.red® HPLC silicas

Product datasheet

Silica manufacture: start with the fundamentals

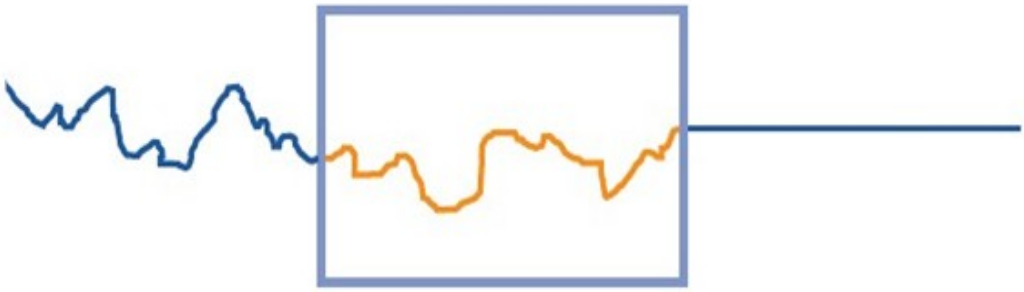
Independent Control of Pore Diameter, Pore volume and Surface area

Our novel aqueous manufacturing route allows unsurpassed control of the fundamental structural parameters of silica. Pore diameters from 80 to 1000Å are combined with pore volumes of 0.5 to 1.5cc/g to allow the engineering of particles for defined purposes with excellent reproducibility (RSD less than 3%).

Conventional processes apply a fixed manufacturing protocol to a variable raw material leading to the variability being passed on to the end product.

INPUT FIXED PROCESS OUTPUT

The production process is adaptable to the input variability of the raw materials and allows the output to be consistent.



INPUT ADAPTIVE PROCESS OUTPUT

The resultant silicas when bonded using robust proprietary methods form the basis of highly reproducible chromatographic phases.

Since 1985, only one batch of material has failed final QC and the level of in the field quality problems associated with bonded products is less than 0.25%.

.red® HPLC silicas

Product datasheet

Silica manufacture: … and finish with a flourish

The ability to design silicas with specific physical properties and to bond these using proven, reliable methodology has allowed us to offer a wide range of value phases which provide alternatives to current phases which may have become unreliable or have been subject to either restricted availability or significant price increases.

The .red range of phases allows the independent supplier/dealer to continue to support their customer base in the face of restrictive availability or excessive pricing of the branded products.

Although the ability to match conventional media is important, new and novel products are essential for growth. In this area, we are able to offer a number of advanced first to market products:

- 3µm wide pore silica, reversed phase and ion exchanger
- ODS-B, Octyl -B - the most base deactivated phase for use without buffers
- 1.5µm totally porous production technology

Many novel phases are under development and further first to market products can be expected.

.red® HPLC silicas

Product datasheet

Product range

Wyesil™80
Alternative to Waters Spherisorb™ range of phases.

Pore size: 90(+/-3)Å | Pore volume: 0.51 ml/g

Surface area: 226 m^2/g | Particle sizes: 1.5, 3, 5 and 10µm

Phases: Silica, ODS, ODS-1, C8, C6, C1 (TMS), Phenyl, Amino, Nitrile, SAX.

Wyesil™100
Slightly lower retention than Wyesil™80 using different silica base. Extended range of bonded phases including 1.5µm.

Pore Size: 100 (+/-3)Å | Pore volume: 0.52ml/g

Surface area: 208 m^2/g | Particle sizes: 1.5, 3, 5, 10, 12 and 15µm

Phases: Silica, ODS, ODS-1, ODS-B, ODS-AB, C8, C8B, C8AB, C6, C1 (TMS), Phenyl, Amino, Nitrile, SAX and SCX.

Temesil™
Closest alternative to Waters Spherisorb™.

Particle sizes: 3, 5, and 10µm

Phases: Silica, ODS-2, ODS-1, C8, and Phenyl.

Wyesil™plus
Acid/base and chelate deactivated. Uncapped for different selectivity to standard BDS media.

Pore size: 100 (+/-3)Å | Pore volume: 0.52ml/g

Surface area: 208 m^2/g | Particle sizes: 3 and 5µm

Phases: Silica, ODS and C8.

Arrowsil™
Alternative to Thermo Hypersil range of phases. Extended range including 3µm and 1.5µm

Pore Size: 130 (+/-5)Å | Pore volume: 0.63ml/g

Surface area: 194 m^2/g | Particle sizes: 1.5, 3 and 5µm

Phases: Silica, ODS, C8, Ph(1), CN(1) and NH2(2).

.red® HPLC silicas

Product datasheet

Arrowsil™ BD
Alternative to Thermo Hypersil BDS range of phases. Extended range including 3µm.

Pore size: 145 (+/-5)Å
Pore volume: 0.68ml/g
Surface area: 186 m^2/g
Particle size: 1.5, 3 and 5µm
Phases: Silica, C8, CN, C18 and BDQ.

Derisil™ 300
Alternative to Vydac TP phases. First 300Å media available in 3µm particle size.

