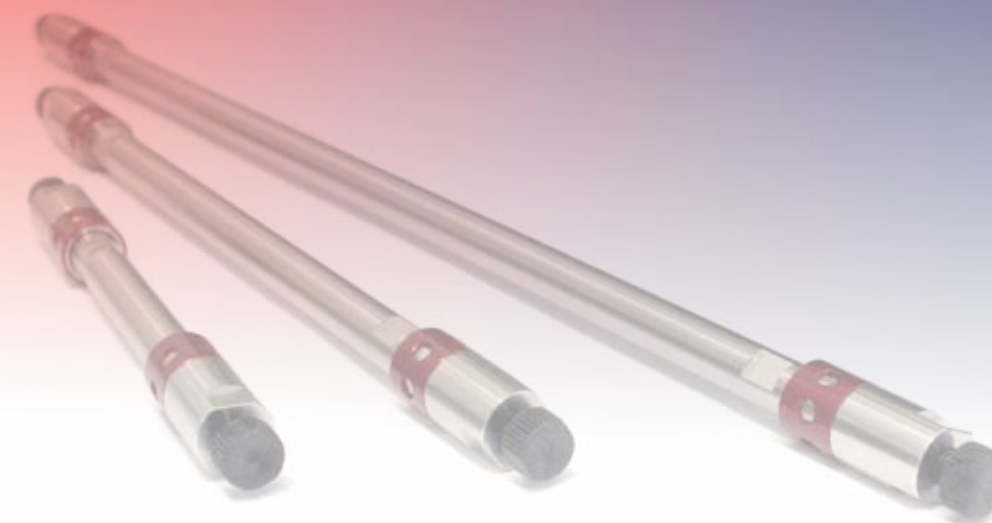


Monodisperse
HPLC
Particles

Capillary Columns

The Evolution of HPLC Columns

EVOSPHERE



Monodisperse HPLC Capillaries

EVOSPHERE

Capillary Columns

Fortis Technologies now provides its monodisperse fully porous particles in all capillary dimensions:

- 75µm
- 150µm
- 300µm
- 0.5mm
- 1.0mm

Capillary columns allow for higher sensitivity analysis of low abundance analytes within metabolomics and biological workflows such as peptides and proteins.

Enhancing peak shapes leads to increased peak height, resulting in greater sensitivity. Combining a capillary with Monodisperse HPLC

particles provides ultimate sensitivity

Based upon a fully porous silica monodisperse particle, Evosphere® is the evolution of particle technology.

Combine a high efficiency particle with low backpressure, high loadability, scalability and reproducibility and you have the ultimate combination.

Then add in novel selectivity options to provide enhanced resolution and selectivity and you have the capability to separate more compounds in less time with greater sensitivity.



Evosphere Capillaries



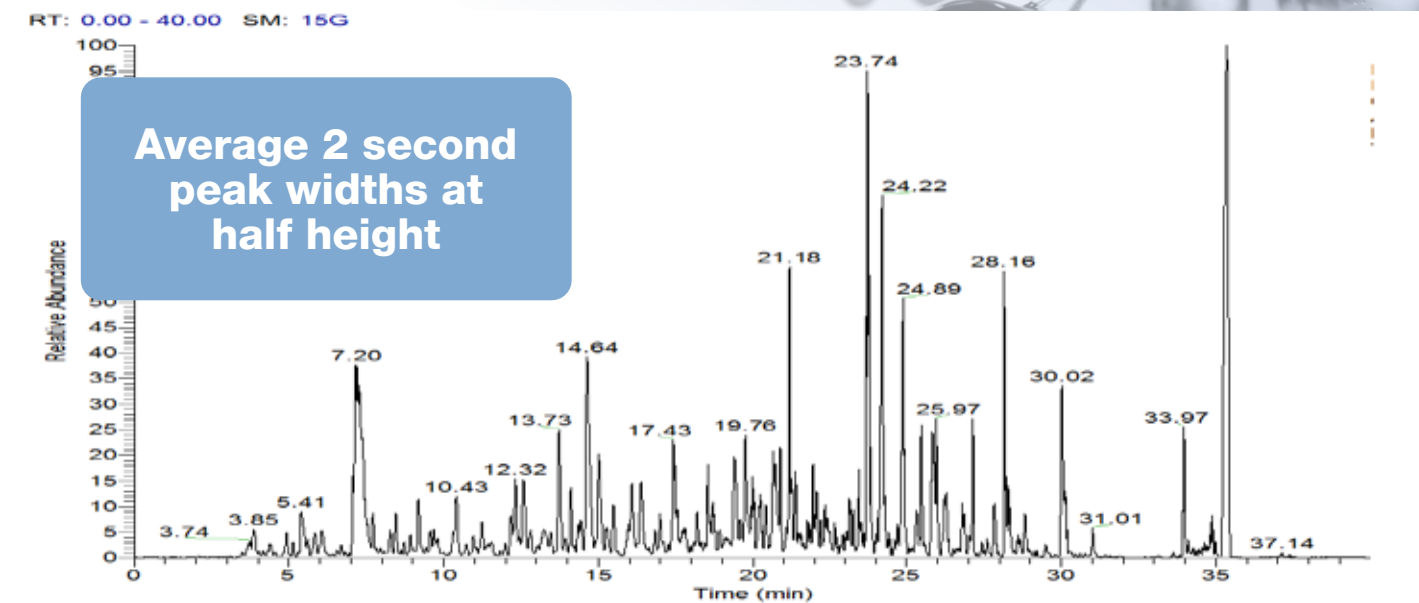
Evosphere capillaries are available in 75µm, 150µm, 300µm, 0.5mm, 1mm i.d. with any phase chemistry and any particle size from the Evosphere range. Request a quote from your local distributor.

Evosphere Capillary Sensitivity

Reducing diameter of the column increases sensitivity significantly and uses a much lower volume of solvent in the analysis. This reduction in solvent saves on both initial solvent costs and waste removal costs, which is becoming increasingly important for environmental friendly laboratory systems, smaller footprints and sustainability. Sample volume is also significantly decreased utilising ultra low volume analysis, great when working with highly valuable or limited samples.

Column i.d.	Flow	Sensitivity LOD (fmol)	Max Load (ug)
75µ	0.2 µl/min	0.5	1
100µ	0.5 µl/min	1	2
200µ	2 µl/min	5	10
300µ	5 µl/min	10	25
0.5mm	10 µl/min	25	50
1.0mm	50 µl/min	100	200
2.0mm	0.2 ml/min	400	800
4.6mm	1.0 ml/min	2000	4000

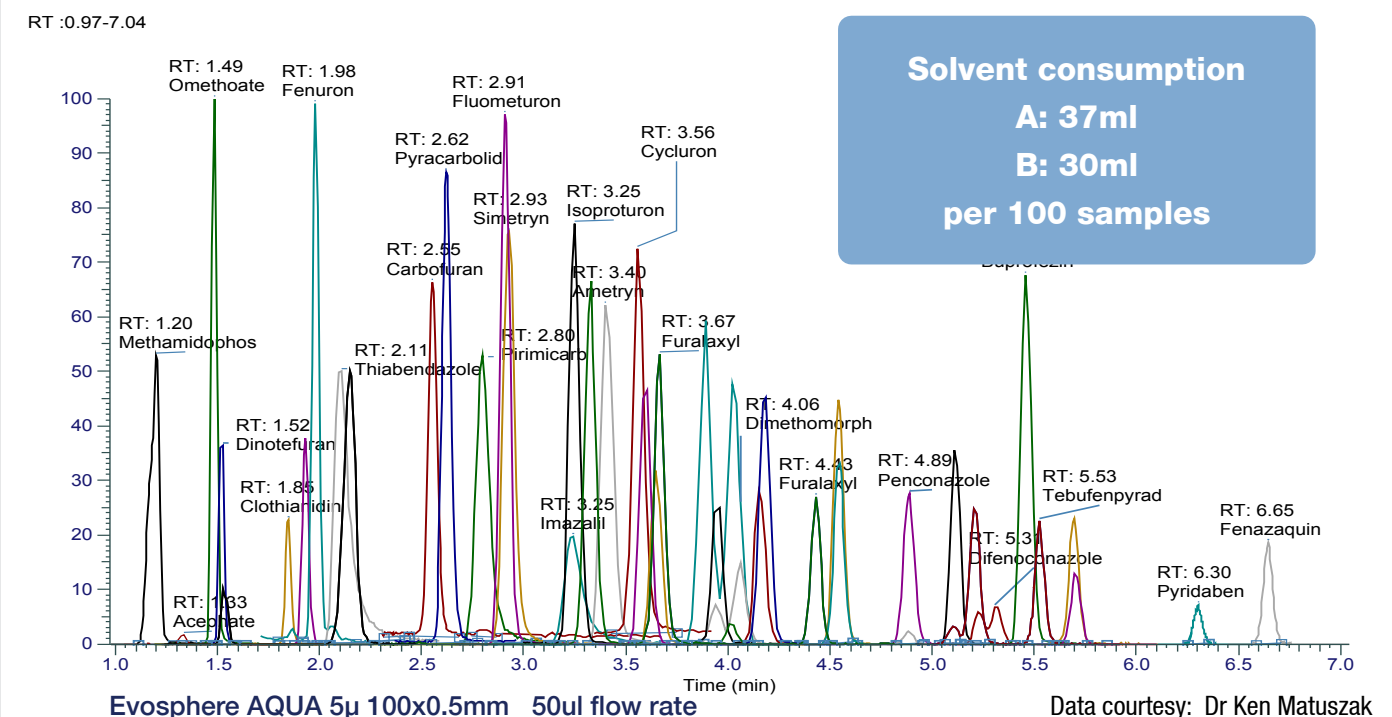
Capillary Peak Capacity - Mixture of 10 protein digests



