

## UHPLC Columns

### ► Bluespher®

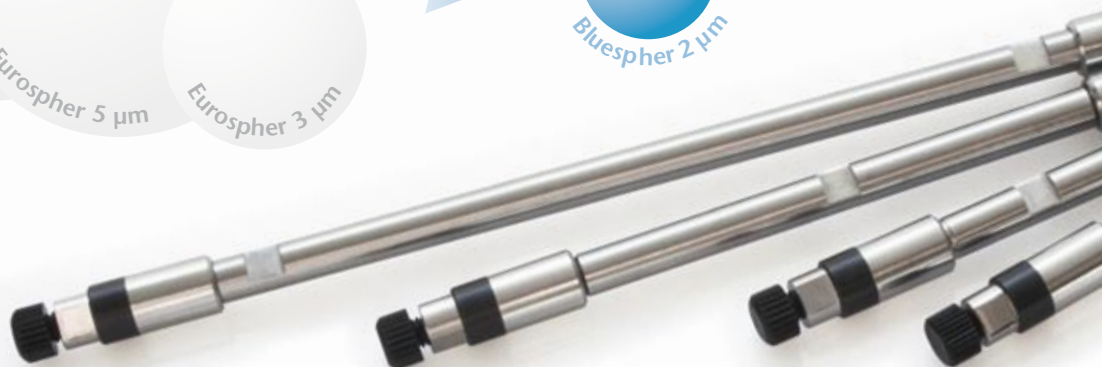
Eurospher 10 µm

Eurospher 5 µm

Eurospher 3 µm

Scale down  
particle sizeIncrease  
performance

Bluespher 2 µm



## Take HPLC to the next level with ultra high performance Bluespher® columns

When you're ready to switch your analytical HPLC method to UHPLC, Bluespher columns are the solution. Bluespher columns were developed to feature very similar characteristics and selectivities to the KNAUER Eurospher I and II families to make method transfer easy. Improve speed and resolution, and lower eluent consumption by scaling down to 2 mm ID Bluespher® columns packed with 2 µm particles.

Bluespher® columns are packed with ultra pure silica stationary phase to provide excellent separation performance and are well-suited for either routine analysis or ambitious chromatography in high speed mode where resolution, sensitivity and sample throughput are critical. These columns are your first choice for high-throughput-screening, quality control, and method development.

Silica gel:	ultra pure, > 99.99 %
Particle size:	2.0 µm
Particle form:	spherical
Pore size:	100 Å
Specific surface:	320 ± 20 m <sup>2</sup> /g
Pore volume:	0.8 ml/g
Density:	430 g/l

Bluespher offers outstanding mechanical and chemical stability for reliable performance.

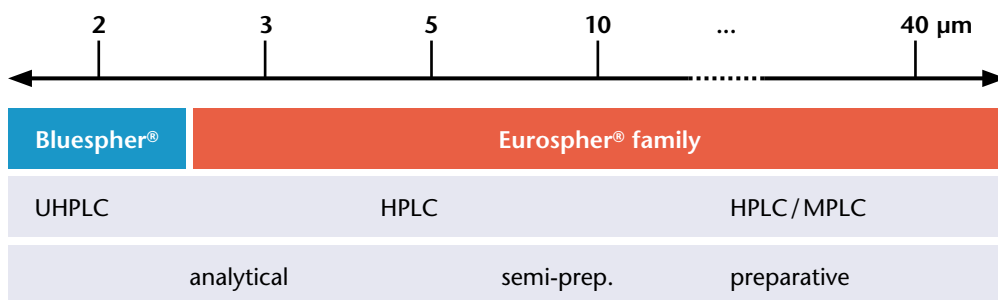
**Modifications** With a wide range of different surface modifications all the application fields of reversed phase chromatography are covered. By employing mono- and multi-functional silanes in the manufacturing process, every Bluespher type was designed to achieve a maximum in loading capacity and chemical stability.