Pore size: 300(+/-10)Å
Pore volume: 0.78ml/g
Surface area: 100 m^2/g
Particle sizes: 3, 5 and 10µm
Phases: Silica, ODS, C8, C4, PAH and HAAX.

Derisil™ 500
High Pore volume for use in GPC.

Pore size: 500 (+/-15)Å
Pore volume: 1ml/g
Surface area: 80 m^2/g
Particle sizes: 5 and 10µm
Phases: Silica

Derisil™ 1000
High Pore volume for use in GPC.

Pore size: 1000 (+/-20)Å
Pore volume: >1ml/g
Particle sizes: 5 and 10µm
Phases: Silica, Amino and ODS

Custom silicas
Our custom synthesis facility is available to meet specific requirements.

Custom Bonding
Bonding of customer supplied silicas.

.red® HPLC silicas

Product datasheet

Arrowsil™

Pore Size: 130 (+/-5)Å

Pore volume: 0.63ml/g

Surface area: 194 m^2/g (107m/ml)

Particle sizes: 1.5, 3 and 5µm

- Alternative to Thermo Hypersil range of phases
- Type A phase for simple compounds
- Wide range of phases including Silica, ODS, C8, Ph(1), CN(1) and NH2(2)
- Available in 1.5, 3 and 5µm particle sizes.

The Arrowsil™ range was developed to meet the need for a range of phases based on a Type A silica which are less retentive than the standard 80 and 100 ranges and provide a closer match to current established commercial 120 - 150Å media.

A wide range of bonded phases are available which in many cases utilise different bonding protocols to the standard Wyesil™80/100 range to provide enhanced differentiation in selectivity.

The standard 3 and 5µm particle sizes are supplemented with a 1.5µm ODS phase for rapid analysis systems.

ODS - Monomeric endcapped

C8 (2) - Monomeric endcapped.

Ph (1) - Monomeric, uncapped.

CN (1) - Monomeric, uncapped.

NH(2) - Monomeric, uncapped, not acetone treated.

Ordering information

ITEM_CODE	DESCRIPTION
Packing: Silica	
ARR5SIL02046B	Arrowsil™ SIL 5µm 20x4.6mm cartridge column
ARR5SIL05046A	Arrowsil™ SIL 5µm 50x4.6mm conventional column
ARR5SIL10046A	Arrowsil™ SIL 5µm 100x4.6mm conventional column
ARR5SIL12546A	Arrowsil™ SIL 5µm 125x4.6mm conventional column
ARR5SIL15046A	Arrowsil™ SIL 5µm 150x4.6mm conventional column
ARR5SIL20046A	Arrowsil™ SIL 5µm 200x4.6mm conventional column
ARR5SIL25046A	Arrowsil™ SIL 5µm 250x4.6mm conventional column
ARR5SIL05046B	Arrowsil™ SIL 5µm 50x4.6mm cartridge column

Ordering information (cont.)

ITEM_CODE	DESCRIPTION
Packing: Octyl,/C8	
ARR5C802046B	Arrowsil™ C8 5µm 20x4.6mm cartridge column
ARR5C805046A	Arrowsil™ C8 5µm 50x4.6mm conventional column
ARR5C810046A	Arrowsil™ C8 5µm 100x4.6mm conventional column
ARR5C812546A	Arrowsil™ C8 5µm 125x4.6mm conventional column
ARR5C815046A	Arrowsil™ C8 5µm 150x4.6mm conventional column
ARR5C820046A	Arrowsil™ C8 5µm 200x4.6mm conventional column
ARR5C825046A	Arrowsil™ C8 5µm 250x4.6mm conventional column
Packing: Octadecyl/C18/ODS	
ARR5C1802046B	Arrowsil™ C18 5µm 20x4.6mm cartridge column
ARR5C1805046A	Arrowsil™ C18 5µm 50x4.6mm conventional column
ARR5C1810046A	Arrowsil™ C18 5µm 100x4.6mm conventional column
ARR5C1812546A	Arrowsil™ C18 5µm 125x4.6mm conventional column
ARR5C1815046A	Arrowsil™ C18 5µm 150x4.6mm conventional column
ARR5C1820046A	Arrowsil™ C18 5µm 200x4.6mm conventional column
ARR5C1825046A	Arrowsil™ C18 5µm 250x4.6mm conventional column
Packing: Phenyl	
ARR5PHE02046B	Arrowsil™ PHE 5µm 20x4.6mm cartridge column
ARR5PHE05046A	Arrowsil™ PHE 5µm 50x4.6mm conventional column
ARR5PHE10046A	Arrowsil™ PHE 5µm 100x4.6mm conventional column
ARR5PHE12546A	Arrowsil™ PHE 5µm 125x4.6mm conventional column
ARR5PHE15046A	Arrowsil™ PHE 5µm 150x4.6mm conventional column
ARR5PHE20046A	Arrowsil™ PHE 5µm 200x4.6mm conventional column
ARR5PHE25046A	Arrowsil™ PHE 5µm 250x4.6mm conventional column
Packing: CPS/CN/Cyano-	
ARR5CPS02046B	Arrowsil™ CPS 5µm 20x4.6mm cartridge column
ARR5CPS05046A	Arrowsil™ CPS 5µm 50x4.6mm conventional column
ARR5CPS10046A	Arrowsil™ CPS 5µm 100x4.6mm conventional column
ARR5CPS12546A	Arrowsil™ CPS 5µm 125x4.6mm conventional column
ARR5CPS15046A	Arrowsil™ CPS 5µm 150x4.6mm conventional column
ARR5CPS20046A	Arrowsil™ CPS 5µm 200x4.6mm conventional column
ARR5CPS25046A	Arrowsil™ CPS 5µm 250x4.6mm conventional column
Packing: APS/NH2/Amino-	
ARR5APS02046B	Arrowsil™ APS 5µm 20x4.6mm cartridge column
ARR5APS05046A	Arrowsil™ APS 5µm 50x4.6mm conventional column
ARR5APS10046A	Arrowsil™ APS 5µm 100x4.6mm conventional column
ARR5APS12546A	Arrowsil™ APS 5µm 125x4.6mm conventional column
ARR5APS15046A	Arrowsil™ APS 5µm 150x4.6mm conventional column
ARR5APS20046A	Arrowsil™ APS 5µm 200x4.6mm conventional column
ARR5APS25046A	Arrowsil™ APS 5µm 250x4.6mm conventional column

