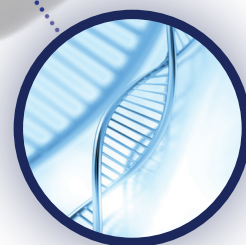
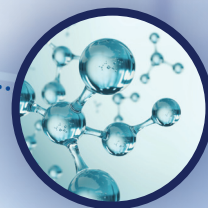


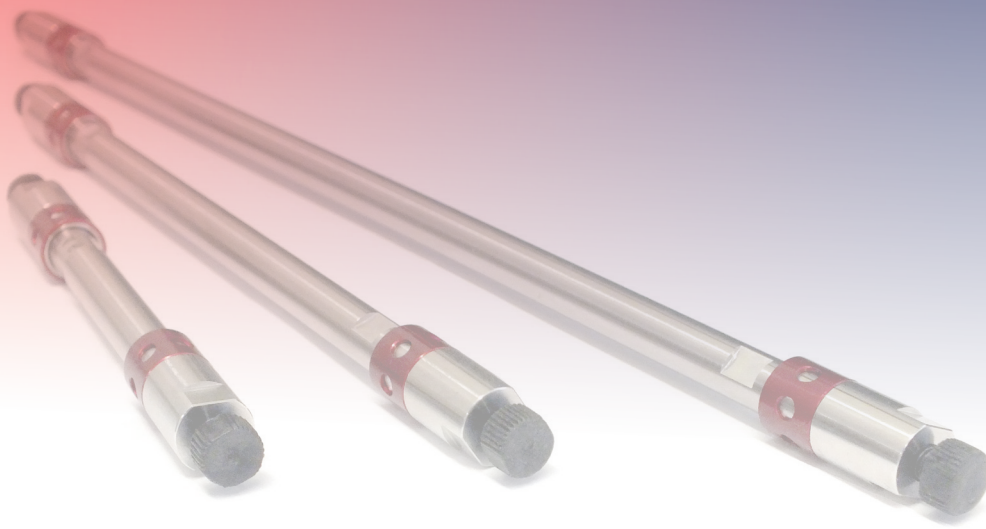
# Monodisperse HPLC Particles



The Evolution of HPLC Columns



EVO SPHERE



# Monodisperse HPLC Columns

Fortis Technologies has designed a new fully porous monodisperse particle for use in HPLC columns. Combining this with a new range of selectivities gives the analyst the ability for high resolution, high efficiency separations.

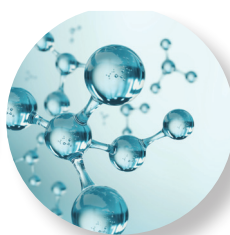
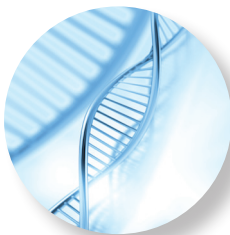
Based upon a fully porous silica monodisperse particle, Evosphere® is the evolution of particle technology.

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.

By building on a pure silica substrate method development and method transfer become more robust and reproducible across platforms as you scale from capillary to preparative.



# Monodisperse Particles



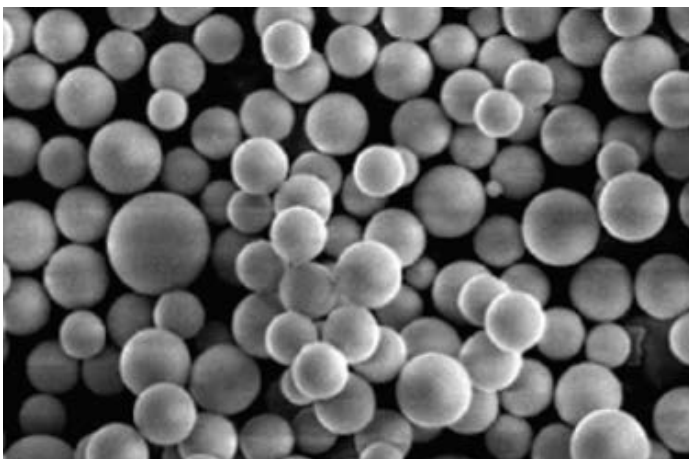
## Particle Morphology

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)

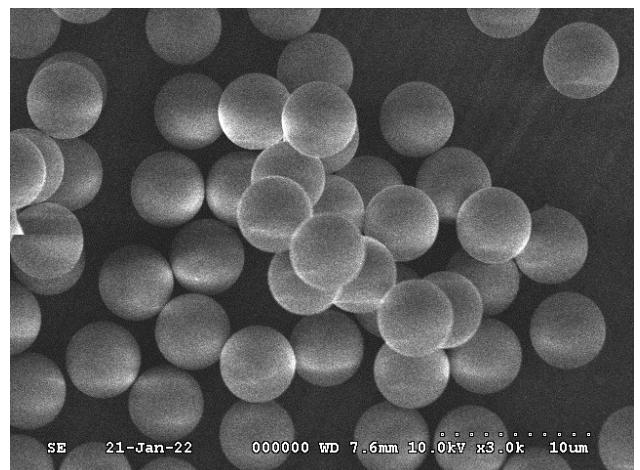
SEM imagery of the Evosphere in comparison with traditional particles highlights the much narrower size distribution.

Monodisperse Evosphere particles are available in 1.7 $\mu$ m, 3 $\mu$ m and 5 $\mu$ m particle sizes.

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



**Traditional  
porous particles**



**Monodisperse  
porous particles**

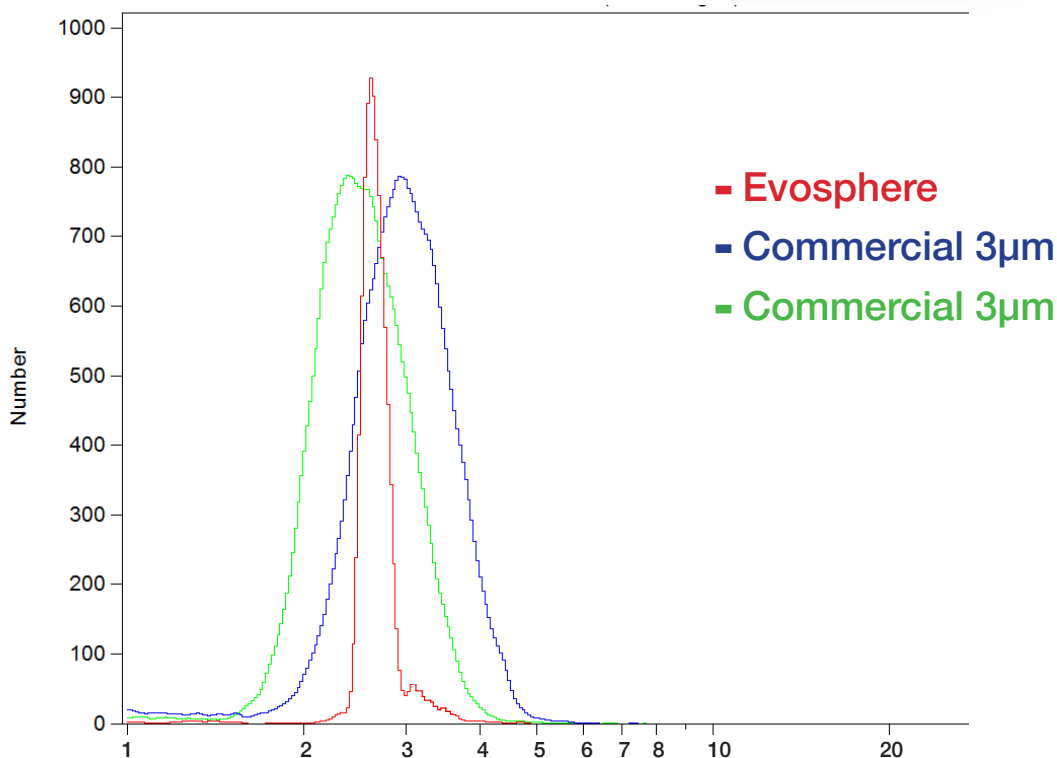
# Particle size distribution (D90/10)

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 6µm, this means that 90% of the sample has size of 6µm 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 3µ Silica-A	Commercial 3µ Silica-B
Median Particle size (d50)*	2.66µm *	2.48µm	2.97µm
SEM Particle Size	3.0µm	2.8µm	3.3µm
D90/10	<b>1.12</b>	<b>1.58</b>	<b>1.61</b>
Pore Volume	0.89	0.88	0.89