1 .7µ Evosphere 150x75µm
p/n : C075-150-01-EVO18AR

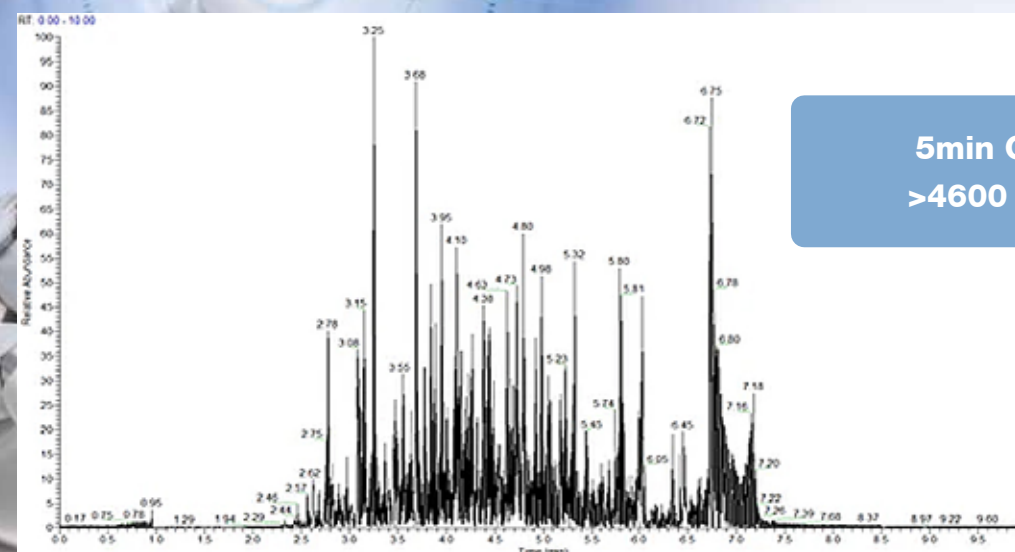
A: 0.1% formic acid
B: ACN
Gradient: 5-35% in 30minutes
Flow: 300nl
Temp: 25°C

43 PESTICIDES - 0.5mm NARROW BORE

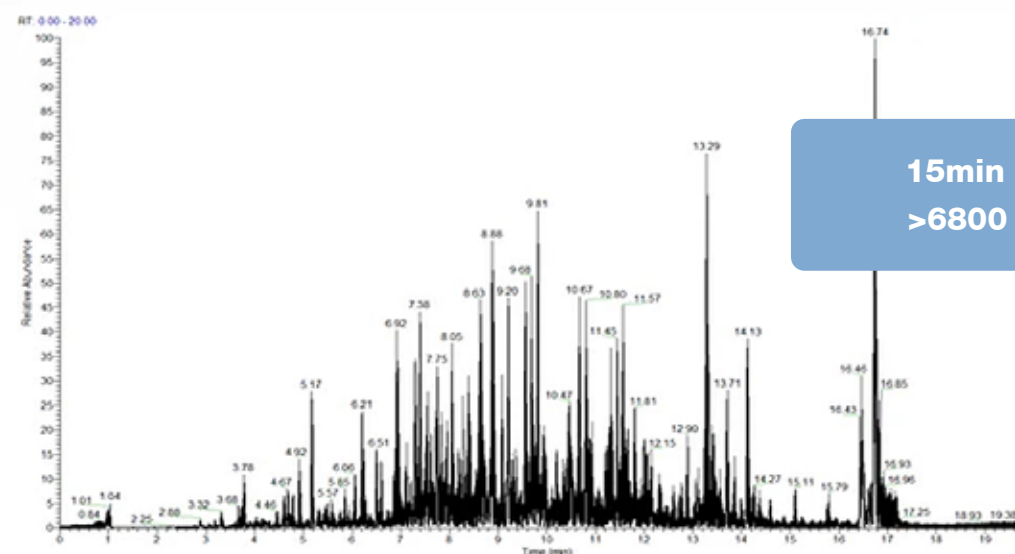


High Throughput Protein Identification

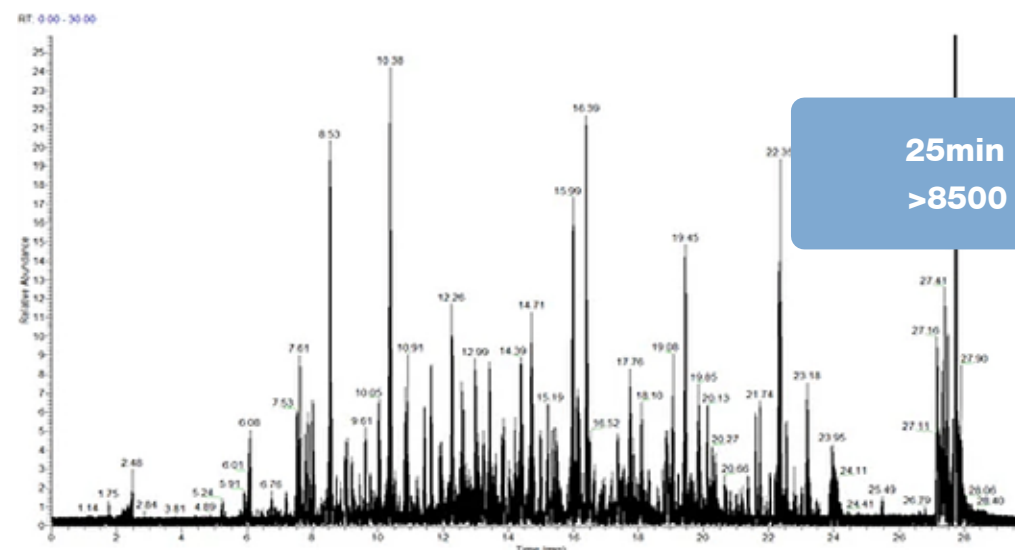
75µm Evosphere C18/AR columns offer ultimate sensitivity and resolution at nano flows, perfect when used on a low volume nanoLC system. High peak capacity can be achieved due to exceptionally sharp peak widths and high resolution from the stationary phase.



