

*Kromasil product catalogue*



# Kromasil®

*The way to peak performance  
in liquid chromatography*



*Kromasil is offered in a wide assortment of columns and in bulk amounts from parts of kilograms to metric tons.*

*Kromasil HPLC silica consists of perfectly spherical, totally porous particles, designed to meet your highest demands in HPLC, SFC and SMB separations.*

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*The same high performance in all column sizes, from analytical to preparative scale.*

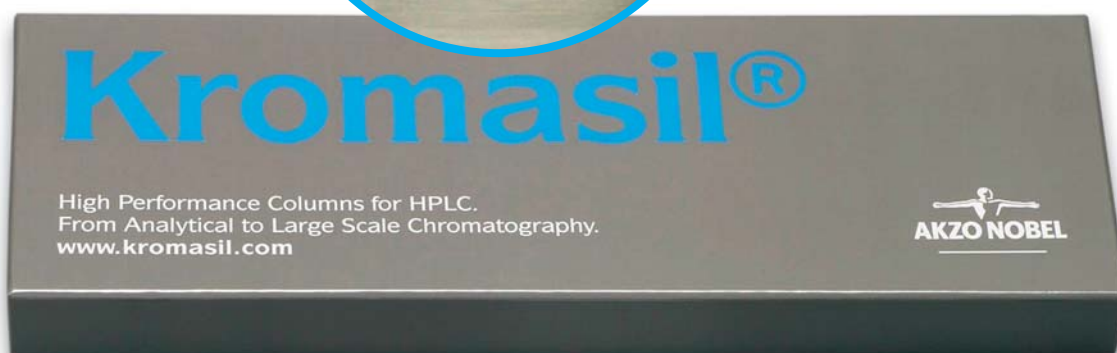
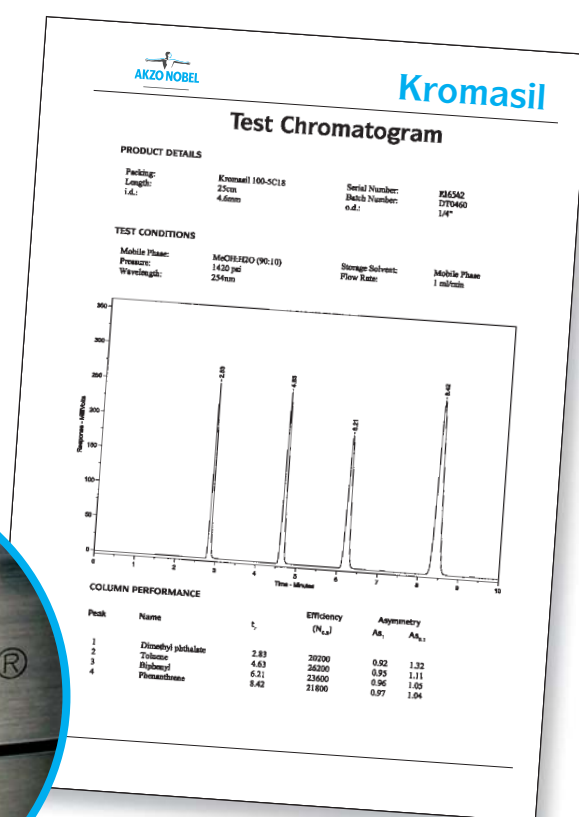
# High performance Kromasil columns

All Kromasil phases are manufactured in-house. It stands for the silica matrix as well as the subsequent derivatization steps. Since we are in control of the whole manufacturing process, including packing of columns, our column to column reproducibility is extremely high. In all our products we aim for an optimised surface coverage in order to generate products with highest possible chemical stability. For Kromasil 100Å reversed phases the pH stability is in the range of pH 1.5 to pH 10.