\* Measured by Coulter Counter

# Monodisperse Particles



**EVO** SPHERE

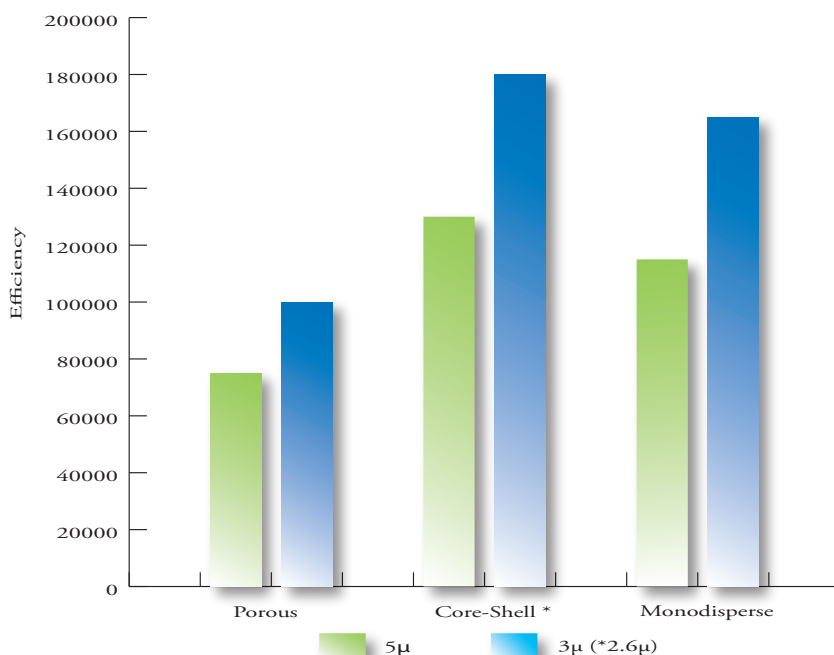
## Efficiency of Monodisperse particles

Analysts have had two ways of improving efficiency in the past. Move to a smaller particle with associated high backpressure and the need to buy a UHPLC instrument, or move to core-shell particles but with a compromise in loading and scalability.

Evosphere fully porous monodisperse particles have vastly increased efficiency over equivalent porous particle sizes. Due to maintaining high surface area, loading and retention time are not compromised as seen with core-shell particles.

- **High Efficiency**
- **High Loading**
- **Scaleable - capillary to Prep**
- **Robust**
- **Reproducible**

## Typical Efficiencies of HPLC particles



# Loading Capacity

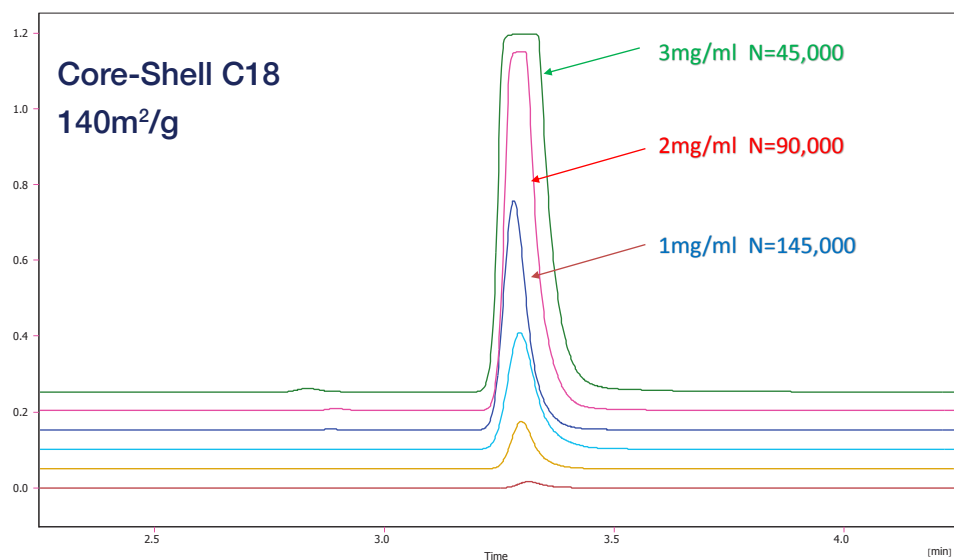
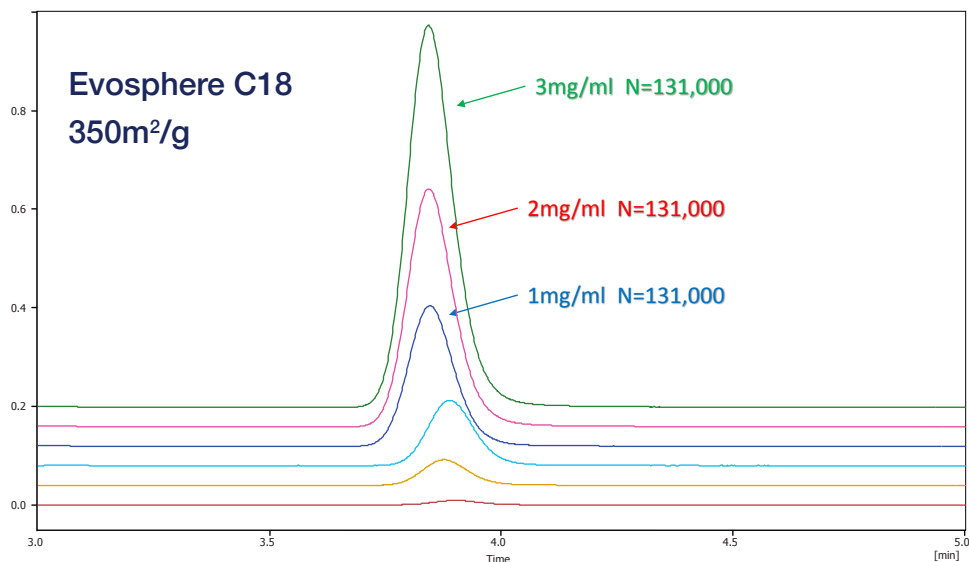
Fortis Evosphere has a high surface area ( $350\text{m}^2/\text{g}$ ) as per many modern Type B porous silica's, this allows loadability of compounds to be high for purification purposes.

Evosphere is available from capillary scale dimensions all the way up to preparative columns.

If you compare this to core-shell particles which typically have a surface area in the region of  $130\text{m}^2/\text{g}$  you will quickly see overload and compromised peak shapes, meaning scale up of methods can be difficult.



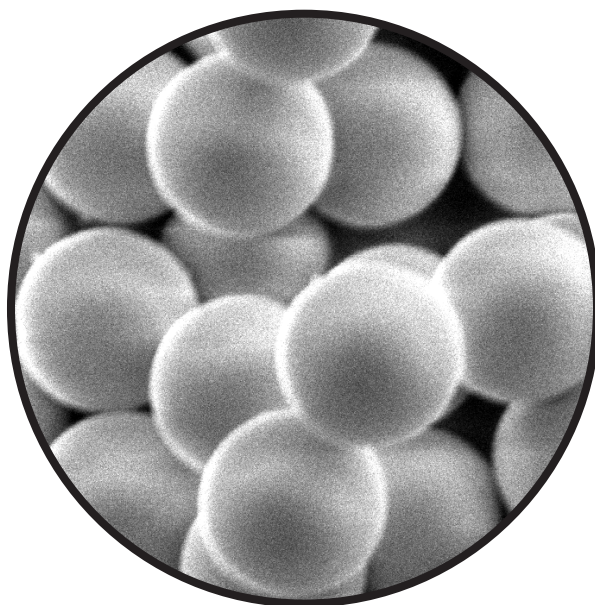
## Comparison of loading capacity



# Selectivity Choices



Fortis Evosphere® columns are the very latest in HPLC particle technology. Incorporating our optimised bonding and packing practices with a fully porous monodisperse particle provides the analyst with the ability to speed up analysis, increase efficiency and improve resolution over 'traditional' 3µ & 5µ particles even on normal 400bar HPLC systems.

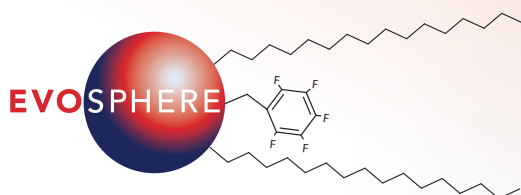


## Evosphere Monodisperse Particles

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

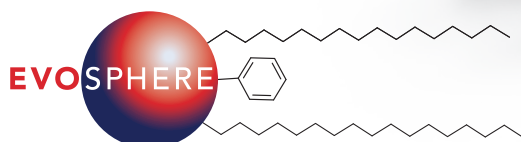


# Stationary Phase Choice



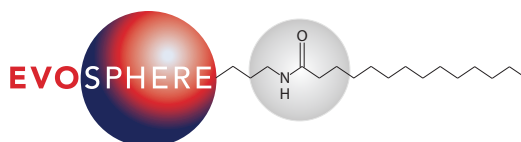
- **Evosphere C18/PFP**
- **Orthogonal Selectivity**
- **Method development starting point**

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.



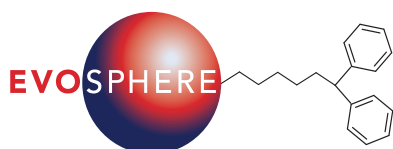
- **Evosphere C18/AR**
- **Orthogonal Selectivity**
- **Method development starting point**

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.



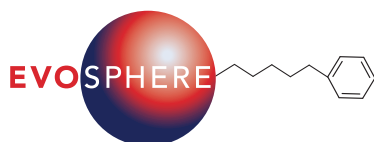
- **Evosphere RP18-Amide**
- **Orthogonal Selectivity**
- **Excellent method development option**

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.