100ng HeLa Tryptic Digest 5-35% gradient in **5mins** at 300nl/min
ID > 4,600 proteins



100ng HeLa Tryptic Digest 5-35% gradient in **15mins** at 300nl/min
ID > 6,800 proteins

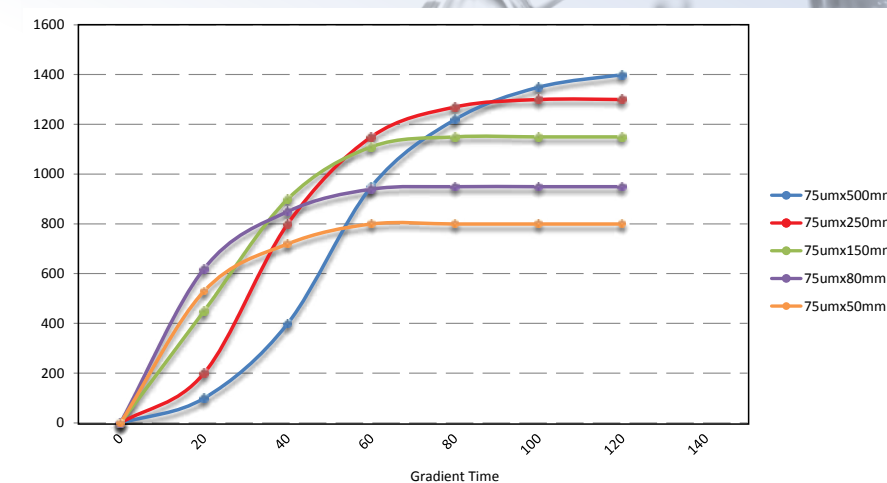


100ng HeLa Tryptic Digest 5-35% gradient in **25mins** at 300nl/min
ID > 8,500 proteins

Peak Capacity

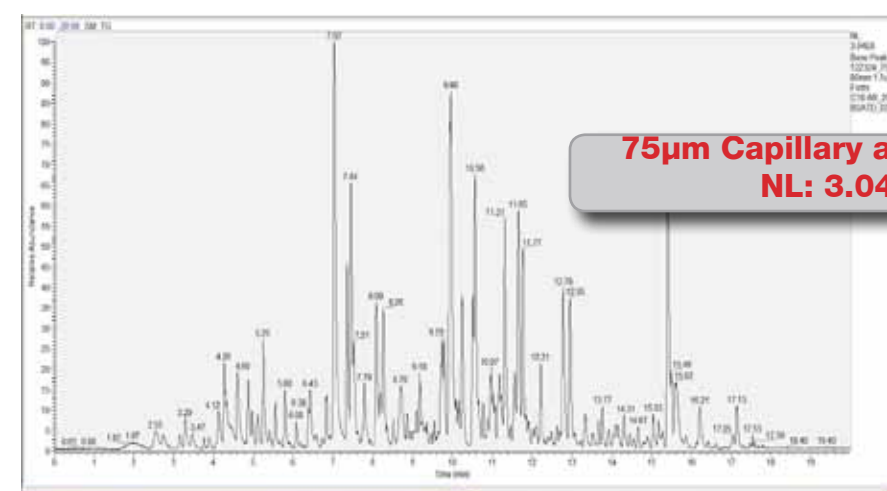
Peak capacity vs gradient time of 75µm Evosphere C18/AR columns, where peak capacity is measured by the gradient time divided by the average peak width ($T_g / PW_{1/2}$).

Evosphere 75µm x 80mm is best for gradient times from 5-30 minutes. Evosphere 75µm x 150mm is best for gradient times from 30-60 minutes. Evosphere 75µm x 250mm is best for gradient times from 60-120 minutes.

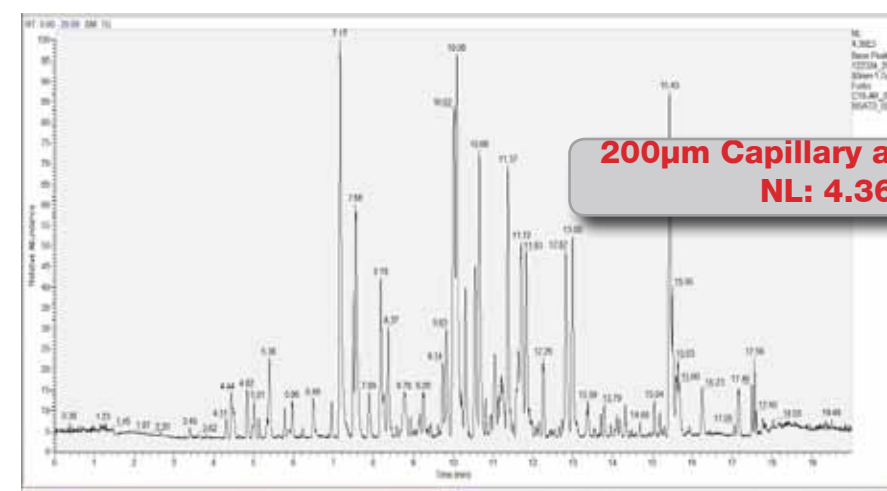


Scalability

The new nano capillary columns with 1.7µm Evosphere C18/AR particles have peak capacities that are 50-100% higher than most commercial nano capillary columns packed with sub 2µm materials. This allows the use of shorter capillary columns with shorter gradient times.



20fmol BSA Tryptic digest
75µ x 80mm Evosphere C18/AR 1.7µm



20fmol BSA Tryptic digest
200µ x 80mm Evosphere C18/AR 1.7µm

Monodisperse Particles



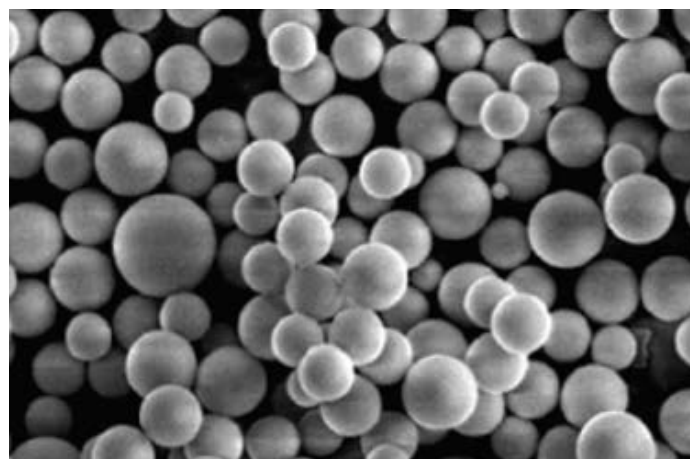
Particle Morphology

Evosphere silica particles are manufactured to provide a high degree of monodispersity with a uniform smooth surface. Monodispersity generates high efficiency HPLC columns due to the reduced flow path dispersion (Eddy diffusion)

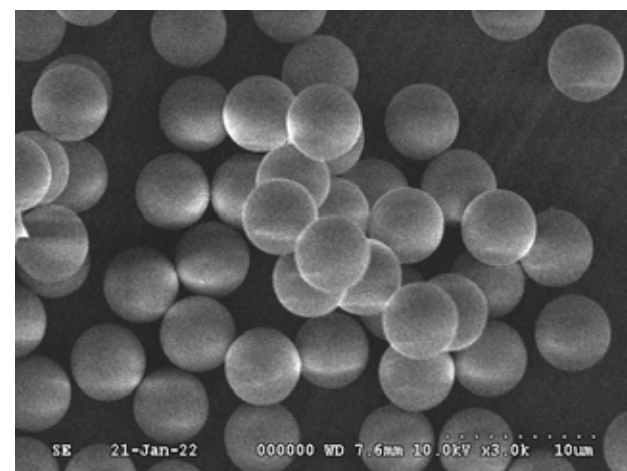
SEM imagery of the Evosphere in comparison with traditional particles highlights the much narrower size distribution.

Monodisperse Evosphere particles are available in 1.7 μ m, 3 μ m and 5 μ m particle sizes.

- **Unique silica particle nature**
- **Monodisperse**
- **High efficiency**
- **Scaling of particle sizes**