Bluespher modification	Comparable selectivity to	USP code	Carbon %	pH range	Ordering code
C18 P	Eurospher II C18 P	L1	20% (> 99.9% endcapping)	2–12	...E182BSF
C18 H	Eurospher II C18 H	L1	17% (> 99.9% endcapping)	2–12	...E185BSF
C18	Eurospher/II C18	L1	16% (~ 50% endcapping)	2–8	...E181BSF
C18 A	Eurospher II C18 A	L1	10% (~ 50% hydrophilic endc.)	2–8	...E184BSF
Phenyl	Eurospher II Phenyl	L11	12% (~ 50% endcapping)	2–8	...E050BSF
C8	Eurospher/II C8	L7	10% (~ 50% endcapping)	2–8	...E081BSF
Si	Eurospher/II Si	L3	0% (no endcapping)	2–8	...E000BSF

More modifications available on request

**Scale up and scale down**

Take advantage of the comparable selectivities of Eurospher, Eurospher II, and Bluespher columns to easily scale down your existing analytical method to UHPLC as well as to scale it up to semi-prep or even preparative LC.



**Applications** Finding the appropriate column for a particular application can be a challenging task. With a range of bonded phases offering different selectivity, the Bluespher family includes columns to meet most separation needs. The chart below will help you to choose the best Bluespher column for a particular application.

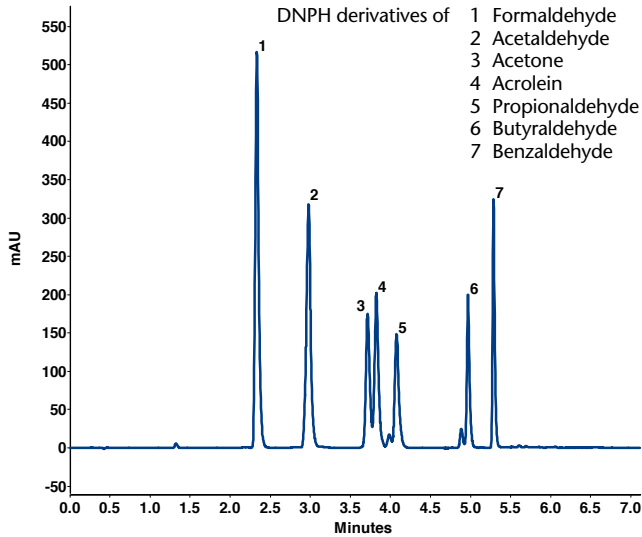
Phase type	non polar	polar	acidic	basic	chelator	hydroph. retention	shape selectivity	extreme aqueous	pH > 9	LC-MS
C18 P	++	+	o	++	++	++	++	o	++	++
C18 H	++	+	++	++	++	++	+	o	++	++
C18	++	++	++	+	++	+	+	+	-	++
C18 A	++	++	++	+	++	+	+	++	-	++
Phenyl	++	o	-	-	++	o	++	o	-	++
C8	++	o	++	+	++	+	+	o	-	++
Si	++	+	-	-	o	-	-	-	-	+

++	+	o	-
excellent	good	suitable	not recommended

Modification type	Application areas	Separation mechanism
C18 P	alternative selectivity to standard C18; stationary phase with the highest carbon load of all Bluespher C18 modifications; fully endcapped; excellent shape selectivity and pH stability	hydrophobic and steric interaction
C18 H	recommended alternative for Kromasil 100 C18 columns; for acidic, basic and neutral analytes in reversed phase mode with extended pH range	hydrophobic interaction
C18	for acidic, basic and neutral analytes in reversed phase mode (sulphonamides; anabolic steroids; anti-psychotics; beta blocker; Sudan dyes; phenols, preservatives etc.)	hydrophobic interaction
C18 A	polar endcapped C18 phase for alternative selectivity; 100% aqueous eluents for analysis of very polar compounds, basic pharmaceutical ingredients, water soluble vitamins, catecholamines as well as organic acids	hydrophobic and polar interaction
Phenyl	alternative selectivity for aromatic and moderately polar analytes or mixtures with varying polarity and aromaticity	$\pi$ - $\pi$ interaction with aromatics
C8	similar selectivity to C18 phase but less retention due to the lower hydrophobicity; useful for determination of water soluble vitamins, steroids, catecholamines sedatives etc.	reduced hydrophobic interaction comparing to C18 phase
Si	wide range of different applications, i.e. size exclusion chromatography) as well as normal phase HPLC; good choice for separations of polar compounds	hydrophilic interaction