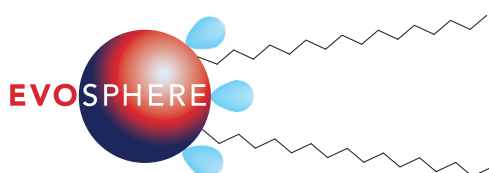
- **Evosphere Diphenyl**
- **Separate positional isomers**
- **Stable ligand, No "MS" bleed**

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**

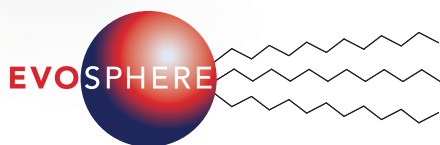
Evosphere Phenyl-Hexyl is designed to provide characteristics which will enhance selectivity. It provides alternate selectivity to a pure hydrophobic stationary phase whilst still maintaining the key attributes of robustness and reproducibility.



- **Evosphere AQUA**
- **Separate polar species**
- **Excellent stability**

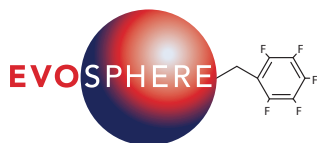
Evosphere AQUA is designed to provide characteristics which will enhance retention of highly polar analytes. Reproducible surface characteristics provide robust separations. Combination of hydrophobic and hydrophilic nature.

# Selectivity Choices



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

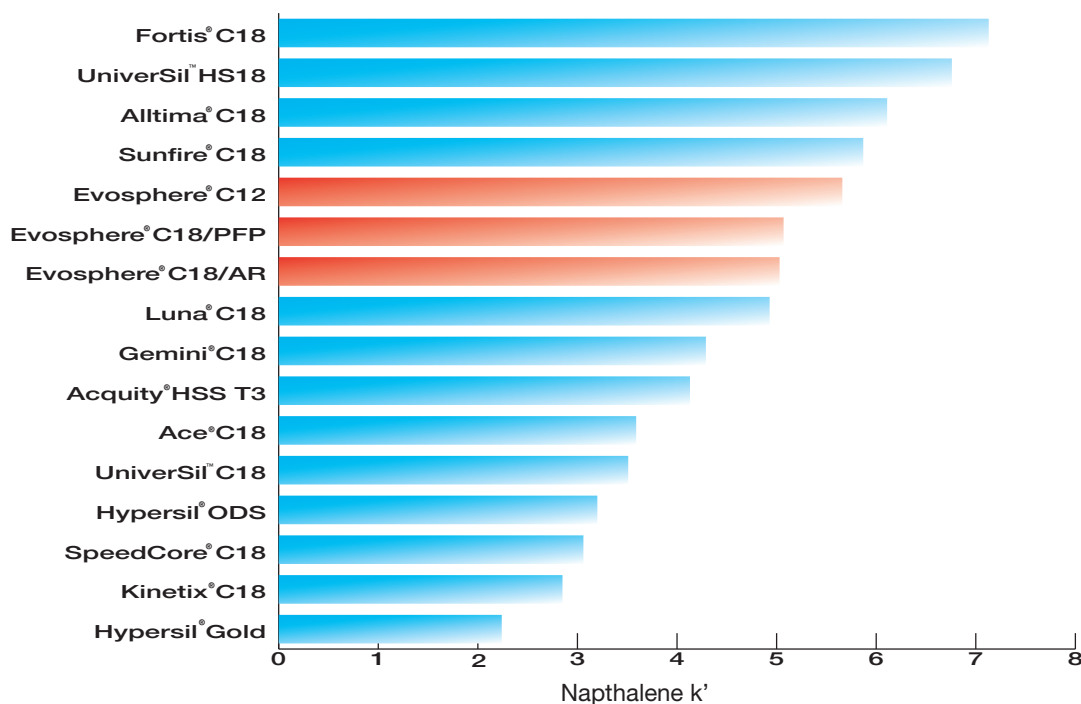
Evosphere C12 is designed to provide characteristics which will enhance method development. The dense C12 ligand provides the ability to obtain sharp peak shapes whilst retaining and separating a wide variety of acid, base and neutral compounds with excellent robustness.



- **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.

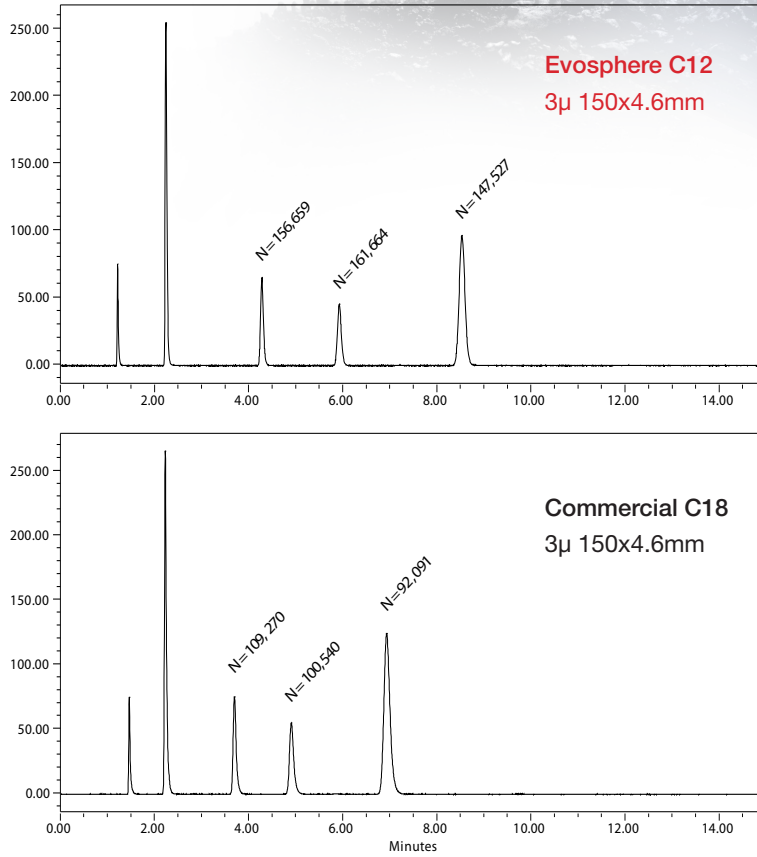
## Hydrophobicity



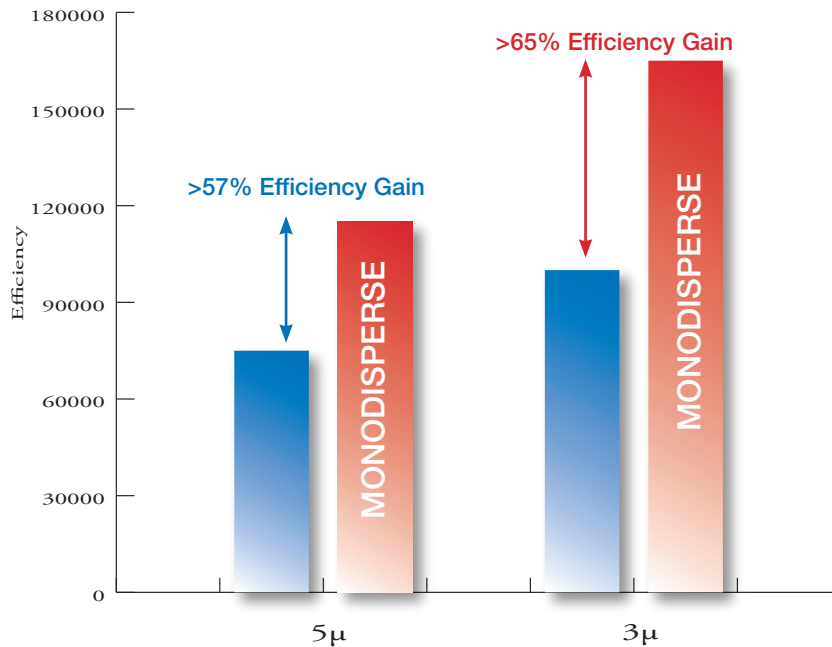
# Efficiency Gains

The monodisperse nature of Evosphere coupled with our ability to pack the column more efficiently allows for a significant increase in efficiency and therefore resolution over traditional silica particles.

## 3 $\mu$ Monodisperse vs 3 $\mu$ Traditional



## Efficiency



# Principle Component Analysis (PCA)

**EVOSPHERE**

## PCA analysis

Principle component analysis has been used to differentiate columns for use in Chromatography for a number of years,\* first developed by Euerby and Petersson based around tests suggested by Tanaka. A systematic approach to column characterisation allows the analyst to choose from a diverse (or similar) range of columns.