Traditional porous particles



Monodisperse porous particles

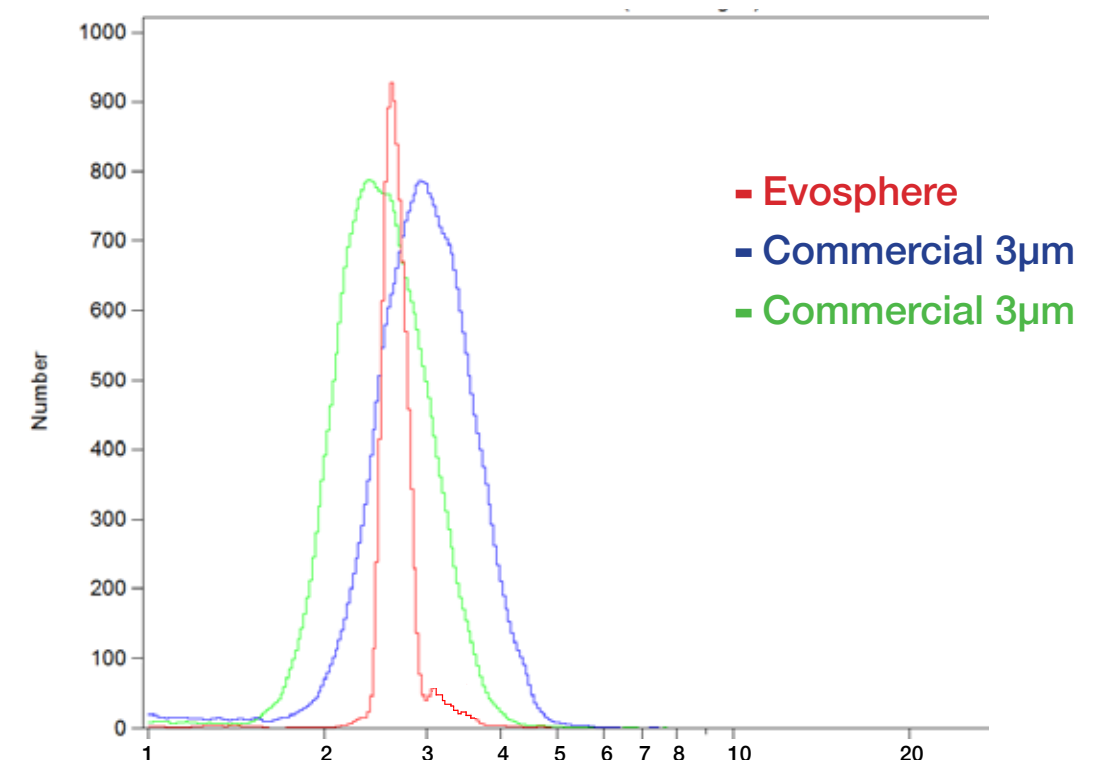
Particle size distribution (D90/10)

When assigning a measurement to characterise a particle size distribution the ratio of D90/10 is often quoted, and as such can be used to gauge the degree of size uniformity of the particles.

The parameter D90 signifies the point in the size distribution, up to and including which, 90% of the total volume of material in the sample is 'contained'. For example; if the D90 is 6 μ m, this means that 90% of the sample has size of 6 μ m or smaller. The definition for D50, is then the size point below which 50% of the material is contained. Similarly, the D10 is the size below which 10% of the material is contained. This description has long been used in size distribution measurements.

As the particle size distribution for chromatographic silica moves towards monodisperse then the D90 and D10 values become closer together and the D90/10 value tends towards a value of 1.

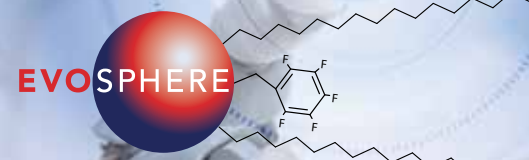
Particle Size Distribution



	Monodisperse Silica	Commercial 3 μ Silica-A	Commercial 3 μ Silica-B
Median Particle size (d50)*	2.66 μ m *	2.48 μ m	2.97 μ m
SEM Particle Size	3.0 μ m	2.8 μ m	3.3 μ m
D90/10	1.12	1.58	1.61
Pore Volume	0.89	0.88	0.89

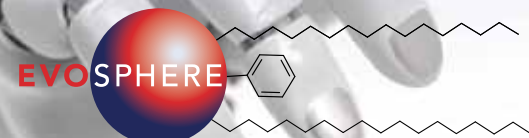
* Measured by Coulter Counter

Stationary Phase Choice



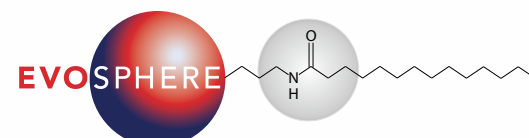
- Evosphere C18/PFP
- Orthogonal Selectivity
- Method development starting point

Evosphere C18/PFP is designed to provide characteristics which will enhance method development. It provides the ability to obtain sharp peak shapes whilst retaining and separating a wide variety of compounds both hydrophobic and hydrophilic.



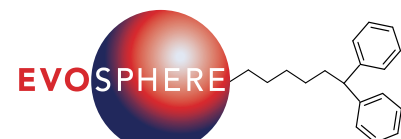
- Evosphere C18/AR
- Orthogonal Selectivity
- Method development starting point

Evosphere C18/AR is designed to provide increased resolution between compounds, having a combination of hydrophobicity and aromatic selectivity will lead to enhanced resolution. USP L1 column.



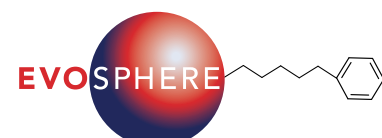
- Evosphere RP18-Amide
- Orthogonal Selectivity
- Excellent method development option

Evosphere RP18-Amide is designed to provide polar characteristics which will enhance resolution in method development. It provides orthogonal selectivity to alkyl chain phases due to its polar-embedded group. Sharp peak shapes, extra selectivity and increased retention can all be obtained.



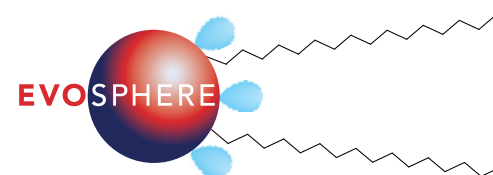
- Evosphere Diphenyl
- Separate positional isomers
- Stable ligand, No "MS" bleed

Evosphere Diphenyl is designed to provide pi-pi, steric and hydrophobic characteristics which will enhance selectivity and the ability to develop methods. Particularly suited to positional isomers and other closely related species such as metabolites.



- Evosphere Phenyl-Hexyl
- Separate metabolites
- Excellent resolution

Evosphere Phenyl-Hexyl is designed to provide characteristics which will enhance selectivity. It provides alternate selectivity to a pure hydrophobic stationary phase whilst still maintaining the key attributes of robustness and reproducibility.



- Evosphere AQUA
- Separate polar species
- Excellent stability

Evosphere AQUA is designed to provide characteristics which will enhance retention of highly polar analytes. Reproducible surface characteristics provide robust separations. Combination of hydrophobic and hydrophilic nature.



- Evosphere C12
- Ultra High Efficiency
- Method development starting point

Evosphere C12 is designed to provide characteristics which will enhance method development. The dense C12 ligand provides the ability to obtain sharp peak shapes whilst retaining and separating a wide variety of acid, base and neutral compounds with excellent robustness.



- Evosphere PFP
- Orthogonal Selectivity
- Combined with Ultra High Efficiency particles

Evosphere PFP (PentaFluoroPhenyl) is designed to provide characteristics which will enhance selectivity. It provides alternate selectivity to a hydrophobic stationary phase whilst still maintaining the key attributes of robustness and reproducibility.



- Evosphere HILIC
- High polarity compounds
- Combined with Ultra High Efficiency particles

Evosphere HILIC is designed to provide characteristics which will enhance retention of polar compounds. Hydrophilic interaction chromatography uses partition, ion-exchange and hydrogen bonding to retain high polarity analytes.

