HPLC columns and UCC Cartridges from Capital HPLC represent a 100% compatible alternative to Waters Spherisorb columns for all HPLC applications. Compare the chromatograms below, they show identical results obtained with both Capital Spherisil and Waters Spherisorb for compounds of vastly differing polarities. Existing Spherisorb methods can be directly carried out on Capital Spherisil using exactly the same chromatographic run conditions with no changes in selectivity or retention characteristics.

Capital Spherisil is available in phases: ODS1, ODS2, C8, Cyano, Amino, Phenyl, SCX and SAX.

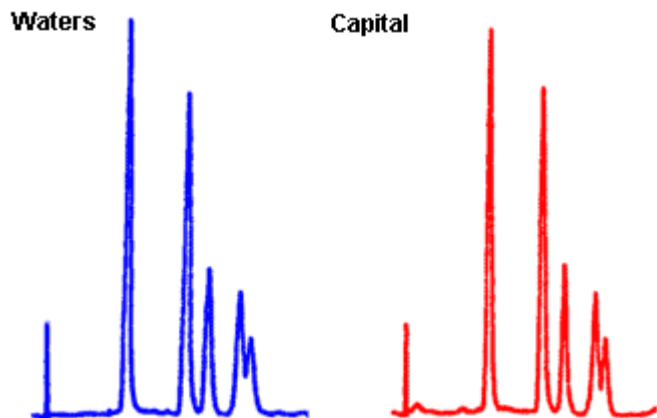
All phases are available in 10, 5 and 3µm particle diameters.

The tests below were carried out on Spherisil ODS1 and Waters Spherisorb ODS1. Equal degrees of compatability have also been demonstrated on other phases. For more information [contact us](#).

Run Conditions: 15cm x 4.6mm i.d. 40:60 Acetonitrile:Water (20mM Phosphate pH 2.5), Column:15cm x4.6mm

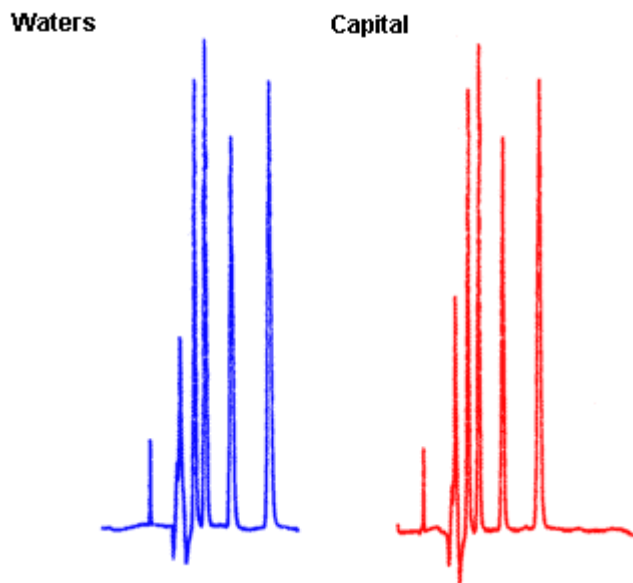
Capital Spherisil - Test 1

Analytes: *Uracil, Phenol, Cresol, 3,5-Xylenol and 2,5-Xylenol*



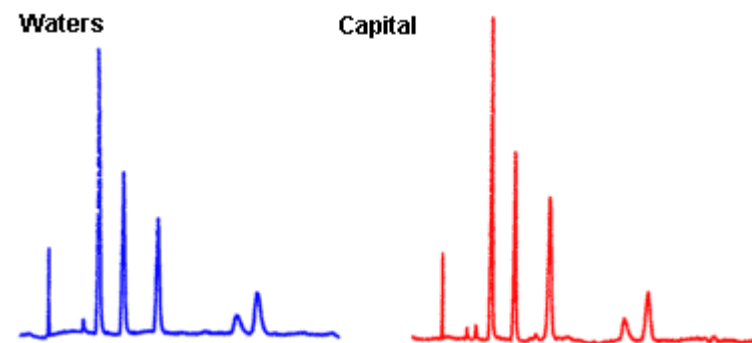
Capital Spherisil - Test 2

Analytes: *Uracil, Aniline, Cresol, Nitrobenzene and Toluene*



Capital Spherisil - Test 3

Analytes: *Cinamic Acid, Nitrobenzene, Amitriptyline and Biphenyl*



Specification

Phases ODS1, ODS2, C1, C6, C8, CN, NH2, Ph

Particle Diameter 3, 5 and 10um

Pore Diameters 80%
Surface Area 220m²/g

Quality



All Capital Spherisil columns undergo the most stringent quality control conditions in our ISO9002 approved laboratory. Spherisil columns provide the same chromatographic performance as Spherisorb with lower column back pressures thanks to Capital's proprietary packing technique.

All materials are held in stock for immediate delivery from the narrowbore scale through to preparative columns.

In all tests Spherisil was shown to be virtually indistinguishable from Waters Spherisorb except for one important factor - price.

Phase	2cm Guard	5cm	10cm	12.5cm	15cm	20cm	25cm
Si	5UA102	5UA105	5UA110	5UA112	5UA115	5UA120	5UA125
C1	5UB102	5UB105	5UB110	5UB112	5UB115	5UB120	5UB125
C6	5UE102	5UE105	5UE110	5UE112	5UE115	5UE120	5UE125
C8	5UF102	5UF105	5UF110	5UF112	5UF115	5UF120	5UF125
ODS1	5UG102	5UG105	5UG110	5UG112	5UG115	5UG120	5UG125
ODS2	5UH102	5UH105	5UH110	5UH112	5UH115	5UH120	5UH125
PHENYL	5UK102	5UK105	5UK110	5UK112	5UK115	5UK120	5UK125
CN	5UL102	5UL105	5UL110	5UL112	5UL115	5UL120	5UL125
NH2	5UM102	5UM105	5UM110	5UM112	5UM115	5UM120	5UM125

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