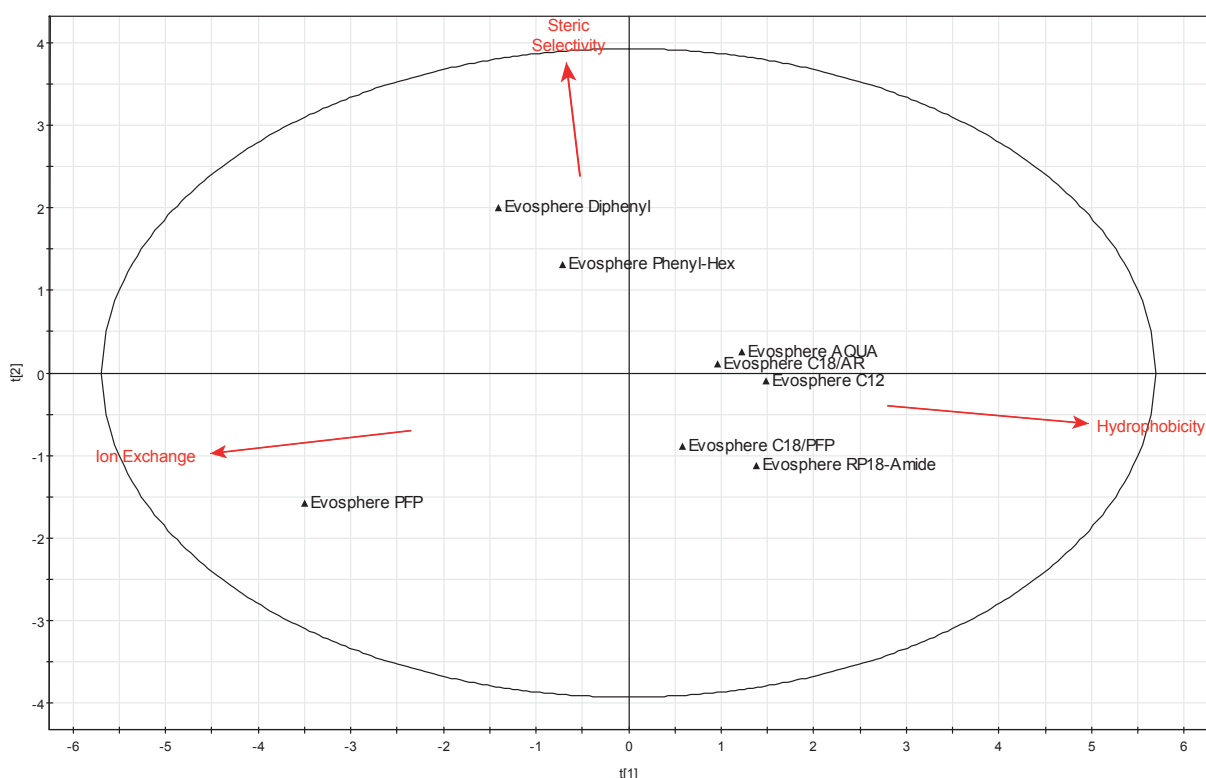
\* M.Euerby, P.Petersson, LC-GC Europe (Sept 2000) 665-677

### Factors characterised:

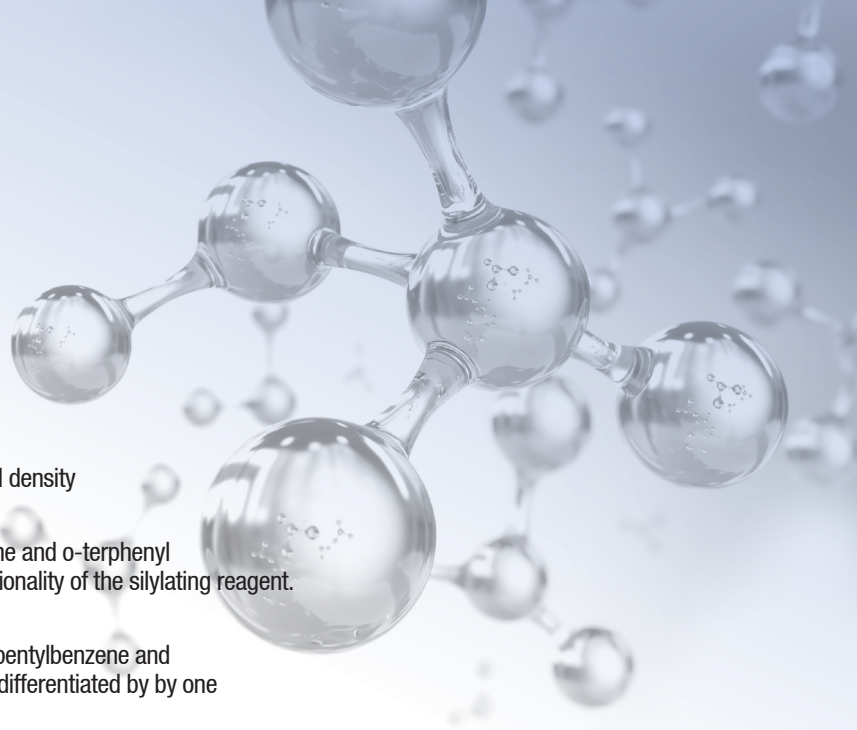
- Hydrophobicity
- Steric selectivity
- Hydrogen bonding capacity
- Ion-exchange capacity

PCA analysis has been show below to highlight the diversity of the stationary phases in the Evosphere range. Choose a phase based on orthoganol selectivity to your current column or by mechanism to match the analytes

2023\_Evosphere\_Data.M2 (PCA-X), Untitled  
t[Comp. 1]/t[Comp. 2]



# Evosphere PCA



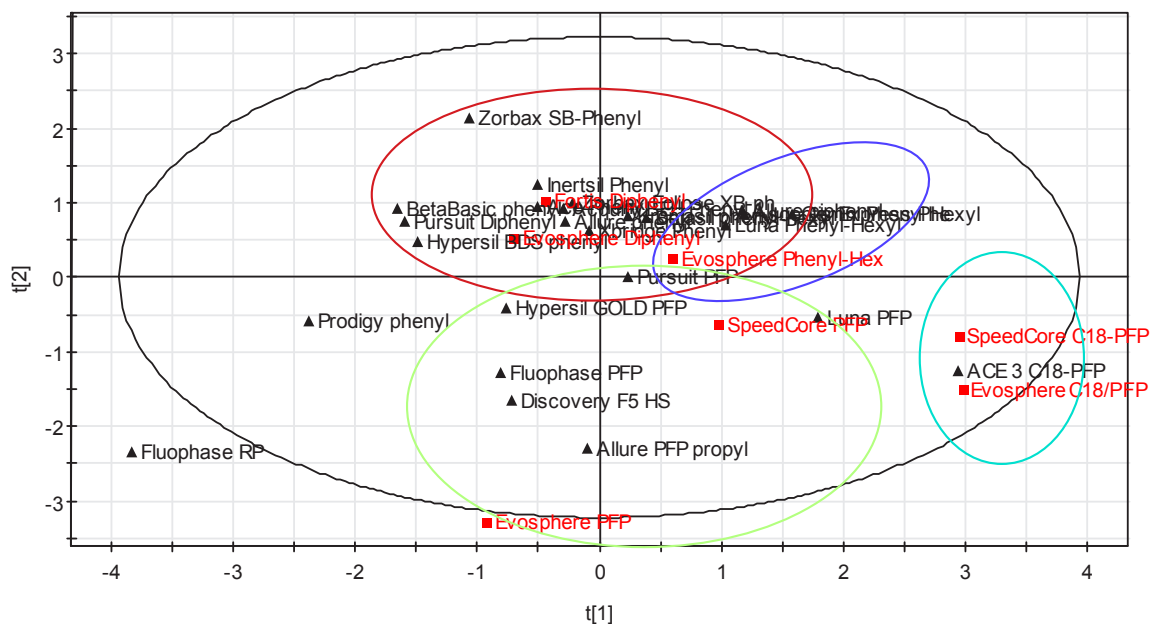
## Factors characterised:

- **k' PB** Retention factor of Pentylbenzene, an indicator of ligand density
- **Steric selectivity** Retention factor ratio between trphenylene and o-terphenyl  $\alpha T/O = k_r/k_o$  this is a measure of the shape selectivity and functionality of the silylating reagent.
- **Hydrophobic selectivity**  $\alpha CH_2$  Retention factor between pentylbenzene and butylbenzene. A measure of the surface coverage of the phase, differentiated by by one methylene group is dependant upon the ligand density.
- **Hydrogen bonding capacity**  $\alpha C/P$  retention factor between caffeine and phenol. A indicator of the degree of endcapping
- **Ion-exchange capacity**  $\alpha k_o/k_o$  Retention factor between benzylamine and phenol at both pH 2.7 (acidic activity of silanols) and pH 7.6 an estimate of total silanol activity.

In the example below PCA analysis can be used to show the differences between several commercial Phenyl type phases. It can be seen how the new C18-PFP phase adds a new dimension being predominantly hydrophobic in nature but offering alternate selectivity due to the mixed C18 and PFP ligands.

Evosphere Phenyl-Hexyl also offers a new selectivity to the range combining hydrophobicity and pi-pi interactions together.