Evosphere Physicals

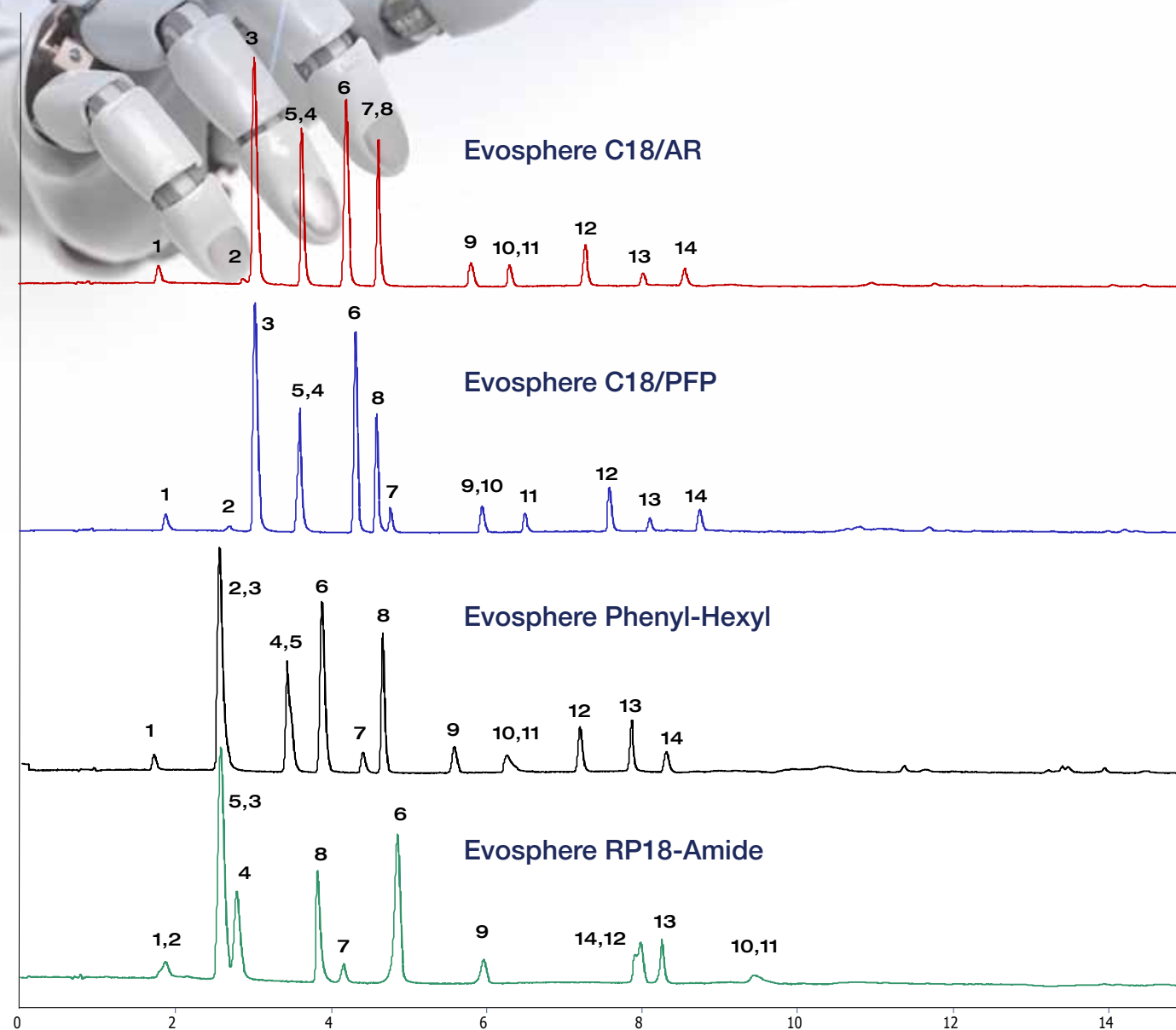
	Particle Size	Surface Area	Pore Size	% C	pH range	USP
Evosphere C12	1.7µm 3µm 5µm	350m ² /g	100Å	17	1-11	L87
Evosphere C18/AR	1.7µm 3µm 5µm	350m ² /g	100Å	17	2-9	L1
Evosphere C18/PFP	1.7µm 3µm 5µm	350m ² /g	100Å	17	2-9	L1
Evosphere RP18-Amide	1.7µm 3µm 5µm	350m ² /g	100Å	20	2-9	L60
Evosphere Phenyl-Hexyl	1.7µm 3µm 5µm	350m ² /g	100Å	14	2-9	L11
Evosphere Diphenyl	1.7µm 3µm 5µm	350m ² /g	100Å	15	2-9	L11
Evosphere PFP	1.7µm 3µm 5µm	350m ² /g	100Å	13	2-9	L43
Evosphere AQUA	1.7µm 3µm 5µm	350m ² /g	100Å	18	2-9	L96
Evosphere HILIC	1.7µm 3µm 5µm	350m ² /g	100Å	n/a	2-7	L3

Evosphere BIO physicals

	Particle Size	Surface Area	Pore Size	% C	pH range	USP
Evosphere BIO C12	1.7µm 3µm 5µm	n/a	300Å	5	1-9	L87
Evosphere BIO DIPHENYL	1.7µm 3µm 5µm	n/a	300Å	5	2-9	L11
Evosphere BIO C4	1.7µm 3µm 5µm	n/a	300Å	3	2-9	L26
Evosphere BIO C18/AR	1.7µm 3µm 5µm	n/a	300Å	7	2-9	L1
Evosphere BIO HILIC	1.7µm 3µm 5µm	n/a	300Å	n/a	2-8	L3

Evosphere Selectivity

When developing a new method in chromatography having a diverse range of selectivities to choose from can help in deciding how peaks resolve and which is the best starting point. In this example a gradient run across several stationary phase shows orthogonal selectivity for many of the peaks.



1. Hydroquinone
2. Theobromine
3. Paracetamol
4. Theophylline
5. Paraxanthine
6. 4-Hydroxybenzoic acid
7. 2-Acetamidophenol
8. Caffeine
9. Phenol
10. Aspirin
11. 2-hydroxybenzoic acid
12. 4-nitrophenol
13. 4-Chloracetanilide
14. 2-nitrophenol

Mobile phase A:
10mM ammonium formate pH3.0
Mobile phase B:
10mM ammonium formate pH3.0 in ACN
Flow rate : 0.4ml/min
Wavelength : 254nm
Temperature : 40°C

* All columns 3µm 100x2.1mm

Method development screening kits

When developing a new method in chromatography having a diverse range of selectivities allows a choice to be made dependant upon initial knowledge of the compound types and classes: choose phases based on similarity i.e. Evosphere C18/AR and C18/PFP both having a high hydrophobicity, but subtle changes in steric terms. Or choose stationary phases that are as orthogonal as possible from each other allowing for the best probability of a generic gradient screen to ascertain the best starting column to then be taken forward for further optimisation.

**C12
Diphenyl
C18/PFP**

Steric
selectivity

Hydrophobicity

Polarity

Dipole Charge

**AQUA
C18/AR
RP18-Amide**

Steric
selectivity

Hydrophobicity

Polarity

Dipole Charge

**PFP
Phenyl-Hexyl**

Steric
selectivity

Hydrophobicity

Polarity

Dipole Charge

1.7µm EVOSPHERE® Capillary part numbers

1.7µm EVOSPHERE C12		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-01-EV012	C075-100-01-EV012	C075-150-01-EV012	C075-250-01-EV012
	150µm	C150-050-01-EV012	C150-100-01-EV012	C150-150-01-EV012	C150-250-01-EV012
	300µm	C300-050-01-EV012	C300-100-01-EV012	C300-150-01-EV012	C300-250-01-EV012
	0.5mm	EV012-550301	EV012-550501	EV012-550701	-
	1.0mm	EV012-010301	EV012-010501	EV012-010701	-

1.7µm EVOSPHERE C18/AR		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-01-EV018AR	C075-100-01-EV018AR	C075-150-01-EV018AR	C075-250-01-EV018AR
	150µm	C150-050-01-EV018AR	C150-100-01-EV018AR	C150-150-01-EV018AR	C150-250-01-EV018AR
	300µm	C300-050-01-EV018AR	C300-100-01-EV018AR	C300-150-01-EV018AR	C300-250-01-EV018AR
	0.5mm	EV018AR-550301	EV018AR-550501	EV018AR-550701	-
	1.0mm	EV018AR-010301	EV018AR-010501	EV018AR-010701	-

1.7µm EVOSPHERE C18/PFP		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-01-EV018FP	C075-100-01-EV018FP	C075-150-01-EV018FP	C075-250-01-EV018FP
	150µm	C150-050-01-EV018FP	C150-100-01-EV018FP	C150-150-01-EV018FP	C150-250-01-EV018FP
	300µm	C300-050-01-EV018FP	C300-100-01-EV018FP	C300-150-01-EV018FP	C300-250-01-EV018FP
	0.5mm	EV018FP-550301	EV018FP-550501	EV018FP-550701	-
	1.0mm	EV018FP-010301	EV018FP-010501	EV018FP-010701	-

1.7µm EVOSPHERE AQUA		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-01-EVOAQ	C075-100-01-EVOAQ	C075-150-01-EVOAQ	C075-250-01-EVOAQ
	150µm	C150-050-01-EVOAQ	C150-100-01-EVOAQ	C150-150-01-EVOAQ	C150-250-01-EVOAQ
	300µm	C300-050-01-EVOAQ	C300-100-01-EVOAQ	C300-150-01-EVOAQ	C300-250-01-EVOAQ
	0.5mm	EVOAQ-550301	EVOAQ-550501	EVOAQ-550701	-
	1.0mm	EVOAQ-010301	EVOAQ-010501	EVOAQ-010701	-