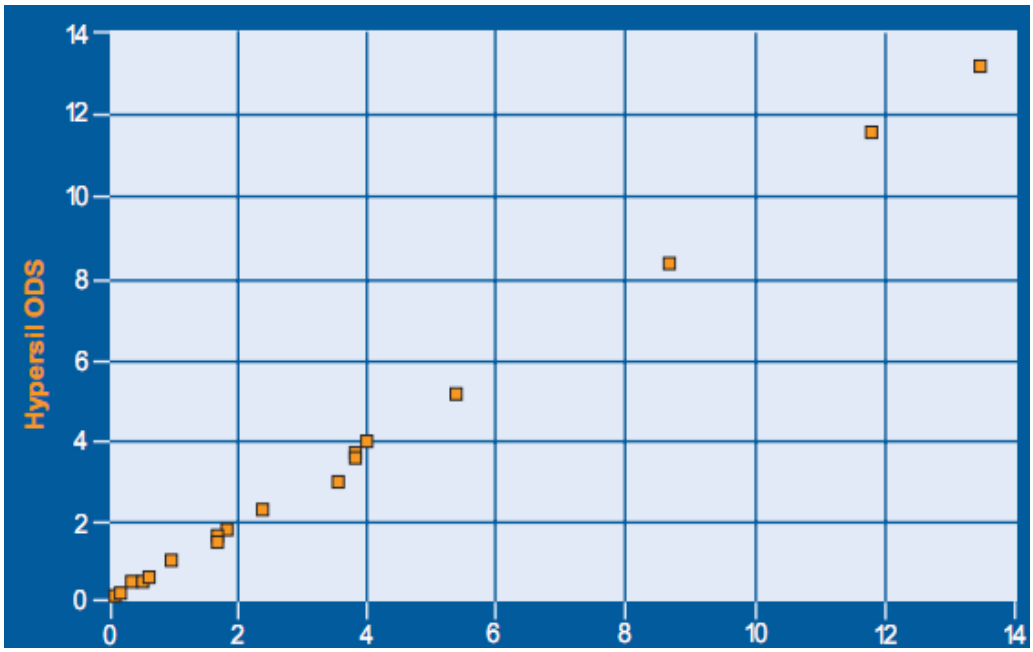
Ordering information (cont.)

ITEM_CODE	DESCRIPTION
Packing: Strong anion exchanger	
ARR5SAX02046B	Arrowsil™ SAX 5µm 20x4.6mm cartridge column
ARR5SAX05046A	Arrowsil™ SAX 5µm 50x4.6mm conventional column
ARR5SAX10046A	Arrowsil™ SAX 5µm 100x4.6mm conventional column
ARR5SAX12546A	Arrowsil™ SAX 5µm 125x4.6mm conventional column
ARR5SAX15046A	Arrowsil™ SAX 5µm 150x4.6mm conventional column
ARR5SAX20046A	Arrowsil™ SAX 5µm 200x4.6mm conventional column

Note: A 2cm guard cartridge column is recommended for all applications. The column holder and end fittings are catalogue numbers 130353 and 130354 (2 required).

Capacity Factors for ODS Phases

k' Arrowsil™ =-0.0104 + 0.972 k' Thermo Hypersil, R = 0.9989



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Product datasheet

Arrowsil™ BD

Pore size: 145 (+/-5)Å

Pore volume: 0.68ml/g

Surface area: 186 m^2/g (104m2/ml)

Particle size: 1.5, 3 and 5µm

Phases: Silica, C8, CN, C18 and Quattro.

Type B Silica and Reversed Phases

- Alternative to Thermo Hypersil BDS range of phases
- Acid, Base and Chelate deactivated
- Type B phase for difficult compounds
- Wide range of phases
- Available in 1.5, 3 and 5 µm particle sizes

The Arrowsil™ BD range was developed to meet the need for a range of base deactivated reversed phases based on a Type B silica which are less retentive than the standard 80 and 100 ranges and provide a closer match to current established commercial BDS 120 - 150Å media.