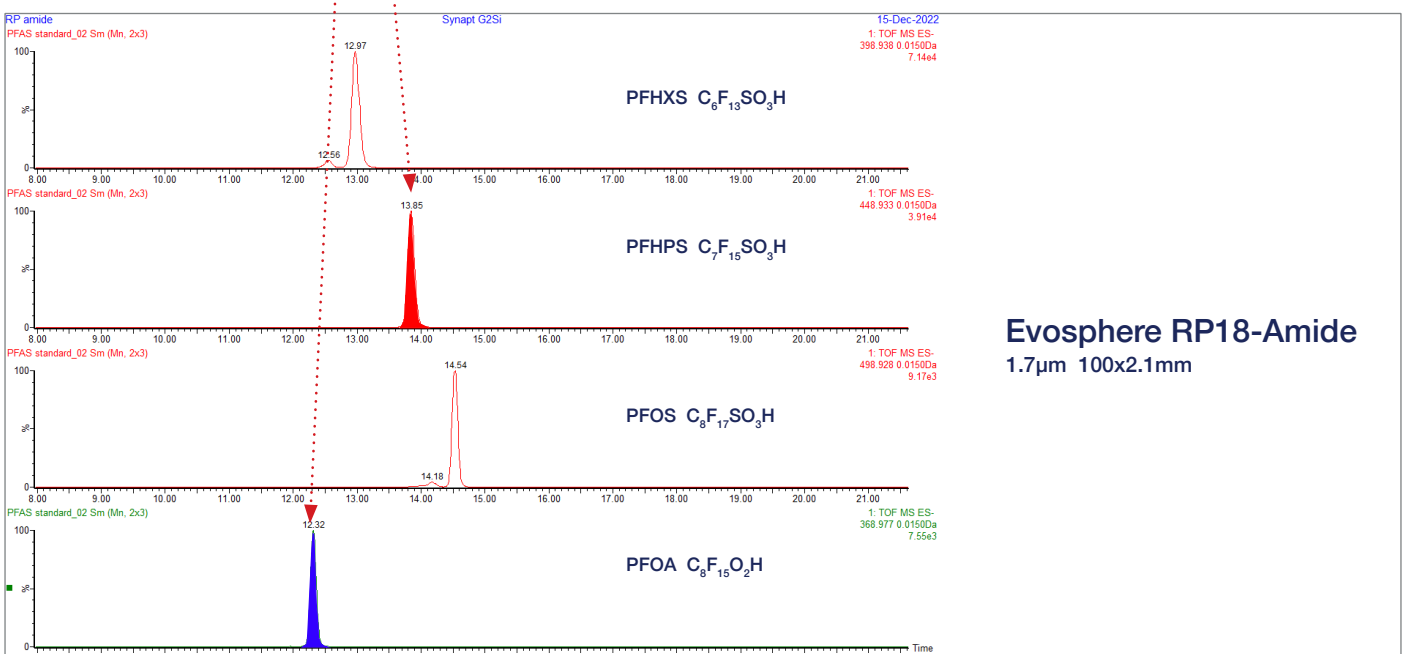
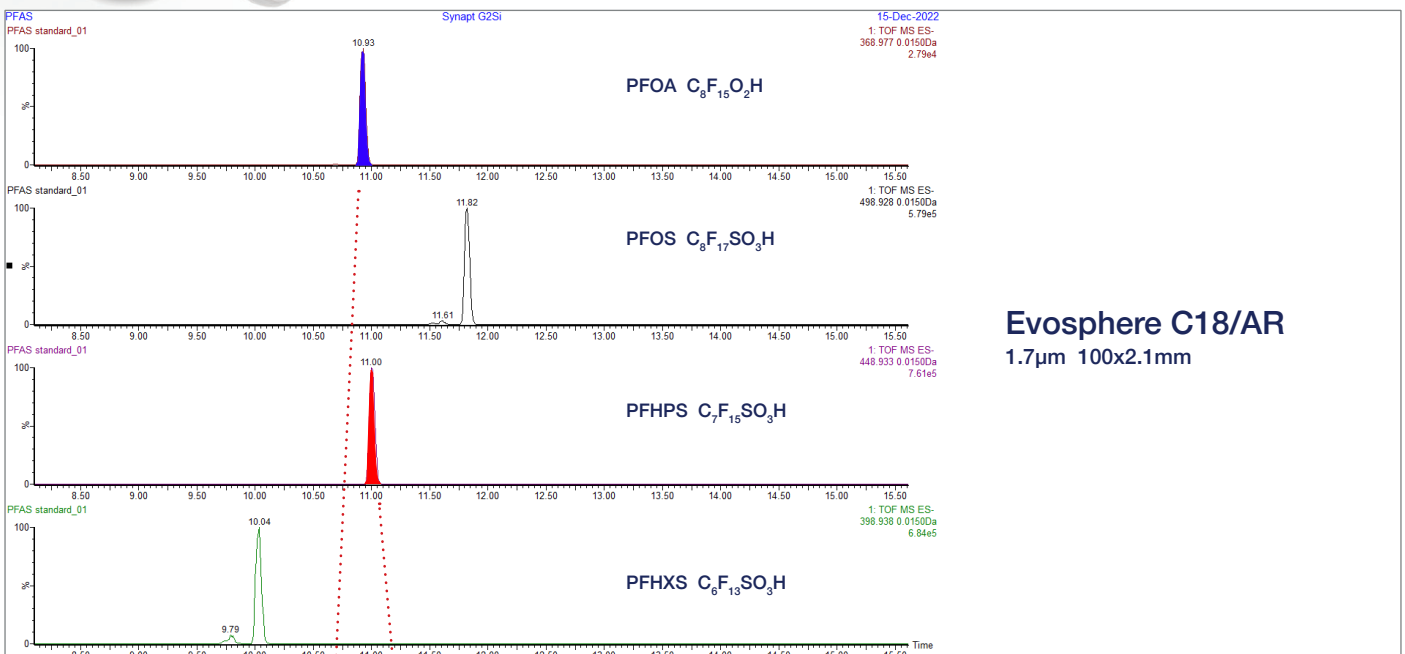
evosphere\_phenyls.M2 (PCA-X), Untitled  
t[Comp. 1]/t[Comp. 2]  
Colored according to classes in M2



# Polyfluoroalkyl substances (PFAS)

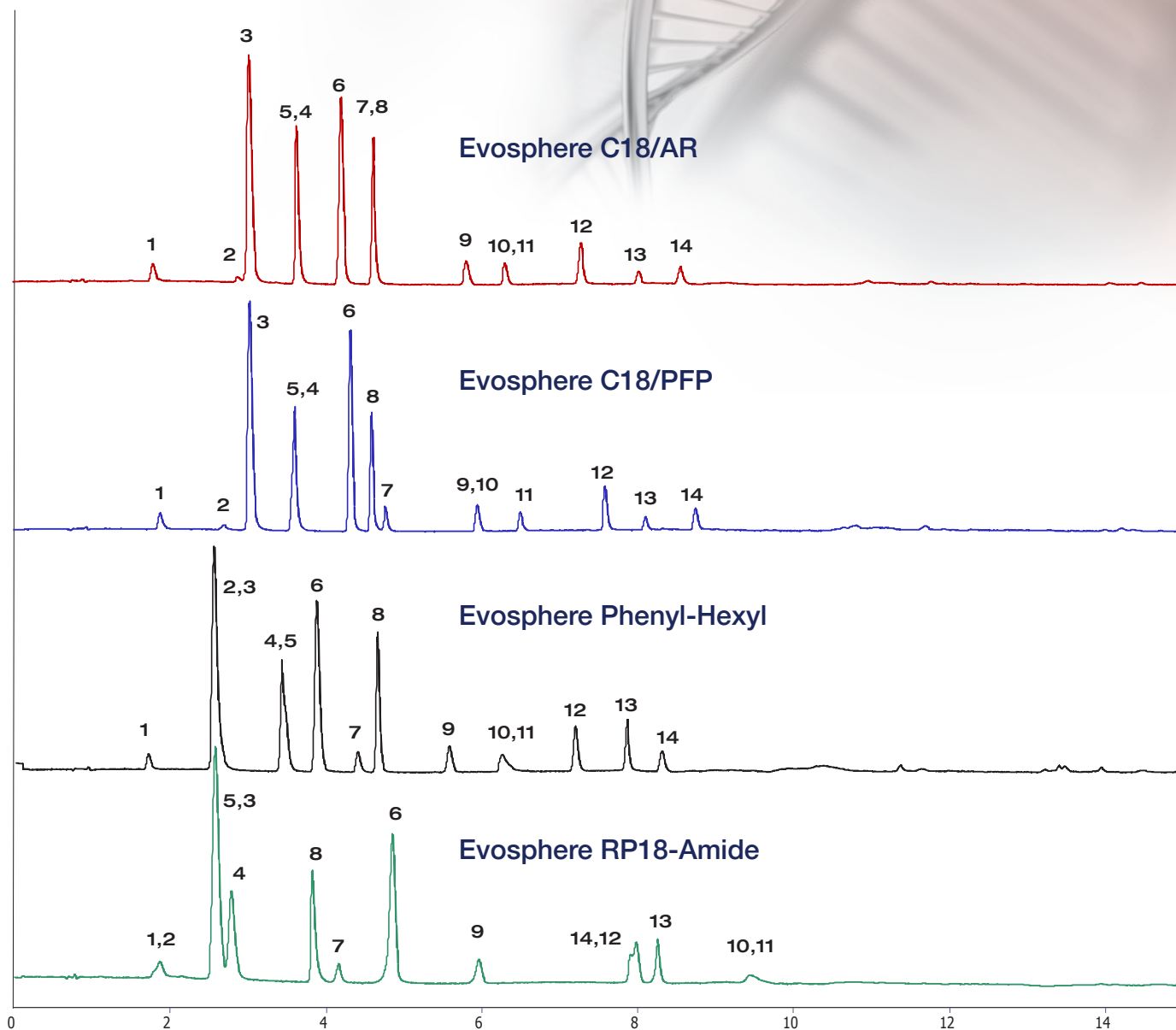
# EVOSPHERE

There is a lot of interest in PFAS analysis, if diverse selectivity of stationary phase's can be employed then closely related analytes can be separated with ease, leading to better quantitatively and qualitatively confirmation.