1.7µm EVOSPHERE DIPHENYL		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-01-EVOPH	C075-100-01-EVOPH	C075-150-01-EVOPH	C075-250-01-EVOPH
	150µm	C150-050-01-EVOPH	C150-100-01-EVOPH	C150-150-01-EVOPH	C150-250-01-EVOPH
	300µm	C300-050-01-EVOPH	C300-100-01-EVOPH	C300-150-01-EVOPH	C300-250-01-EVOPH
	0.5mm	EVOPH-550301	EVOPH-550501	EVOPH-550701	-
	1.0mm	EVOPH-010301	EVOPH-010501	EVOPH-010701	-

1.7µm EVOSPHERE RP-AMIDE		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-01-EVORP18	C075-100-01-EVORP18	C075-150-01-EVORP18	C075-250-01-EVORP18
	150µm	C150-050-01-EVORP18	C150-100-01-EVORP18	C150-150-01-EVORP18	C150-250-01-EVORP18
	300µm	C300-050-01-EVORP18	C300-100-01-EVORP18	C300-150-01-EVORP18	C300-250-01-EVORP18
	0.5mm	EVORP18-550301	EVORP18-550501	EVORP18-550701	-
	1.0mm	EVORP18-010301	EVORP18-010501	EVORP18-010701	-

1.7µm EVOSPHERE PHENYL- HEXYL		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-01-EVOHEX	C075-100-01-EVOHEX	C075-150-01-EVOHEX	C075-250-01-EVOHEX
	150µm	C150-050-01-EVOHEX	C150-100-01-EVOHEX	C150-150-01-EVOHEX	C150-250-01-EVOHEX
	300µm	C300-050-01-EVOHEX	C300-100-01-EVOHEX	C300-150-01-EVOHEX	C300-250-01-EVOHEX
	0.5mm	EVOHEX-550301	EVOHEX-550501	EVOHEX-550701	-
	1.0mm	EVOHEX-010301	EVOHEX-010501	EVOHEX-010701	-

3µm EVOSPHERE® Capillary part numbers

3µm EVOSPHERE C12		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-03-EV012	C075-100-03-EV012	C075-150-03-EV012	C075-250-03-EV012
	150µm	C150-050-03-EV012	C150-100-03-EV012	C150-150-03-EV012	C150-250-03-EV012
	300µm	C300-050-03-EV012	C300-100-03-EV012	C300-150-03-EV012	C300-250-03-EV012
	0.5mm	EV012-550303	EV012-550503	EV012-550703	-
	1.0mm	EV012-010303	EV012-010503	EV012-010703	-

3µm EVOSPHERE C18/AR		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-03-EV018AR	C075-100-03-EV018AR	C075-150-03-EV018AR	C075-250-03-EV018AR
	150µm	C150-050-03-EV018AR	C150-100-03-EV018AR	C150-150-03-EV018AR	C150-250-03-EV018AR
	300µm	C300-050-03-EV018AR	C300-100-03-EV018AR	C300-150-03-EV018AR	C300-250-03-EV018AR
	0.5mm	EV018AR-550303	EV018AR-550503	EV018AR-550703	-
	1.0mm	EV018AR-010303	EV018AR-010503	EV018AR-010703	-

3µm EVOSPHERE C18/PFP		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-03-EV018FP	C075-100-03-EV018FP	C075-150-03-EV018FP	C075-250-03-EV018FP
	150µm	C150-050-03-EV018FP	C150-100-03-EV018FP	C150-150-03-EV018FP	C150-250-03-EV018FP
	300µm	C300-050-03-EV018FP	C300-100-03-EV018FP	C300-150-03-EV018FP	C300-250-03-EV018FP
	0.5mm	EV018FP-550303	EV018FP-550503	EV018FP-550703	-
	1.0mm	EV018FP-010303	EV018FP-010503	EV018FP-010703	-

3µm EVOSPHERE AQUA		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-03-EVOAQ	C075-100-03-EVOAQ	C075-150-03-EVOAQ	C075-250-03-EVOAQ
	150µm	C150-050-03-EVOAQ	C150-100-03-EVOAQ	C150-150-03-EVOAQ	C150-250-03-EVOAQ
	300µm	C300-050-03-EVOAQ	C300-100-03-EVOAQ	C300-150-03-EVOAQ	C300-250-03-EVOAQ
	0.5mm	EVOAQ-550303	EVOAQ-550503	EVOAQ-550703	-
	1.0mm	EVOAQ-010303	EVOAQ-010503	EVOAQ-010703	-

3µm EVOSPHERE DIPHENYL		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-03-EVOPH	C075-100-03-EVOPH	C075-150-03-EVOPH	C075-250-03-EVOPH
	150µm	C150-050-03-EVOPH	C150-100-03-EVOPH	C150-150-03-EVOPH	C150-250-03-EVOPH
	300µm	C300-050-03-EVOPH	C300-100-03-EVOPH	C300-150-03-EVOPH	C300-250-03-EVOPH
	0.5mm	EVOPH-550303	EVOPH-550503	EVOPH-550703	-
	1.0mm	EVOPH-010303	EVOPH-010503	EVOPH-010703	-

3µm EVOSPHERE RP-AMIDE		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-03-EVORP18	C075-100-03-EVORP18	C075-150-03-EVORP18	C075-250-03-EVORP18
	150µm	C150-050-03-EVORP18	C150-100-03-EVORP18	C150-150-03-EVORP18	C150-250-03-EVORP18
	300µm	C300-050-03-EVORP18	C300-100-03-EVORP18	C300-150-03-EVORP18	C300-250-03-EVORP18
	0.5mm	EVORP18-550303	EVORP18-550503	EVORP18-550703	-
	1.0mm	EVORP18-010303	EVORP18-010503	EVORP18-010703	-

3µm EVOSPHERE PHENYL- HEXYL		Column Length			
		50	100	150	250
Column Diameter	75µm	C075-050-03-EVOHEX	C075-100-03-EVOHEX	C075-150-03-EVOHEX	C075-250-03-EVOHEX
	150µm	C150-050-03-EVOHEX	C150-100-03-EVOHEX	C150-150-03-EVOHEX	C150-250-03-EVOHEX
	300µm	C300-050-03-EVOHEX	C300-100-03-EVOHEX	C300-150-03-EVOHEX	C300-250-03-EVOHEX
	0.5mm	EVOHEX-550303	EVOHEX-550503	EVOHEX-550703	-
	1.0mm	EVOHEX-010303	EVOHEX-010503	EVOHEX-010703	-

5µm EVOSPHERE® Capillary part numbers

3µm EVOSPHERE C12		Column Length			
		50	100	150	250
	75µm	C075-050-05-EV012	C075-100-05-EV012	C075-150-05-EV012	C075-250-05-EV012
Column Diameter	150µm	C150-050-05-EV012	C150-100-05-EV012	C150-150-05-EV012	C150-250-05-EV012
	300µm	C300-050-05-EV012	C300-100-05-EV012	C300-150-05-EV012	C300-250-05-EV012
	0.5mm	EV012-550305	EV012-550505	EV012-550705	-
	1.0mm	EV012-010305	EV012-010505	EV012-010705	-

3µm EVOSPHERE C18/AR		Column Length			
		50	100	150	250
	75µm	C075-050-05-EV018AR	C075-100-05-EV018AR	C075-150-05-EV018AR	C075-250-05-EV018AR
Column Diameter	150µm	C150-050-05-EV018AR	C150-100-05-EV018AR	C150-150-05-EV018AR	C150-250-05-EV018AR
	300µm	C300-050-05-EV018AR	C300-100-05-EV018AR	C300-150-05-EV018AR	C300-250-05-EV018AR
	0.5mm	EV018AR-550305	EV018AR-550505	EV018AR-550705	-
	1.0mm	EV018AR-010305	EV018AR-010505	EV018AR-010705	-