C18, C8 and CN phases are available in industry standard 3 and 5µm particle sizes and are fully end capped.

Arrowsil™ BDQ

A polar embedded phase that gives excellent peak shape and low retention for difficult bases at pH 7. Acids, bases and chelates are readily eluted as sharp peaks at pH 2 using TFA.

Acids and Bases on Arrowsil™ BDQ

Phase: Arrowsil™ BDQ 3µm

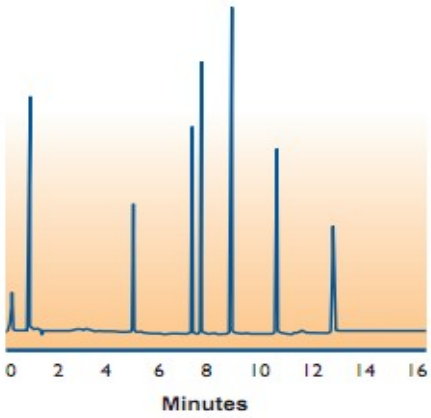
Column: 100 x 4.6mm

Eluent : 5 to 100 % MeCN, 0.1% TFA in 15 minutes.

Flowrate: 1 ml/min

Sample (in elution order):

Nicotine, Quinine, Doxepin, Amitriptyline, t-Cinnamic acid, 4-Butylbenzoic acid and 4-Octylbenzoic acid



.red® HPLC silicas

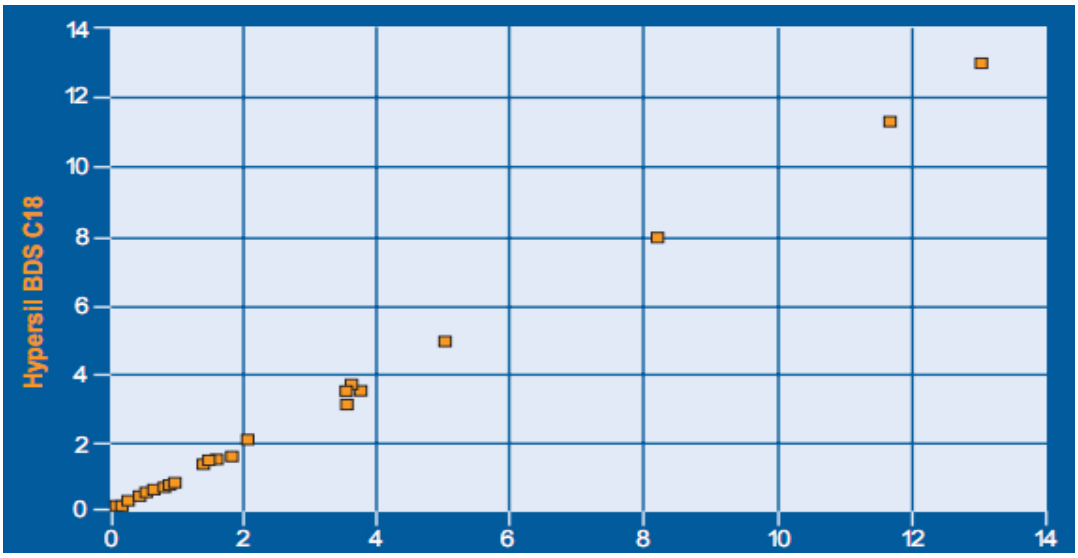
Product datasheet

Ordering information

ITEM_CODE	DESCRIPTION
Packing: Octyl/C – based deactivated	
ARB5C802046B	Arrowsil™ C8-BD 5µm 20x4.6mm cartridge column
ARB5C805046A	Arrowsil™ C8-BD 5µm 50x4.6mm conventional column
ARB5C810046A	Arrowsil™ C8-BD 5µm 100x4.6mm conventional column
ARB5C815046A	Arrowsil™ C8-BD 5µm 150x4.6mm conventional column
ARB5C820046A	Arrowsil™ C8-BD 5µm 200x4.6mm conventional column
ARB5C825046A	Arrowsil™ C8-BD 5µm 250x4.6mm conventional column
Packing: Phenyl - base deactivated	
ARB5PHE02046B	Arrowsil™ PHE-BD 5µm 20x4.6mm cartridge column
ARB5PHE05046A	Arrowsil™ PHE-BD 5µm 50x4.6mm conventional column
ARB5PHE10046A	Arrowsil™ PHE-BD 5µm 100x4.6mm conventional column
ARB5PHE15046A	Arrowsil™ PHE-BD 5µm 150x4.6mm conventional column
ARB5PHE20046A	Arrowsil™ PHE-BD 5µm 200x4.6mm conventional column
ARB5PHE25046A	Arrowsil™ PHE-BD 5µm 250x4.6mm conventional column
Packing: C18 - base deactivated	
ARB5C1802046B	Arrowsil™ C18-BD 5µm 20x4.6mm cartridge column
ARB5C1805046A	Arrowsil™ C18-BD 5µm 50x4.6mm conventional column
ARB5C1810046A	Arrowsil™ C18-BD 5µm 100x4.6mm conventional column
ARR5C1815046A	Arrowsil™ C18-BD 5µm 150x4.6mm conventional column
ARB5C1820046A	Arrowsil™ C18-BD 5µm 200x4.6mm conventional column
ARB5C1825046A	Arrowsil™ C18-BD 5µm 250x4.6mm conventional column

Capacity Factors for Arrowsil™ BD C18 phase

k' Arrowsil™ BD = -0.04 + 1.018 k' Thermo Hypersil, R = 0.9991



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Product datasheet

Temesil™
Type A Silica and bonded phases

- Closest alternative to Waters Spherisorb™
- Particle sizes: 3, 5, and 10µm

Although the Wyesil™80 and 100 ranges provide a reliable alternative to Waters Spherisorb™, some of the phases have been found to no longer be sufficiently close for some applications.