# 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

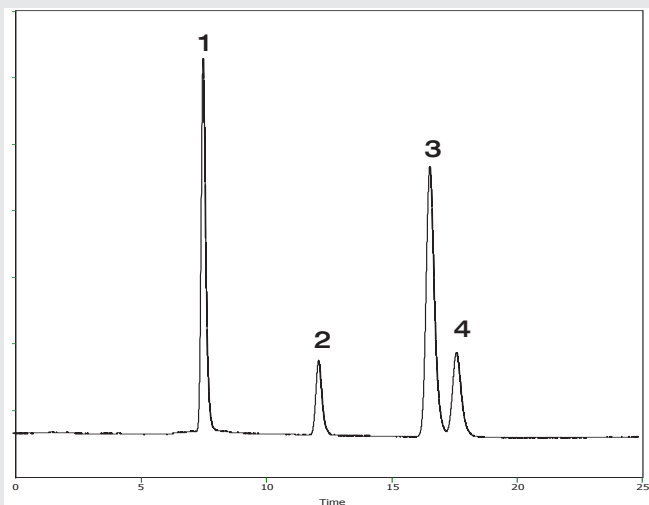
Temperature : 40°C

\* All columns 3µm 100x2.1mm

# Applications

**EVO**SPHERE

## HALOGENATED POSITIONAL ISOMERS



Column: 5 $\mu$ m Evosphere C18/PFP 150x4.6mm

Mobile Phase: 50:50 Water:MeOH

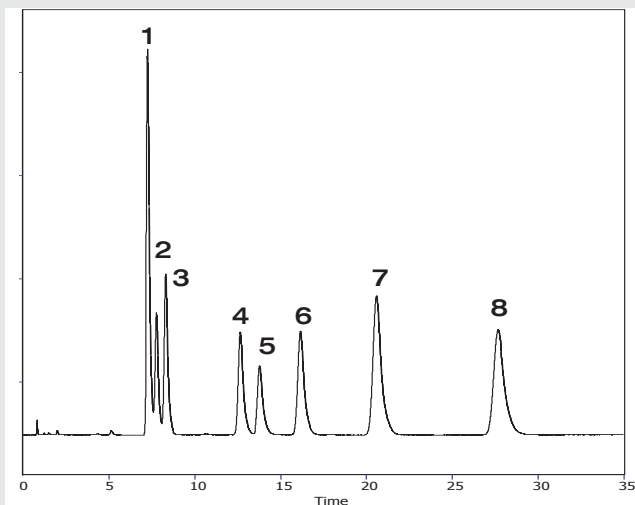
Flow: 1.0ml/min

Temp: 20°C

Wavelength: 254nm

1. Acetophenone
2. 2-Chloroacetophenone
3. 4-Chloroacetophenone
4. 3-Chloroacetophenone

## SUBSTITUTED BENZENES



Column: 5 $\mu$ m Evosphere C18/PFP 150x4.6mm

Mobile Phase: 50:50 Water:MeOH

Flow: 1.0ml/min

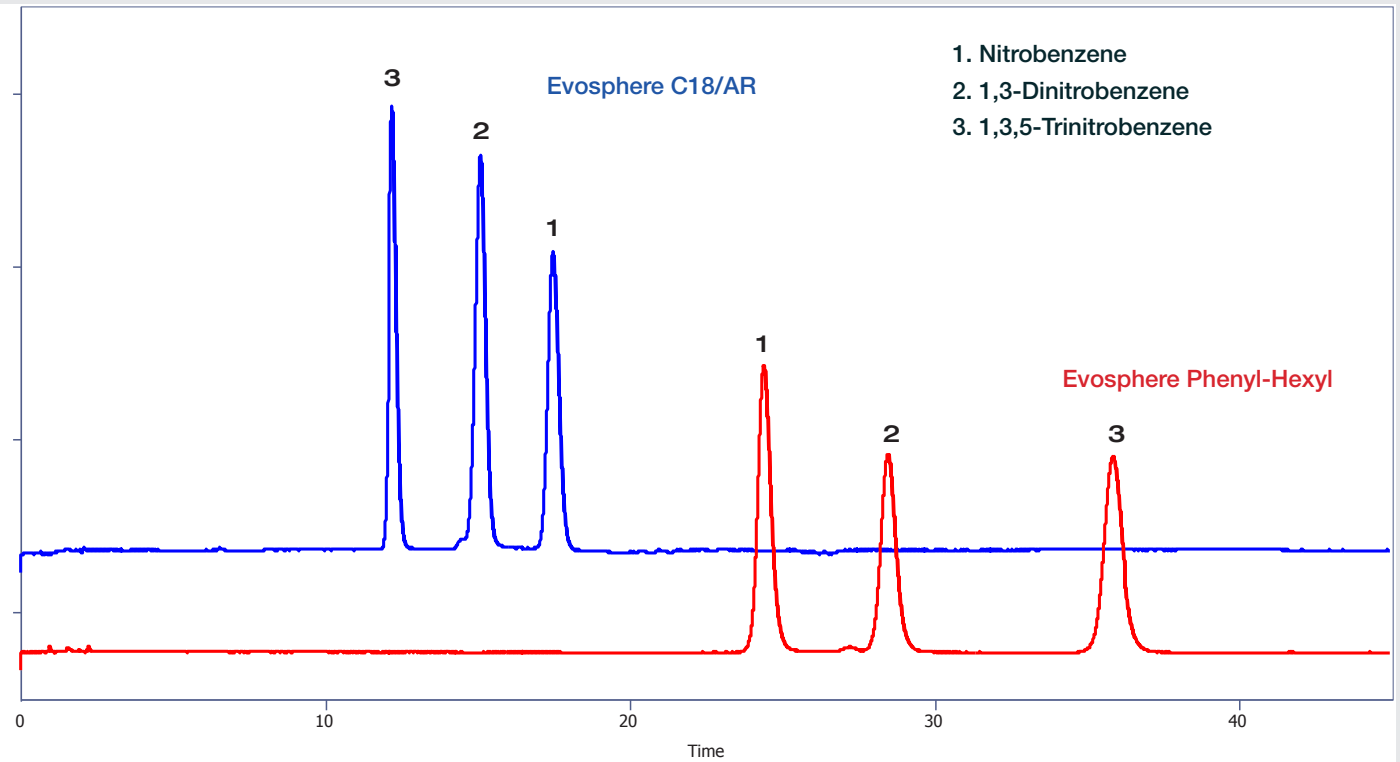
Temp: 20°C

Wavelength: 210nm

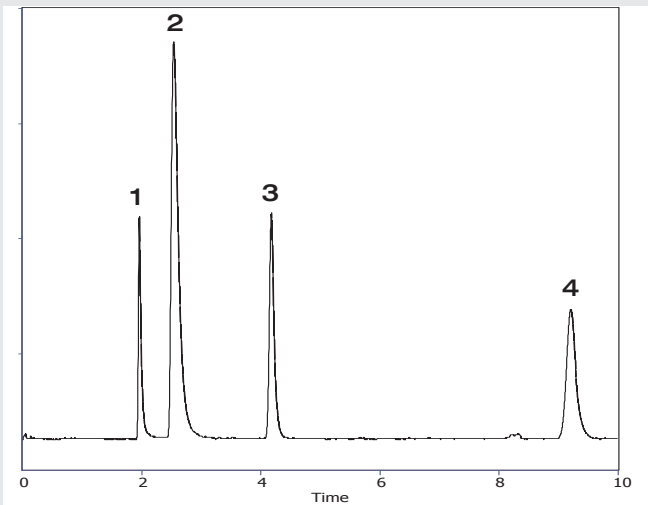
- |                            |                            |
|----------------------------|----------------------------|
| 1. 1,2,3-Trimethoxybenzene | 5. Anisole                 |
| 2. 1,2-Dimethoxybenzene    | 6. 1,3-Dimethoxybenzene    |
| 3. 1,2,4-Trimethoxybenzene | 7. 1,3,5-Trimethoxybenzene |
| 4. 1,4-Dimethoxybenzene    | 8. Toluene                 |