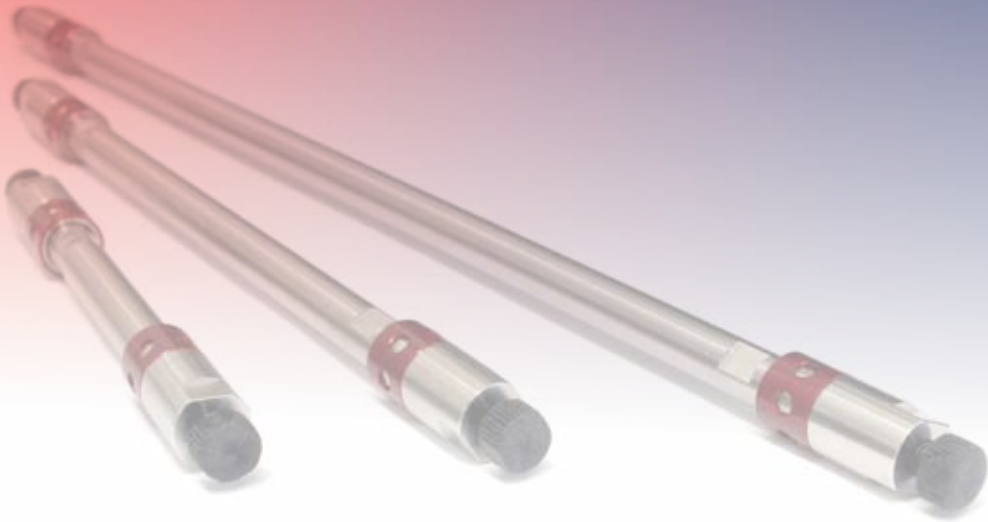
3µm EVOSPHERE C18/PFP		Column Length			
		50	100	150	250
	75µm	C075-050-05-EV018FP	C075-100-05-EV018FP	C075-150-05-EV018FP	C075-250-05-EV018FP
Column Diameter	150µm	C150-050-05-EV018FP	C150-100-05-EV018FP	C150-150-05-EV018FP	C150-250-05-EV018FP
	300µm	C300-050-05-EV018FP	C300-100-05-EV018FP	C300-150-05-EV018FP	C300-250-05-EV018FP
	0.5mm	EV018FP-550305	EV018FP-550505	EV018FP-550705	-
	1.0mm	EV018FP-010305	EV018FP-010505	EV018FP-010705	-

3µm EVOSPHERE AQUA		Column Length			
		50	100	150	250
	75µm	C075-050-05-EV0AQ	C075-100-05-EV0AQ	C075-150-05-EV0AQ	C075-250-05-EV0AQ
Column Diameter	150µm	C150-050-05-EV0AQ	C150-100-05-EV0AQ	C150-150-05-EV0AQ	C150-250-05-EV0AQ
	300µm	C300-050-05-EV0AQ	C300-100-05-EV0AQ	C300-150-05-EV0AQ	C300-250-05-EV0AQ
	0.5mm	EV0AQ-550305	EV0AQ-550505	EV0AQ-550705	-
	1.0mm	EV0AQ-010305	EV0AQ-010505	EV0AQ-010705	-

3µm EVOSPHERE DIPHENYL		Column Length			
		50	100	150	250
	75µm	C075-050-05-EVOPH	C075-100-05-EVOPH	C075-150-05-EVOPH	C075-250-05-EVOPH
Column Diameter	150µm	C150-050-05-EVOPH	C150-100-05-EVOPH	C150-150-05-EVOPH	C150-250-05-EVOPH
	300µm	C300-050-05-EVOPH	C300-100-05-EVOPH	C300-150-05-EVOPH	C300-250-05-EVOPH
	0.5mm	EVOPH-550305	EVOPH-550505	EVOPH-550705	-
	1.0mm	EVOPH-010305	EVOPH-010505	EVOPH-010705	-

3µm EVOSPHERE RP-AMIDE		Column Length			
		50	100	150	250
	75µm	C075-050-05-EVORP18	C075-100-05-EVORP18	C075-150-05-EVORP18	C075-250-05-EVORP18
Column Diameter	150µm	C150-050-05-EVORP18	C150-100-05-EVORP18	C150-150-05-EVORP18	C150-250-05-EVORP18
	300µm	C300-050-05-EVORP18	C300-100-05-EVORP18	C300-150-05-EVORP18	C300-250-05-EVORP18
	0.5mm	EVORP18-550305	EVORP18-550505	EVORP18-550705	-
	1.0mm	EVORP18-010305	EVORP18-010505	EVORP18-010705	-

3µm EVOSPHERE PHENYL- HEXYL		Column Length			
		50	100	150	250
	75µm	C075-050-05-EVOHEX	C075-100-05-EVOHEX	C075-150-05-EVOHEX	C075-250-05-EVOHEX
Column Diameter	150µm	C150-050-05-EVOHEX	C150-100-05-EVOHEX	C150-150-05-EVOHEX	C150-250-05-EVOHEX
	300µm	C300-050-05-EVOHEX	C300-100-05-EVOHEX	C300-150-05-EVOHEX	C300-250-05-EVOHEX
	0.5mm	EVOHEX-550305	EVOHEX-550505	EVOHEX-550705	-
	1.0mm	EVOHEX-010305	EVOHEX-010505	EVOHEX-010705	-



Monodisperse
HPLC
Capillaries



1.7µm EVOSPHERE® BIO Capillary part numbers

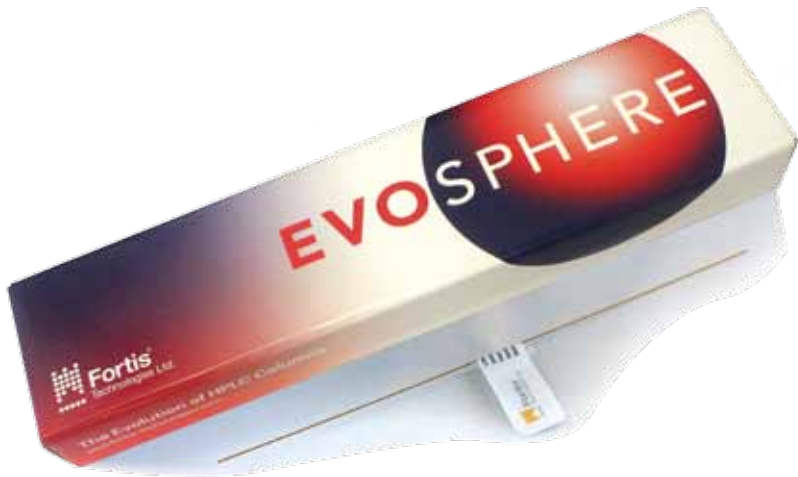
1.7µm EVOSPHERE BIO C12		Column Length			
		50	100	150	250
	75µm	C075-050-01-EV0312	C075-100-01-EV0312	C075-150-01-EV0312	C075-250-01-EV0312
Column Diameter	150µm	C150-050-01-EV0312	C150-100-01-EV0312	C150-150-01-EV0312	C150-250-01-EV0312
	300µm	C300-050-01-EV0312	C300-100-01-EV0312	C300-150-01-EV0312	C300-250-01-EV0312
	0.5mm	EV0312-550301	EV0312-550501	EV0312-550701	-
	1.0mm	EV0312-010301	EV0312-010501	EV0312-010701	-

1.7µm EVOSPHERE BIO DIPHENYL		Column Length			
		50	100	150	250
	75µm	C075-050-01-EV03PH	C075-100-01-EV03PH	C075-150-01-EV03PH	C075-250-01-EV03PH
Column Diameter	150µm	C150-050-01-EV03PH	C150-100-01-EV03PH	C150-150-01-EV03PH	C150-250-01-EV03PH
	300µm	C300-050-01-EV03PH	C300-100-01-EV03PH	C300-150-01-EV03PH	C300-250-01-EV03PH
	0.5mm	EV03PH-550301	EV03PH-550501	EV03PH-550701	-
	1.0mm	EV03PH-010301	EV03PH-010501	EV03PH-010701	-

1.7µm EVOSPHERE BIO C4		Column Length			
		50	100	150	250
	75µm	C075-050-01-EV0304	C075-100-01-EV0304	C075-150-01-EV0304	C075-250-01-EV0304
Column Diameter	150µm	C150-050-01-EV0304	C150-100-01-EV0304	C150-150-01-EV0304	C150-250-01-EV0304
	300µm	C300-050-01-EV0304	C300-100-01-EV0304	C300-150-01-EV0304	C300-250-01-EV0304
	0.5mm	EV0304-550301	EV0304-550501	EV0304-550701	-
	1.0mm	EV0304-010301	EV0304-010501	EV0304-010701	-

1.7µm EVOSPHERE BIO HILIC		Column Length			
		50	100	150	250
	75µm	C075-050-01-EV03HI	C075-100-01-EV03HI	C075-150-01-EV03HI	C075-250-01-EV03HI
Column Diameter	150µm	C150-050-01-EV03HI	C150-100-01-EV03HI	C150-150-01-EV03HI	C150-250-01-EV03HI
	300µm	C300-050-01-EV03HI	C300-100-01-EV03HI	C300-150-01-EV03HI	C300-250-01-EV03HI
	0.5mm	EV03HI-550301	EV03HI-550501	EV03HI-550701	-
	1.0mm	EV03HI-010301	EV03HI-010501	EV03HI-010701	-