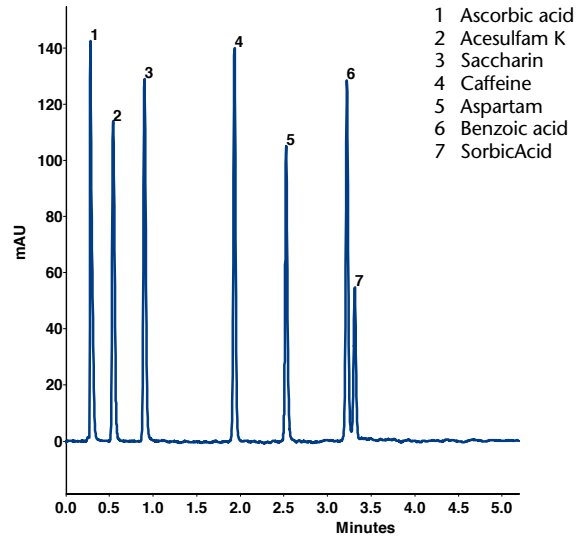


### DNPH carbonyls



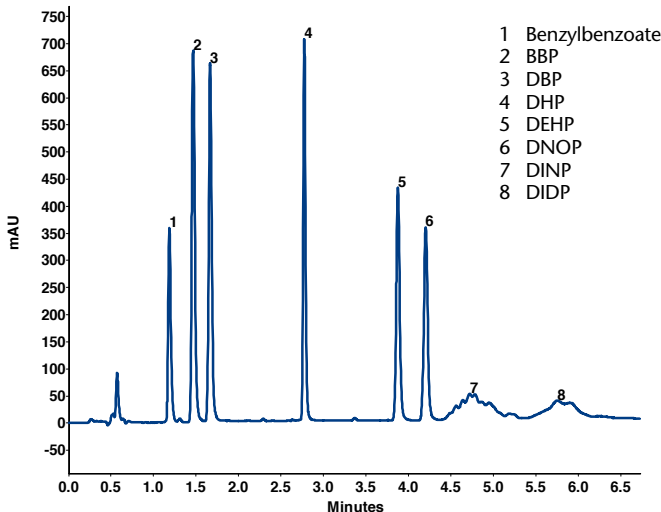
Column: Bluespher C18 A 100 x 2 mm  
 Mobile phase: A: Water  
 B: ACN  
 Gradient: 0–4 min 40%–55% B;  
 0–6 min 55%–100% B; 1 min hold  
 Flow rate: 0.6 ml/min  
 Temperature: 25 °C  
 Detection: UV 370 nm  
 Inj. volume: 5 µl

### Additives



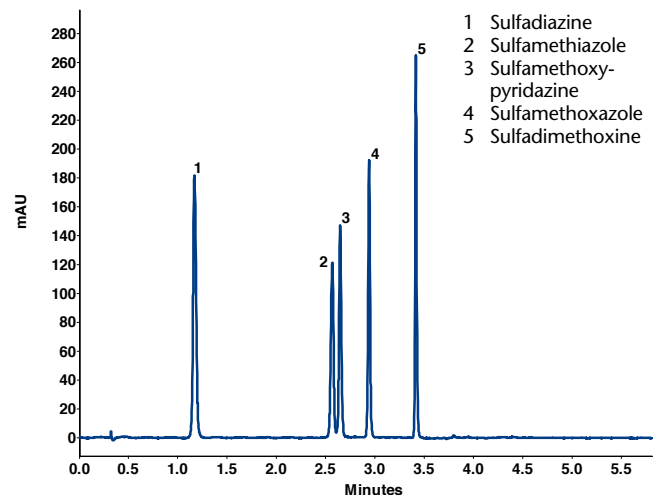
Column: Bluespher C18 P 100 x 2 mm  
 Mobile phase: A:  $\text{KH}_2\text{PO}_4$  pH 3  
 B: MeOH  
 Gradient: 0–3 min 10%–40% B; 1 min hold;  
 4–4.1 min 40%–10% B  
 Flow rate: 0.8 ml/min  
 Temperature: 50 °C  
 Detection: UV 220 nm  
 Inj. volume: 10 µl