## SELECTIVITY COMPARISON - EXPLOSIVES



## NUCLEOSIDES



Column: 3µm Evosphere AQUA 150x4.6mm

Mobile Phase: 98:2 25mM NH<sub>4</sub>OAc : ACN

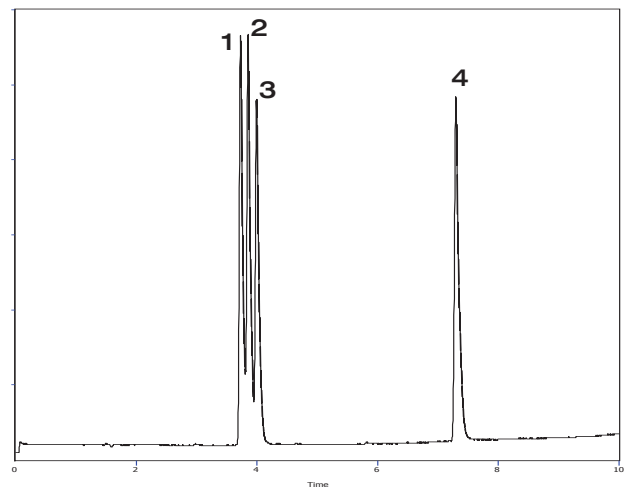
Flow: 1.0ml/min

Temp: 20°C

Wavelength : 254nm

1. Uracil
2. Uridine
3. Cytosine
4. Guanosine

## STERIODS



Column: 3µm Evosphere AQUA 150x4.6mm

Mobile Phase: 30-100%B in 10mins

A: 0.1% Formic acid in Water

B: 0.1% Formic acid in ACN

Flow: 1.0ml/min

Wavelength : 254nm

1. Prednisolone
2. Prednisone
3. Cortisone
4. 17α Hydroxyprogesterone

# Capillaries & Prep Scaling



Evosphere capillaries are available in 75 $\mu$ m, 200 $\mu$ m, 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 Prep

- 10mm and 21.2mm
- High Loadability
- Optimised Packing Efficiency
- Narrow peak profile, High Efficiency and Resolution

Evosphere Prep columns are designed for high sample loading, high throughput applications. The optimised packed bed (OPB) process ensures excellent peak shapes and efficiency, whilst the lifetime of the column is increased.



# 1.7µm EVOSPHERE® part numbers

1.7µm EVOSPHERE C12		Column Length			
		30	50	100	150
	2.1	EVO12-020201	EVO12-020301	EVO12-020501	EVO12-020701
Column Diameter	3.0	EVO12-030201	EVO12-030301	EVO12-030501	EVO12-030701
	4.6	EVO12-050201	EVO12-050301	EVO12-050501	EVO12-050701

1.7µm EVOSPHERE C18/AR		Column Length			
		30	50	100	150
	2.1	EVO18AR-020201	EVO18AR-020301	EVO18AR-020501	EVO18AR-020701
Column Diameter	3.0	EVO18AR-030201	EVO18AR-030301	EVO18AR-030501	EVO18AR-030701
	4.6	EVO18AR-050201	EVO18AR-050301	EVO18AR-050501	EVO18AR-050701

1.7µm EVOSPHERE C18/PFP		Column Length			
		30	50	100	150
	2.1	EVO18FP-020201	EVO18FP-020301	EVO18FP-020501	EVO18FP-020701
Column Diameter	3.0	EVO18FP-030201	EVO18FP-030301	EVO18FP-030501	EVO18FP-030701
	4.6	EVO18FP-050201	EVO18FP-050301	EVO18FP-050501	EVO18FP-050701

1.7µm EVOSPHERE RP18-AMIDE		Column Length			
		30	50	100	150
	2.1	EVORP18-020201	EVORP18-020301	EVORP18-020501	EVORP18-020701
Column Diameter	3.0	EVORP18-030201	EVORP18-030301	EVORP18-030501	EVORP18-030701
	4.6	EVORP18-050201	EVORP18-050301	EVORP18-050501	EVORP18-050701

1.7µm EVOSPHERE PHENYL-HEXYL		Column Length			
		30	50	100	150
	2.1	EVOHEX-020201	EVOHEX-020301	EVOHEX-020501	EVOHEX-020701
Column Diameter	3.0	EVOHEX-030201	EVOHEX-030301	EVOHEX-030501	EVOHEX-030701
	4.6	EVOHEX-050201	EVOHEX-050301	EVOHEX-050501	EVOHEX-050701

1.7µm EVOSPHERE DIPHENYL		Column Length			
		30	50	100	150
	2.1	EVOPH-020201	EVOPH-020301	EVOPH-020501	EVOPH-020701
Column Diameter	3.0	EVOPH-030201	EVOPH-030301	EVOPH-030501	EVOPH-030701
	4.6	EVOPH-050201	EVOPH-050301	EVOPH-050501	EVOPH-050701

1.7µm EVOSPHERE PFP		Column Length			
		30	50	100	150
	2.1	EVOFPF-020201	EVOFPF-020301	EVOFPF-020501	EVOFPF-020701
Column Diameter	3.0	EVOFPF-030201	EVOFPF-030301	EVOFPF-030501	EVOFPF-030701
	4.6	EVOFPF-050201	EVOFPF-050301	EVOFPF-050501	EVOFPF-050701

1.7µm EVOSPHERE AQUA		Column Length			
		30	50	100	150
	2.1	EVOAQ-020201	EVOAQ-020301	EVOAQ-020501	EVOAQ-020701
Column Diameter	3.0	EVOAQ-030201	EVOAQ-030301	EVOAQ-030501	EVOAQ-030701
	4.6	EVOAQ-050201	EVOAQ-050301	EVOAQ-050501	EVOAQ-050701

## Evosphere Sample Filters



- Low volume in-line filter for all core-shell/UHPLC columns
- Increase lifetime of columns
- Change over time seconds not minutes
- Pressure rated to 1000bar

High pressure In-line Filters	
UHPSAV2	UHPLC In-line filter pk 2
UHPSAV4	UHPLC In-line filter pk 4
UHPSAV2-w	UHPLC In-line filter pk 2 Acquity® Compatible
UHPSAV4-w	UHPLC In-line filter pk 4 Acquity® Compatible

# 3µm EVOSPHERE® part numbers

3µm EVOSPHERE C12		Column Length			
		30	50	100	150
	2.1	EV012-020203	EV012-020303	EV012-020503	EV012-020703
Column Diameter	3.0	EV012-030203	EV012-030303	EV012-030503	EV012-030703
	4.6	EV012-050203	EV012-050303	EV012-050503	EV012-050703

3µm EVOSPHERE C18/AR		Column Length			
		30	50	100	150
	2.1	EV018AR-020203	EV018AR-020303	EV018AR-020503	EV018AR-020703
Column Diameter	3.0	EV018AR-030203	EV018AR-030303	EV018AR-030503	EV018AR-030703
	4.6	EV018AR-050203	EV018AR-050303	EV018AR-050503	EV018AR-050703

3µm EVOSPHERE C18/PFP		Column Length			
		30	50	100	150
	2.1	EV018FP-020203	EV018FP-020303	EV018FP-020503	EV018FP-020703
Column Diameter	3.0	EV018FP-030203	EV018FP-030303	EV018FP-030503	EV018FP-030703
	4.6	EV018FP-050203	EV018FP-050303	EV018FP-050503	EV018FP-050703

3µm EVOSPHERE RP18-AMIDE		Column Length			
		30	50	100	150
	2.1	EVORP18-020203	EVORP18-020303	EVORP18-020503	EVORP18-020703
Column Diameter	3.0	EVORP18-030203	EVORP18-030303	EVORP18-030503	EVORP18-030703
	4.6	EVORP18-050203	EVORP18-050303	EVORP18-050503	EVORP18-050703

3µm EVOSPHERE PHENYL-HEXYL		Column Length			
		30	50	100	150
	2.1	EVOHEX-020203	EVOHEX-020303	EVOHEX-020503	EVOHEX-020703
Column Diameter	3.0	EVOHEX-030203	EVOHEX-030303	EVOHEX-030503	EVOHEX-030703
	4.6	EVOHEX-050203	EVOHEX-050303	EVOHEX-050503	EVOHEX-050703

3µm EVOSPHERE DIPHENYL		Column Length			
		30	50	100	150
	2.1	EVOPH-020203	EVOPH-020303	EVOPH-020503	EVOPH-020703
Column Diameter	3.0	EVOPH-030203	EVOPH-030303	EVOPH-030503	EVOPH-030703
	4.6	EVOPH-050203	EVOPH-050303	EVOPH-050503	EVOPH-050703

3µm EVOSPHERE PFP		Column Length			
		30	50	100	150
	2.1	EVOPFP-020203	EVOPFP-020303	EVOPFP-020503	EVOPFP-020703
Column Diameter	3.0	EVOPFP-030203	EVOPFP-030303	EVOPFP-030503	EVOPFP-030703
	4.6	EVOPFP-050203	EVOPFP-050303	EVOPFP-050503	EVOPFP-050703

3µm EVOSPHERE AQUA		Column Length			
		30	50	100	150
	2.1	EVOAQ-020203	EVOAQ-020303	EVOAQ-020503	EVOAQ-020703
Column Diameter	3.0	EVOAQ-030203	EVOAQ-030303	EVOAQ-030503	EVOAQ-030703
	4.6	EVOAQ-050203	EVOAQ-050303	EVOAQ-050503	EVOAQ-050703



- Direct connect guard system for all 3µm and 5µm phases
- Quick replacement cartridges
- Highly Cost Effective

3µm Evosphere Guard Cartridges	
DCGUA-1	Guard Cartridge Holder
DCxx-040003G/2	10x4mm Evosphere 3µm Guard pk 2
DCxx-040003G/4	10x4mm Evosphere 3µm Guard pk 4
DCxx-020003G/2	10x2mm Evosphere 3µm Guard pk 2
DCxx-020003G/4	10x2mm Evosphere 3µm Guard pk 4

