KNAUER

Euroline

► Eurospher I

Eurospher I – the HPLC columns for every day

Eurospher I is a silica-based HPLC packing material for a wide range of analytical, semi-preparative and process scale separations. It is ideally suited for high resolution normal phase and reversed phase chromatography. With more than 20 years on the market, the Eurospher stationary phase has earned a reputation as a stable and reliable partner for daily separation tasks.

Eurospher I silica features an outstanding mechanical stability, a high available surface area and a narrow particle size distribution. These properties give Eurospher a long lifetime and high loading capacity.

Available in many different modifications and column sizes, Eurospher I columns adapt easily to your application and truly strike a balance between efficiency, price and performance.

Physical properties of Eurospher I stationary phase:

Silica gel:	**2nd generation**
Particle size:	**3 µm, 5 µm, 10 µm, 15 µm**
Particle shape:	**spherical**
Pore size:	**100 Å**
Specific surface:	**350 m^2/g**
Pore volume:	**0.9 ml/g**

Column hardware

We design and manufacture HPLC vertex plus column hardware ranging from 2 mm ID to 62 mm ID under strict quality control. A special treated inner surface ensures consistent column packing and high column stability. A wide range of column lengths from 5 mm up to 300 mm are available. The easily exchangeable integrated precolumn for analytical columns is available upon request.

Modifications

The Eurospher I stationary phase is available in 7 different surface modifications for a wide range of applications, including reversed phase and normal phase applications. Every Eurospher I modification offers high chemical stability and loading capacity. Our long experience and knowledge in producing HPLC columns ensures you of the highest reproducibility. Every modification must pass extensive quality control procedures, guaranteeing the best batch to batch reproducibility.

Modification	USP code	% carbon	pH range
C18	L1	16 % (~ 50 % endcapping)	2–8
C8	L7	10 % (~ 50 % endcapping)	2–8
C4	L26	7 % (~ 50 % endcapping)	2–8
NH_2	L8	4 % (no endcapping)	2–8
CN	L10	7 % (no endcapping)	2–8
Diol	L20	5 % (no endcapping)	2–8
Si	L3	0 % (no endcapping)	2–8

Applications

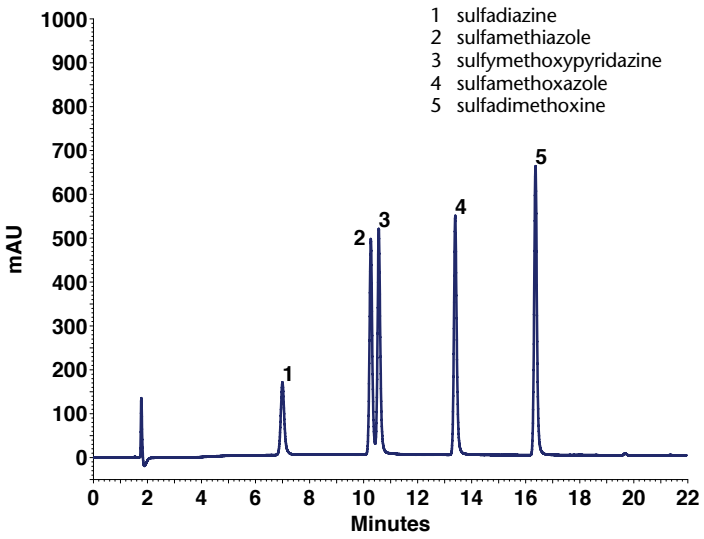
The choice of the appropriate column for a particular application can be a challenging task. With a range of bonded phases offering different selectivity, the Eurospher I family includes columns to meet most separation needs. The table below will help you to choose the best Eurospher I column for a particular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

Phase type	non polar	polar	acidic	basic	chelator	hydroph. retention	shape selectivity
C18	++	++	++	+	++	+	+
C8	++	o	++	+	++	+	+
C4	++	–	o	+	++	o	–
NH_2	++	+	o	o	++	–	–
CN	++	+	o	o	++	–	–
Diol	++	+	o	–	++	–	–
Si	++	+	–	–	o	–	–

++	+	o	–
excellent	good	suitable	not recommended

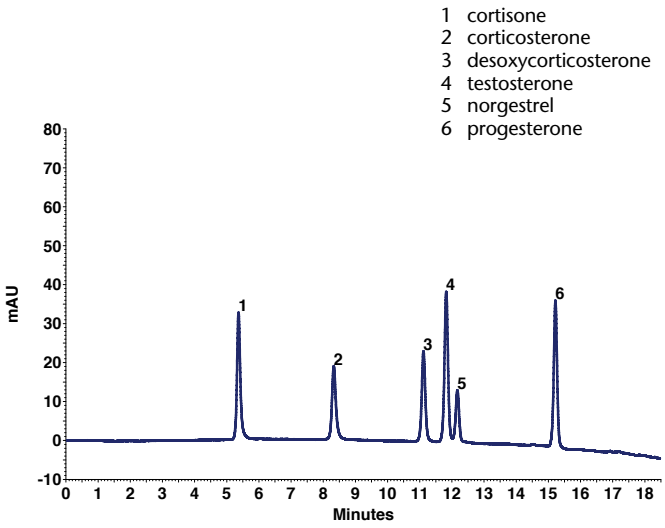
For extreme aqueous applications, we recommend our Eurospher II C18 A material.
If you need columns for LC-MS applications, we recommend our Eurospher II column family.