The Temesil™ overcomes these problems and is one of the closest alternative to Waters Spherisorb™ for a limited range of phases.

These are currently ODS-2 , ODS-1, C8 and CN.

Other phases are in development and we can supply these for specific problems where the Wyesil™ 80/100 equivalent is not fully compatible.

Waters Spherisorb™	Temesil™
ODS-2	ODS-2
ODS-1	ODS-1
C8	C8
Nitrile	Nitrile

The tables below indicate the most appropriate alternative to each Waters Spherisorb phase.

Waters Spherisorb™	Wyesil™80/100
C1	C1
C6	C6
ODS-1 Classic	ODS-1
Amino	Amino
Phenyl	Phenyl
SAX	SAX
SCX	SCX

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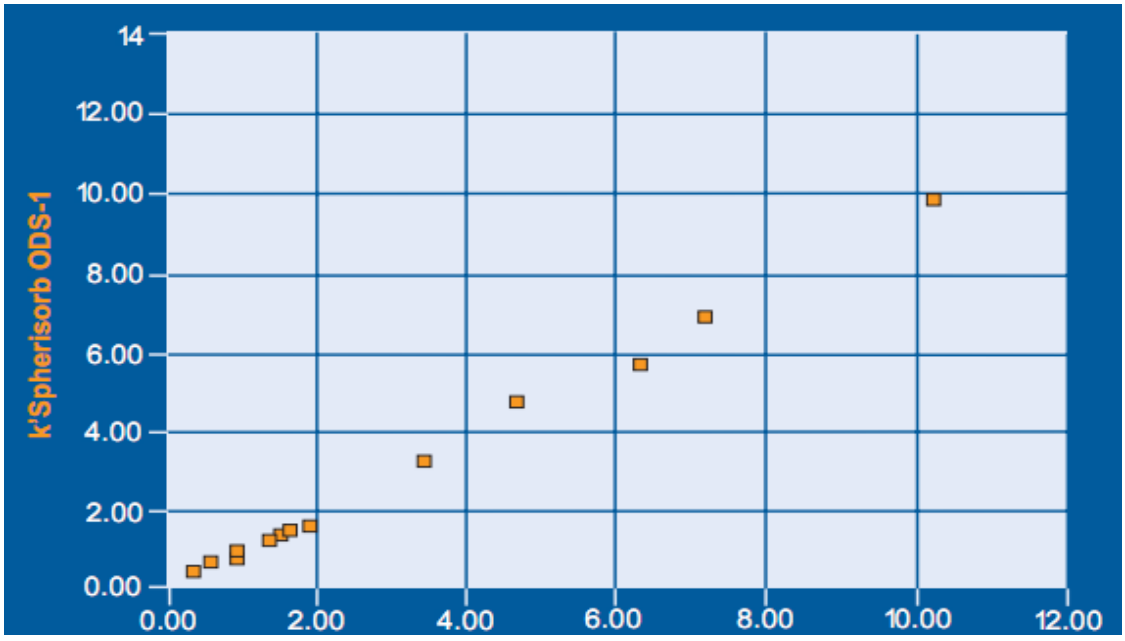
Product datasheet

Ordering information

Code	Description
	Packing: Octadecyl/C18/ODS1
TEM5C1802030B	Temesil™ C18 ODS2 5µm 20x3mm guard cart
TEM5C1810046A	Temesil™ C18 ODS1 5µm 100x4.6mm conventional column
TEM5C1815046A	Temesil™ C18 ODS1 5µm 150x4.6mm conventional column
TEM5C1820046A	Temesil™ C18 ODS1 5µm 200x4.6mm conventional column
TEM5C1825046A	Temesil™ C18 ODS1 5µm 250x4.6mm conventional column
	Packing: Octadecyl/C18/ODS2
TEM5C18202030B	Temesil™ C18 ODS2 5µm 20x3mm guard cart
TEM5C18210046A	Temesil™ C18 ODS2 5µm 100x4.6mm conventional column
TEM5C18215046A	Temesil™ C18 ODS2 5µm 150x4.6mm conventional column
TEM5C18220046A	Temesil™ C18 ODS2 5µm 200x4.6mm conventional column
TEM5C18225046A	Temesil™ C18 ODS2 5µm 250x4.6mm conventional column

Capacity Factors for ODS-1 Phases

k' Temesil™ =-0.364 + 0.962 k' Waters Spherisorb, R = 0.9989



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Product datasheet

Wyesil™80

Pore size: 90(+/-3)Å

Pore volume: 0.51ml/g

Surface area: 226m²/g (150m²/ml)

Particle sizes: 1.5, 3, 5 and 10µm

Phases: Silica, ODS, ODS-1, C8, C6, C1 (TMS), Phenyl, Amino, Nitrile, SAX.