1.7µm EVOSPHERE BIO C18/AR		Column Length			
		50	100	150	250
	75µm	C075-050-01-EV0318AR	C075-100-01-EV0318AR	C075-150-01-EV0318AR	C075-250-01-EV0318AR
Column Diameter	150µm	C150-050-01-EV0318AR	C150-100-01-EV0318AR	C150-150-01-EV0318AR	C150-250-01-EV0318AR
	300µm	C300-050-01-EV0318AR	C300-100-01-EV0318AR	C300-150-01-EV0318AR	C300-250-01-EV0318AR
	0.5mm	EV0318AR-550301	EV0318AR-550501	EV0318AR-550701	-
	1.0mm	EV0318AR-010301	EV0318AR-010501	EV0318AR-010701	-



3µm EVOSPHERE® BIO Capillary part numbers

3µm EVOSPHERE BIO C12		Column Length			
		50	100	150	250
	75µm	C075-050-03-EV0312	C075-100-03-EV0312	C075-150-03-EV0312	C075-250-03-EV0312
Column Diameter	150µm	C150-050-03-EV0312	C150-100-03-EV0312	C150-150-03-EV0312	C150-250-03-EV0312
	300µm	C300-050-03-EV0312	C300-100-03-EV0312	C300-150-03-EV0312	C300-250-03-EV0312
	0.5mm	EV0312-550303	EV0312-550503	EV0312-550703	-
	1.0mm	EV0312-010303	EV0312-010503	EV0312-010703	-

3µm EVOSPHERE BIO DIPHENYL		Column Length			
		50	100	150	250
	75µm	C075-050-03-EV03PH	C075-100-03-EV03PH	C075-150-03-EV03PH	C075-250-03-EV03PH
Column Diameter	150µm	C150-050-03-EV03PH	C150-100-03-EV03PH	C150-150-03-EV03PH	C150-250-03-EV03PH
	300µm	C300-050-03-EV03PH	C300-100-03-EV03PH	C300-150-03-EV03PH	C300-250-03-EV03PH
	0.5mm	EV03PH-550303	EV03PH-550503	EV03PH-550703	-
	1.0mm	EV03PH-010303	EV03PH-010503	EV03PH-010703	-

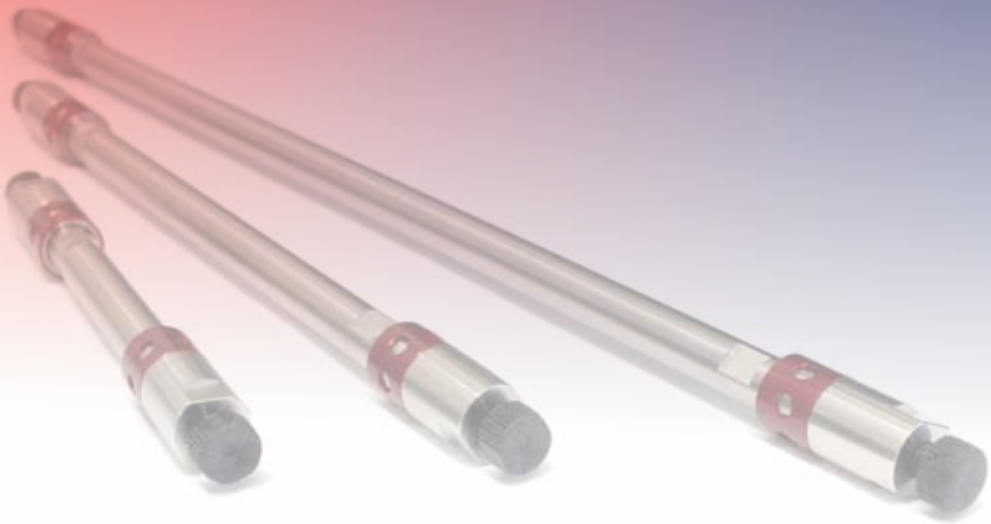
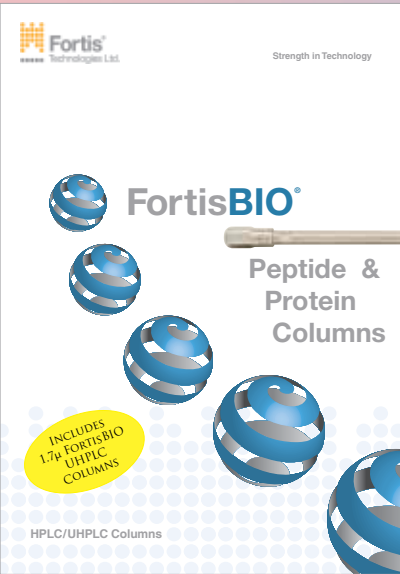
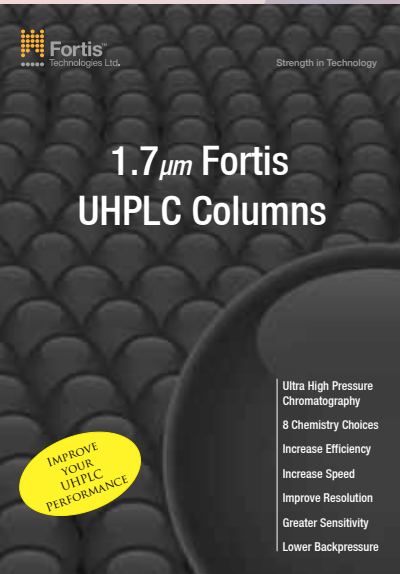
3µm EVOSPHERE BIO C4		Column Length			
		50	100	150	250
	75µm	C075-050-03-EV0304	C075-100-03-EV0304	C075-150-03-EV0304	C075-250-03-EV0304
Column Diameter	150µm	C150-050-03-EV0304	C150-100-03-EV0304	C150-150-03-EV0304	C150-250-03-EV0304
	300µm	C300-050-03-EV0304	C300-100-03-EV0304	C300-150-03-EV0304	C300-250-03-EV0304
	0.5mm	EV0304-550303	EV0304-550503	EV0304-550703	-
	1.0mm	EV0304-010303	EV0304-030503	EV0304-010703	-

3µm EVOSPHERE BIO HILIC		Column Length			
		50	100	150	250
	75µm	C075-050-03-EV03HI	C075-100-03-EV03HI	C075-150-03-EV03HI	C075-250-03-EV03HI
Column Diameter	150µm	C150-050-03-EV03HI	C150-100-03-EV03HI	C150-150-03-EV03HI	C150-250-03-EV03HI
	300µm	C300-050-03-EV03HI	C300-100-03-EV03HI	C300-150-03-EV03HI	C300-250-03-EV03HI
	0.5mm	EV03HI-550303	EV03HI-550503	EV03HI-550703	-
	1.0mm	EV03HI-010303	EV03HI-030503	EV03HI-010703	-

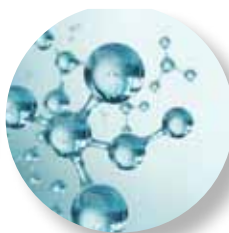
3µm EVOSPHERE BIO C18/AR		Column Length			
		50	100	150	250
	75µm	C075-050-03-EV318AR	C075-100-03-EV318AR	C075-150-03-EV318AR	C075-250-03-EV318AR
Column Diameter	150µm	C150-050-03-EV318AR	C150-100-03-EV318AR	C150-150-03-EV318AR	C150-250-03-EV318AR
	300µm	C300-050-03-EV318AR	C300-100-03-EV318AR	C300-150-03-EV318AR	C300-250-03-EV318AR
	0.5mm	EV318AR-550303	EV318AR-550503	EV318AR-550703	-
	1.0mm	EV318AR-010303	EV318AR-010503	EV318AR-010703	-



Other Product Guides Available



Monodisperse HPLC Capillaries



WORLDWIDE AVAILABILITY



45 Coalbrookdale Road
Clayhill Industrial Park
Neston
Cheshire, UK
CH64 3UG

t: +44 151 336 2266
f: +44 151 336 2669
www.fortis-technologies.com
e: info@fortis-technologies.com

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