Separation of sulfa drugs



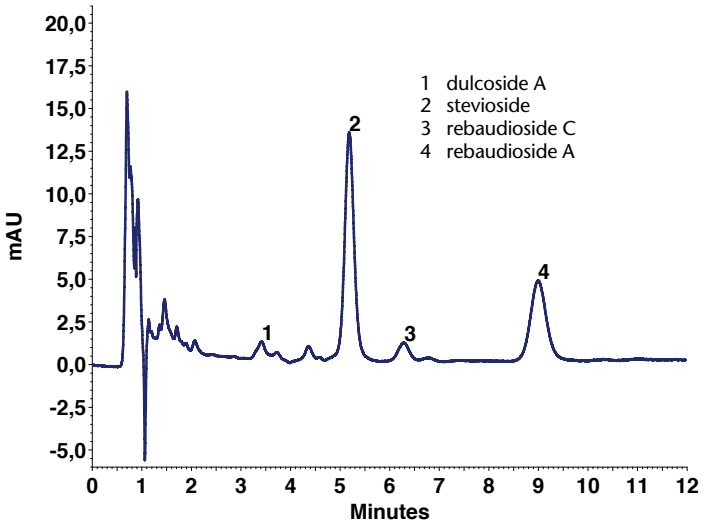
Column:	Eurospher 100-3 C18 150 x 3.0 mm
Mobile phase:	A: 0.2 g NaH_2PO_4 in 1 l H_2O (pH 4 with H_3PO_4) B: ACN
Gradient:	10 % B to 50% B in 20 min
Flow rate:	0.5 ml/min
Temperature:	40 °C
Detection:	UV, 240 nm

Separation of steroids



Column:	Eurospher 100-3 C18 150 x 3.0 mm
Mobile phase:	A: H_2O B: MeOH
Gradient:	50 % B to 95 % B in 19.70 min
Flow rate:	0.6 ml/min
Temperature:	40 °C
Detection:	UV, 240 nm

Separation of steviol glycosides



Column:	Eurospher 100-3 NH_2 150 x 3.0 mm
Mobile phase:	ACN/H_2O 80:20 (v/v), isocratic
Flow rate:	1 ml/min
Temperature:	35 °C
Detection:	UV, 210 nm

Modification type	Application areas	Separation mechanism
C18	for acidic, basic and neutral analytes in reversed phase mode (e.g., sulphonamides; anabolic steroids; anti-psychotics; beta blockers; sudan dyes; phenols, preservatives, etc.)	hydrophobic interaction
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 compared to C18 phase
C4	universal column for different application areas, can also be used in HIC mode (hydrophobic interaction chromatography)	hydrophobic and hydrophilic interaction
CN	for a wide range of applications in normal pase mode as well as reversed phase mode (e.g., steroids, carbohydrates, polar compounds)	hydrophobic and hydrophilic interaction
Diol	alternative to the silica packing with shorter equilibration time and comparable selectivity; due to the lower activity of these columns, they can be also used for SEC (size exclusion chromatography) applications	hydrophilic interaction
NH_2	most flexible phase in the Eurospher II family, can be used in three modes: normal phase, reversed phase and ion chromatography mode (weak anion exchanger); different selectivity to the silica packing; in reversed phase mode mainly used for analysis of carbohydrates	hydrophilic and ionic interaction
Si	wide range of different applications, e.g., SEC but also for normal phase HPLC, good choice for analytical and preparative scale separation of polar compounds	hydrophilic interaction

Ordering information

▶ The last 7 digits of the Order No. comprise the stationary phase.

Eurospher I	3 µm	5 µm	10 µm	15 µm
C18	...E181ESG	...E181ESJ	...E181ESN	...E181ESQ
C8	...E081ESG	...E081ESJ	...E081ESN	...E081ESQ
C4	...E041ESG	...E041ESJ	...E041ESN	...E041ESQ
NH_2	...E190ESG	...E190ESJ	...E190ESN	...E190ESQ
CN	...E200ESG	...E200ESJ	...E200ESN	...E200ESQ
Diol	...E410ESG	...E410ESJ	...E410ESN	...E410ESQ
Si	...E000ESG	...E000ESJ	...E000ESN	...E000ESQ

▶ The first 3 digits of the Order No. comprise the column dimensions.

Analytical columns	2 mm ID	4 mm ID	4.6 mm ID	8 mm ID
5 mm (precolumn)	P5B...	P5D...	P5D...*	n.a.
30 mm length	03B...	03D...	03E...	03G...
50 mm length	05B...	05D...	05E...	n.a.
100 mm length	10B...	10D...	10E...	n.a.
125 mm length	12B...	12D...	12E...	n.a.
150 mm length	15B...	15D...	15E...	n.a.
250 mm length	25B...	25D...	25E...	25G...
300 mm length	n.a.	30D...	n.a.	30G...

*identical to 4 mm precolumn

3 mm ID columns upon request.

All analytical column types from 2 mm ID up to 4.6 mm ID are available with integrated precolumn. Preparative columns are available in the range of 16 mm ID up to 62 mm ID.

Technical data are subject to change without notice.

Visit www.knauer.net for details on complete HPLC systems, HPLC columns, and osmometers.

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