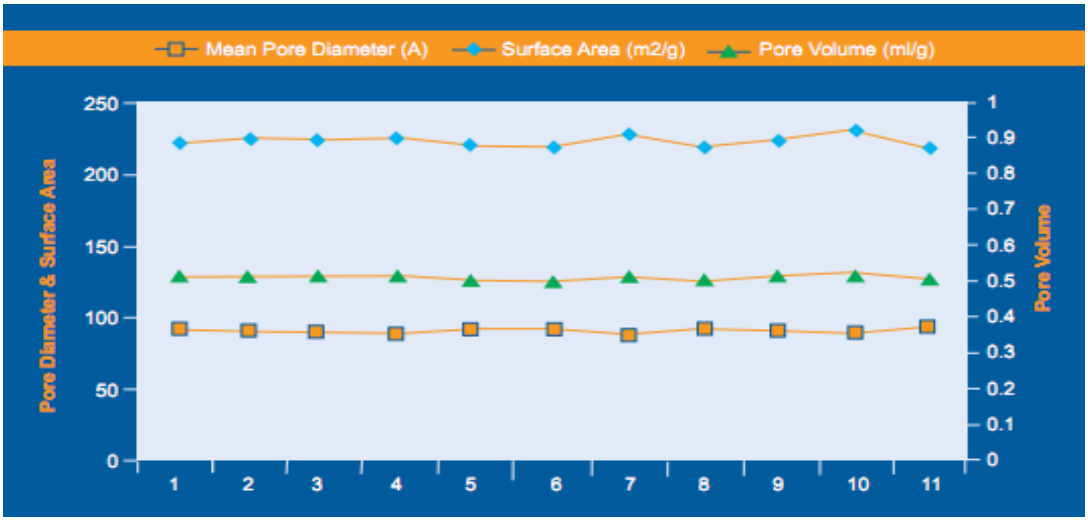
- Type A Silica and Bonded Phases
- Alternative to Waters Spherisorb™
- Available in 1.5, 3, 5 and 10µm particle sizes.

The Wyesil™80 80 range has a higher Surface area and greater retention than the original Wyesil™100 which in some instances provides a better alternative to Waters Spherisorb™.

The addition of a 1.5µm ODS phase to allows faster separations of current applications. When used with appropriate hardware, efficiencies of over 200,000 plates/m are achievable in 3 to 5 cm columns.

The range of phases continues to provide a comprehensive selection for all standard applications.

Wyesil™80 Batch Data



Ordering information

Contact you dealer for catalogue numbers

.red® HPLC silicas

Product datasheet

Wyesil™100

Pore Size: 100 (+/-3)Å

Pore volume: 0.52ml/g

Surface area: 208m^2/g (137m^2/ml)

Particle sizes: 1.5, 3, 5, 10, 12 and 15µm

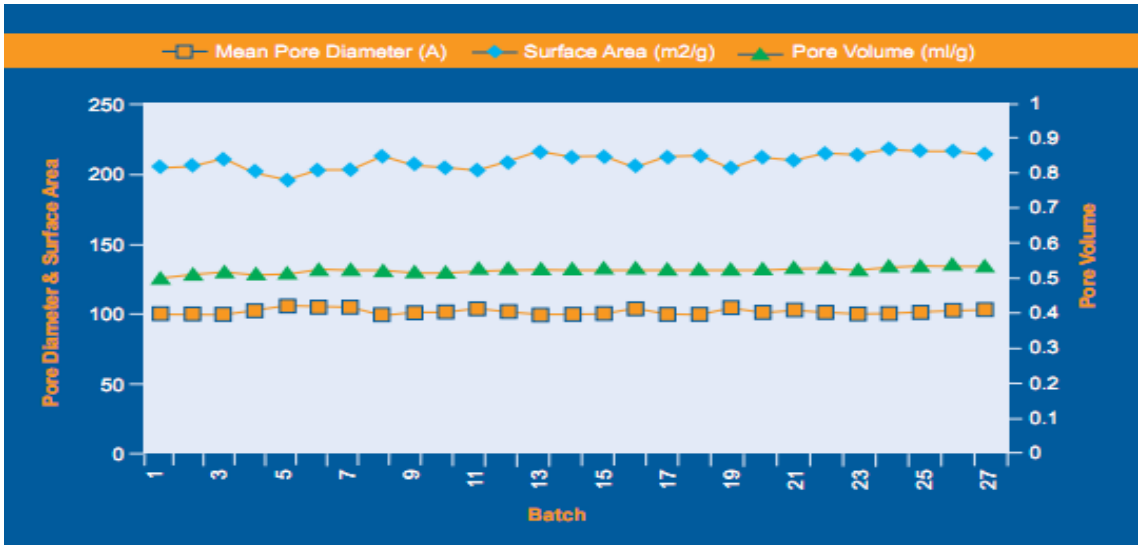
Phases: Silica, ODS, ODS-1, ODS-B, ODS-AB, C8, C8B, C8AB, C6, C1 (TMS), Phenyl, Amino, Nitrile, SAX and SCX.