Replace xx 12 for Evosphere C12 EPH for Evosphere Diphenyl AQ for Evosphere AQUA HEX for Evosphere Phenyl-Hexyl  
PFP for Evosphere PFP RP18 for Evosphere RP18-Amide 18AR for Evosphere C18/AR 18FP for Evosphere C18/PFP

# 5µm EVOSPHERE® part numbers

5µm EVOSPHERE C12		Column Length			
		30	50	100	150
	2.1	EVO12-020205	EVO12-020305	EVO12-020505	EVO12-020705
Column Diameter	3.0	EVO12-030205	EVO12-030305	EVO12-030505	EVO12-030705
	4.6	EVO12-050205	EVO12-050305	EVO12-050505	EVO12-050705

5µm EVOSPHERE C18/AR		Column Length			
		30	50	100	150
	2.1	EVO18AR-020205	EVO18AR-020305	EVO18AR-020505	EVO18AR-020705
Column Diameter	3.0	EVO18AR-030205	EVO18AR-030305	EVO18AR-030505	EVO18AR-030705
	4.6	EVO18AR-050205	EVO18AR-050305	EVO18AR-050505	EVO18AR-050705

5µm EVOSPHERE C18/PPF		Column Length			
		30	50	100	150
	2.1	EVO18FP-020205	EVO18FP-020305	EVO18FP-020505	EVO18FP-020705
Column Diameter	3.0	EVO18FP-030205	EVO18FP-030305	EVO18FP-030505	EVO18FP-030705
	4.6	EVO18FP-050205	EVO18FP-050305	EVO18FP-050505	EVO18FP-050705

5µm EVOSPHERE RP18-AMIDE		Column Length			
		30	50	100	150
	2.1	EVORP18-020205	EVORP18-020305	EVORP18-020505	EVORP18-020705
Column Diameter	3.0	EVORP18-030205	EVORP18-030305	EVORP18-030505	EVORP18-030705
	4.6	EVORP18-050205	EVORP18-050305	EVORP18-050505	EVORP18-050705

5µm EVOSPHERE PHENYL-HEXYL		Column Length			
		30	50	100	150
	2.1	EVOHEX-020205	EVOHEX-020305	EVOHEX-020505	EVOHEX-020705
Column Diameter	3.0	EVOHEX-030205	EVOHEX-030305	EVOHEX-030505	EVOHEX-030705
	4.6	EVOHEX-050205	EVOHEX-050305	EVOHEX-050505	EVOHEX-050705

5µm EVOSPHERE DIPHENYL		Column Length			
		30	50	100	150
	2.1	EVOPH-020205	EVOPH-020305	EVOPH-020505	EVOPH-020705
Column Diameter	3.0	EVOPH-030205	EVOPH-030305	EVOPH-030505	EVOPH-030705
	4.6	EVOPH-050205	EVOPH-050305	EVOPH-050505	EVOPH-050705

5µm EVOSPHERE PFP		Column Length			
		30	50	100	150
	2.1	EVOPFP-020205	EVOPFP-020305	EVOPFP-020505	EVOPFP-020705
Column Diameter	3.0	EVOPFP-030205	EVOPFP-030305	EVOPFP-030505	EVOPFP-030705
	4.6	EVOPFP-050205	EVOPFP-050305	EVOPFP-050505	EVOPFP-050705

5µm EVOSPHERE AQUA		Column Length			
		30	50	100	150
	2.1	EVOAQ-020205	EVOAQ-020305	EVOAQ-020505	EVOAQ-020705
Column Diameter	3.0	EVOAQ-030205	EVOAQ-030305	EVOAQ-030505	EVOAQ-030705
	4.6	EVOAQ-050205	EVOAQ-050305	EVOAQ-050505	EVOAQ-050705

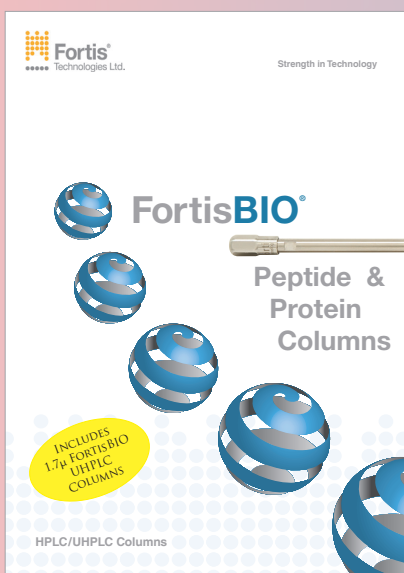
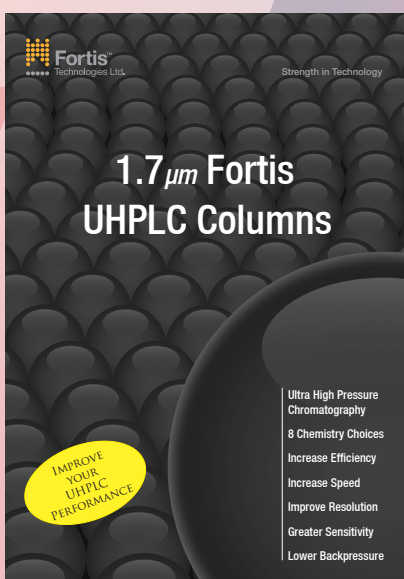
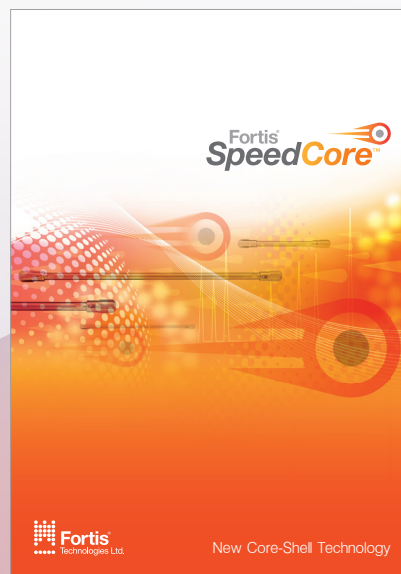


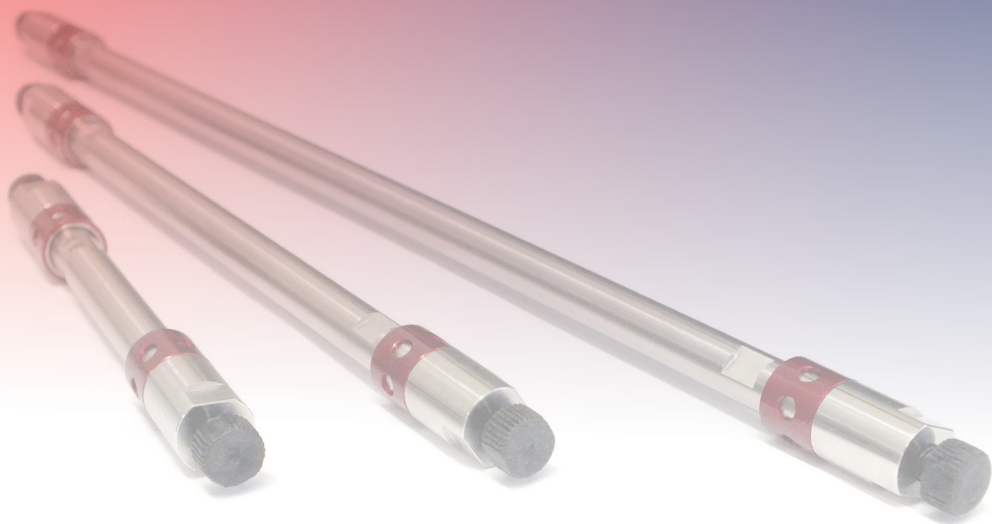
- Direct connect guard system for all 3µm and 5µm phases
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5µm Evosphere Guard Cartridges	
DCGUA-1	Guard Cartridge Holder
DCxx-040005G/2	10x4mm Evosphere 5µm Guard pk 2
DCxx-040005G/4	10x4mm Evosphere 5µm Guard pk 4
DCxx-020005G/2	10x2mm Evosphere 5µm Guard pk 2
DCxx-020005G/4	10x2mm Evosphere 5µm Guard pk 4

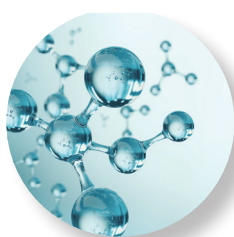
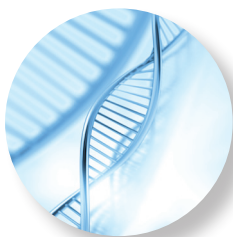
Replace xx 12 for Evosphere C12 EPH for Evosphere Diphenyl AQ for Evosphere AQUA HEX for Evosphere Phenyl-Hexyl  
 PFP for Evosphere PFP RP18 for Evosphere RP18-Amide 18AR for Evosphere C18/AR 18FP for Evosphere C18/PPF

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# Monodisperse HPLC Columns



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