### Phthalates



Column: Bluespher C18 H 100 x 2 mm  
 Mobile phase: A: Water/ACN 15:85 (v/v)  
 B: ACN  
 Gradient: 0–0.8 min 0% B  
 0.8–1.7 min 0%–100% B; 5.3 min hold  
 Flow rate: 0.4 ml/min  
 Temperature: 30 °C  
 Detection: UV 225 nm  
 Inj. volume: 5 µl

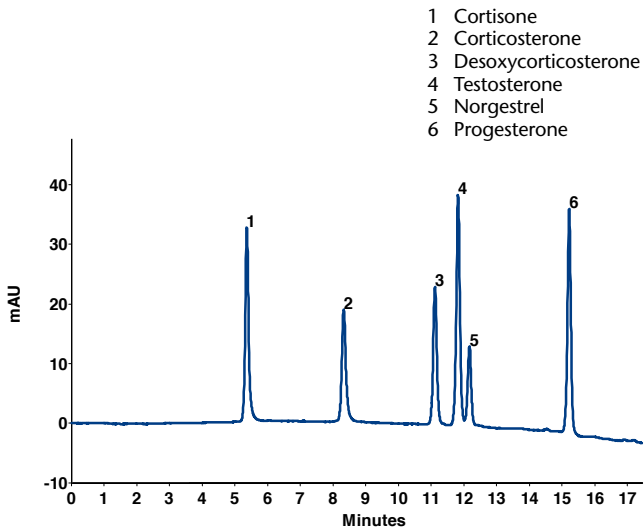
### Sulfa drugs



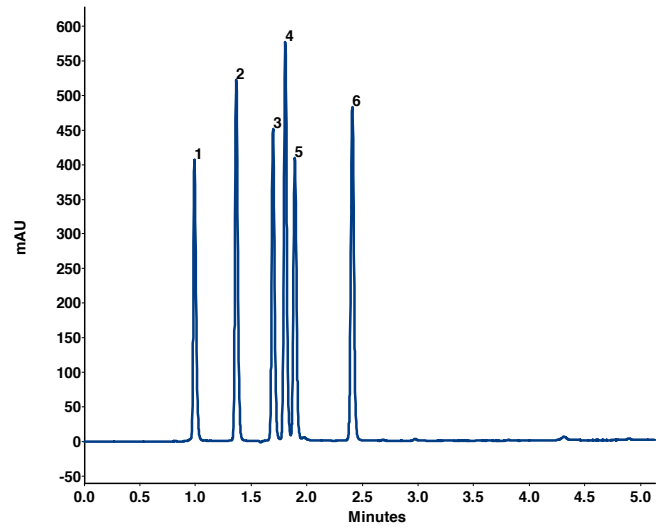
Column: Bluespher C18 A 100 x 2 mm  
 Mobile phase: A: 0.2 g  $\text{NaH}_2\text{PO}_4$ ; pH 4  
 B: ACN  
 Gradient: 0–1.8 min 8% B  
 1.8–3.2 min 8%–40% B  
 8–12 min 25%–40% B  
 3.2–5 min 40% B  
 Flow rate: 1 ml/min  
 Temperature: 50 °C  
 Detection: UV 265 nm  
 Inj. volume: 2 µl