- Type A Silica and bonded phases
- Alternative to Waters Spherisorb™
- Available in 1.5, 3, 5 and 10µm particle sizes
- Widest range of bonded phases

The original Wyesil™100 range was developed to provide an alternative toWaters Spherisorb™ type products. The extensive range of bonded phases includes novel phases such as the ODS-B and Octyl-B which are so deactivated that they can chromatograph strong bases in buffer free eluents.

The range of phases continues to provide a comprehensive selection for all standard applications.

Wyesil™100 Batch Data



Ordering information

Contact you dealer for catalogue numbers

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Product datasheet

Wyesil™plus

Pore size: 100Å and 300Å Pore volume: 0.52ml/g

Surface area: 208m^2/g (137m^2/ml) and 100m^2/g (50m^2/ml)

Particle sizes: 3 and 5µm

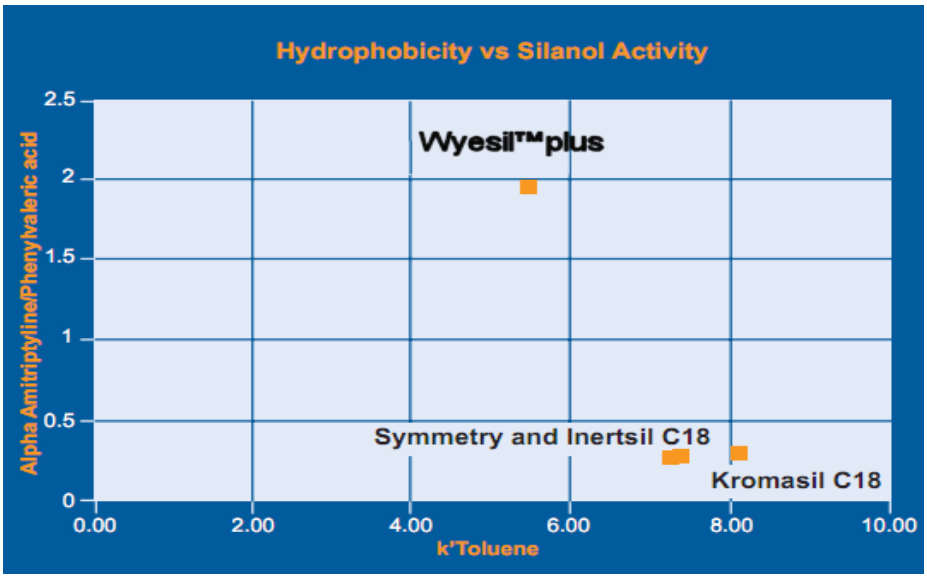
Phases: Silica, ODS and C8.

Acid/base and chelate deactivated. Uncapped for different selectivity to standard BDS media.

- Type B Silica and bonded phase version of Wyesil™100 and 300
- Deactivated for bases and chelates
- Available in 3, 5 and 10µm particle sizes
- Silica and ODS.

Type B versions of current Wyesil™ products which provide superior results for difficult bases and chelates. The ODS phase provides an alternative selectivity to current Type B phases due to increased silanol activity.

Hydrophobicity vs Silanol Activity



Ordering information
Contact you dealer for catalogue numbers

.red® HPLC silicas

Product datasheet

Acids and Bases on Wyesil™100 ODS and Wyesil™ Plus ODS

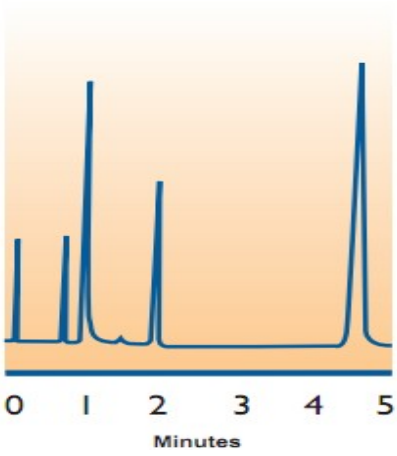
Columns: 150 x 4.6 mm

Eluent : 50 % MeCN/50%, 0.05M KHPO, pH3

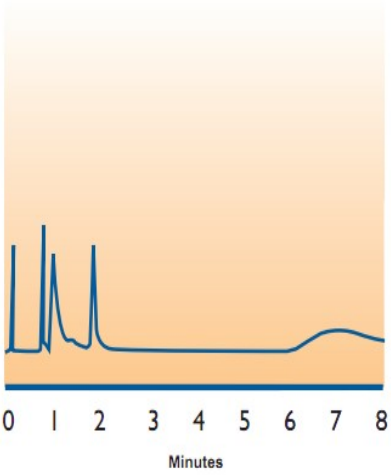
Flowrate: 2ml/min

Sample: Uracil, Pyridine, Dimethylaniline, Butylbenzoic acid.

Wyesil™100 Plus 100/5 ODS



Wyesil™100/5 ODS



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Product datasheet

Derisil™ 300

Pore size: 300(+/-10)Å
Pore volume: 0.78ml/g
Surface area: 100m/g (50m2/ml)
Particle sizes: 3, 5 and 10µm

Phases: Silica, ODS, C8, C4, PAH and HAAX.

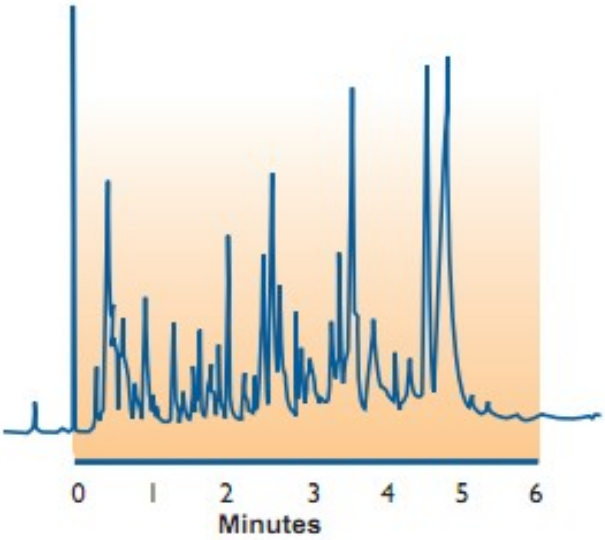
- Alternative to Vydac TP phases
- First 300Å media available in 3µm particle size
- Wide range of bonded phases
- Available in, 3, 5, 7 and 10 µm particle sizes.

A robust, spherical, alternative to Vydac TP phases for the separation of biological macromolecules.

A complete range of reversed phase media (ODS, Octyl and Butyl) are complimented by the unique High Affinity Anion Exchanger (HAAX) for protein separation and the polymeric PAH phase for polyaromatic hydrocarbon analysis.

The availability of 3µm phases brings fast analysis to the biochemist.

Fast Tryptic Digest Analysis on 50 x 4.6 mm 300/3 C8

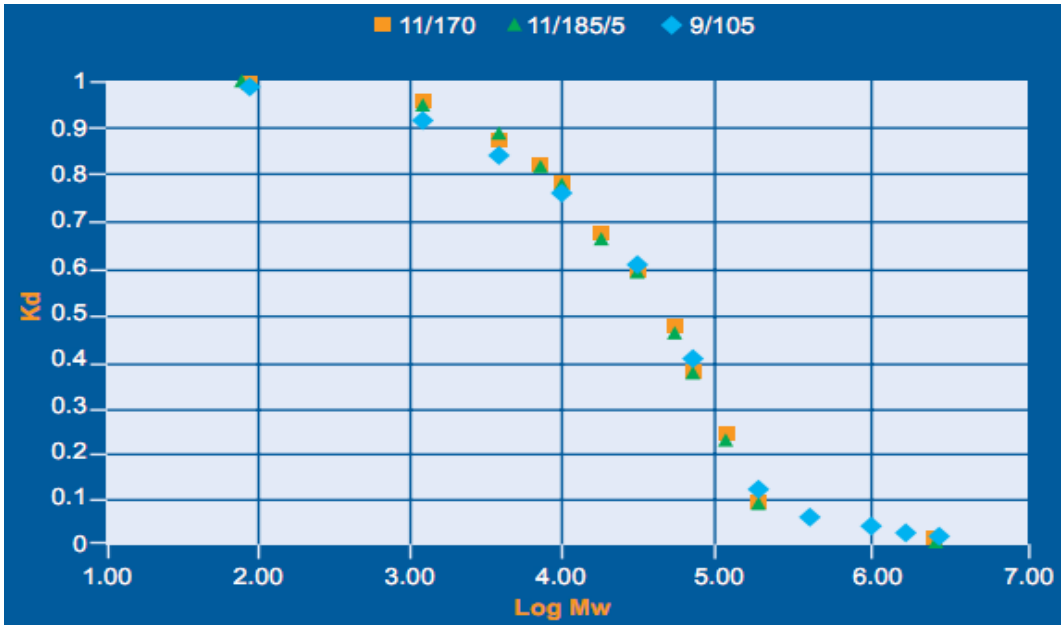


Ordering information
Contact you dealer for catalogue numbers

.red® HPLC silicas

Product datasheet

GPC Calibration Curves for Derisil™ 300



Additional materials

Gel-Sieve™ 3K
Alternative to TSK 3000SWxl for size exclusion of proteins.
Pore Size: 230(+/- 10)Å Pore Volume: 1.15 ml/g
Particle size: 5µm
Phases: Silica and GFC (polar bonded).

Gel-Sieve™ 4K
Alternative to TSK 4000SWxl for size exclusion of proteins.
Pore Size: 400(+/- 20)Å Pore Volume: 1.15 ml/g
Particle sizes: 5µ
Phases: Silica and GFC (polar bonded).

Gel-Sieve™ 4K
For size exclusion of large proteins.
Pore Size: 800 (+/- 40) Å Pore Volume: 1.15 ml/g
Particle sizes: 5µm
Phases: Silica and GFC (polar bonded).