## Steroids

Eurospher II 100-3 C18 150x3 mm

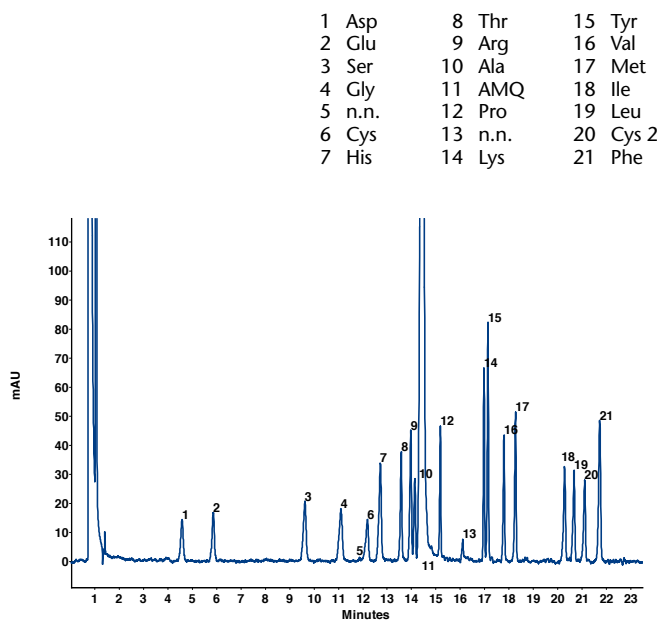


Bluespher 100-2 C18 100x2 mm

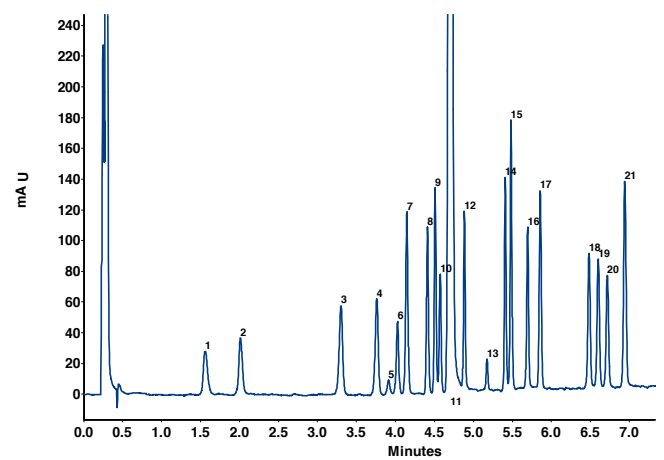


## Amino acids (derivatized with AQC)

Eurospher II 100-3 C18 150x3 mm



Bluespher 100-2 C18 100x2 mm



## Ordering information

Order no.	<b>Bluespher C18 P</b>
05BE182BSF	Bluespher C18 P, 2.0 µm, 50 x 2 mm ID
10BE182BSF	Bluespher C18 P, 2.0 µm, 100 x 2 mm ID
Order no.	<b>Bluespher C18 H</b>
05BE185BSF	Bluespher C18 H, 2.0 µm, 50 x 2 mm ID
10BE185BSF	Bluespher C18 H, 2.0 µm, 100 x 2 mm ID
Order no.	<b>Bluespher C18</b>
05BE181BSF	Bluespher C18, 2.0 µm, 50 x 2 mm ID
10BE181BSF	Bluespher C18, 2.0 µm, 100 x 2 mm ID
Order no.	<b>Bluespher C18 A</b>
05BE184BSF	Bluespher C18 A, 2.0 µm, 50 x 2 mm ID
10BE184BSF	Bluespher C18 A, 2.0 µm, 100 x 2 mm ID
Order no.	<b>Bluespher Phenyl</b>
05BE050BSF	Bluespher Phenyl, 2.0 µm, 50 x 2 mm ID
10BE050BSF	Bluespher Phenyl, 2.0 µm, 100 x 2 mm ID
Order no.	<b>Bluespher C8</b>
05BE081BSF	Bluespher C8, 2.0 µm, 50 x 2 mm ID
10BE081BSF	Bluespher C8, 2.0 µm, 100 x 2 mm ID
Order no.	<b>Bluespher Si</b>
05BE000BSF	Bluespher Si, 2.0 µm, 50 x 2 mm ID
10BE000BSF	Bluespher Si, 2.0 µm, 100 x 2 mm ID
Order no.	<b>Bluespher RP Method Development Kit</b>
A66050BS	Bluespher C18, 2.0 µm, 50 x 2 mm ID
	Bluespher C18 A, 2.0 µm, 50 x 2 mm ID
	Bluespher C8, 2.0 µm, 50 x 2 mm ID
A66100BS	Bluespher C18, 2.0 µm, 100 x 2 mm ID
	Bluespher C18 A, 2.0 µm, 100 x 2 mm ID
	Bluespher C8, 2.0 µm, 100 x 2 mm ID

Technical data are subject to change without notice.



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