## Kromasil original columns

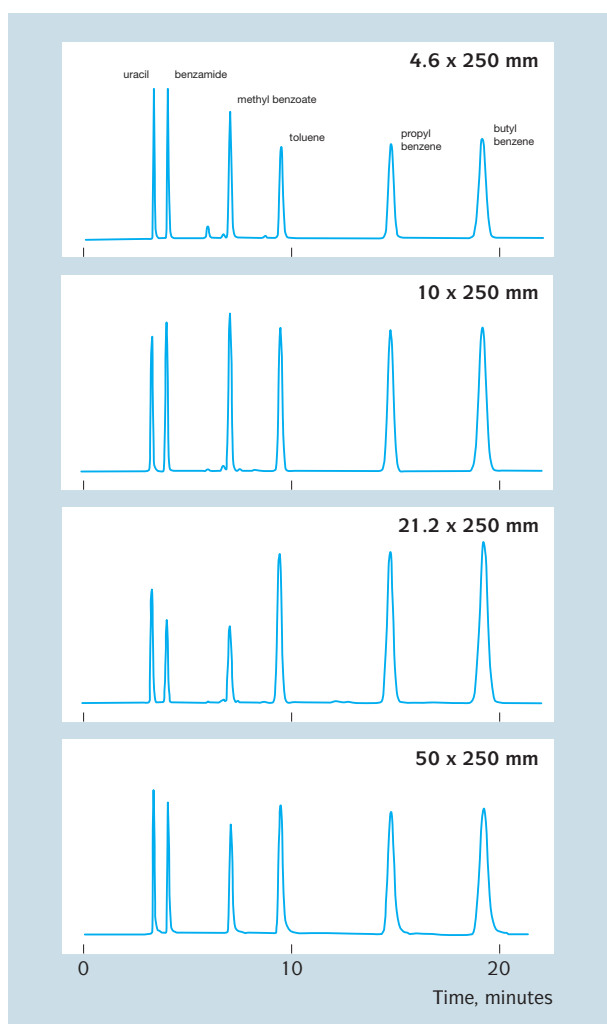
The Kromasil logo is etched onto our standard assortment of columns. The etched logo proves that you have purchased an original Kromasil packed column. It is also a quality mark for highest performance of slurry packed columns. Each column is individually packed and tested according to our rigorous QC program. As an extra safety precaution, every Kromasil column box is factory sealed.

*The Kromasil logo – etched onto the standard column assortment – is your guarantee for high performance.*



## The same high performance in all column sizes

Kromasil guarantees high performance from analytical to preparative scale columns. Kromasil is mechanically stable up to 10,000 psi, making it possible to slurry pack at very high pressures, giving extremely stable column beds. All our columns have a guaranteed minimum efficiency, the same for all column sizes, which facilitates the scale up.



*Kromasil gives consistent separation at different column i.d. which facilitates scale-up.*

Conditions, all: Packing: KR100-10-C8 · Linear velocity: 0.7 mm/s  
Mobile phase: Acetonitrile/Water (70/30)

Flow rates: i.d. 4.6 mm: 0.7 ml/min. · i.d. 10 mm: 3.3 ml/min.  
i.d. 21.2 mm: 15 ml/min. · i.d. 50 mm: 82 ml/min. ·

Particle size	Min. number of plates/m
3.5 $\mu\text{m}$	130 000
5 $\mu\text{m}$	80 000
7 $\mu\text{m}$	60 000
10 $\mu\text{m}$	40 000
13 $\mu\text{m}$	30 000
16 $\mu\text{m}$	25 000

*Kromasil guarantees a minimum efficiency for all column sizes.*

## Kromasil guard cartridges

Kromasil offers very high mechanical and chemical stability, which gives top market column lifetime. By placing a guard cartridge between column and injection valve, it is possible to trap potential damaging contaminants on the disposable cartridge. Using guard cartridges significantly extends the column lifetime without decreasing performance or selectivity. All our guard cartridges are packed with the same silica or derivatized phase as used in the protected HPLC column.

## Ordering columns

**Product codes** are given in the tables of this catalogue. We have listed items that we believe may be the most interesting to you. Although, other column combinations not listed may be packed on request. Just follow the code system to describe your request.

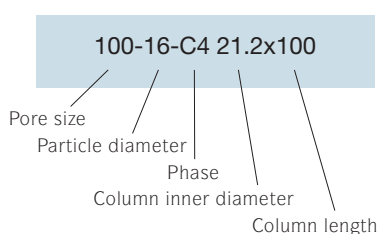
### Code elements

- Silica pore size\*: 60, 100 or 300 Å
- Silica particle diameter\*: 3, 3.5, 5, 7, 10, 13, 16 or 25 µm
- Phases\*: SIL, CN, C4, C8, C18, NH<sub>2</sub>, Diol, Phenyl, DMB or TBB, AmyCoat and CelluCoat
- Column inner diameter (mm)
- Column length (mm)
- AmyCoat and CelluCoat: omit silica pore size when ordering.

\*) Combinations restricted to existing media.

See availability in the media part of this catalogue (p. 22 – 26).

Code example for Kromasil 100 Å, 16 µm particle diameter, C4 phase in a 21.2 x 100 mm column:



### Order by fax or phone

World wide (apart from NAFTA countries):

Telephone: +46 31 58 73 60

Fax: +46 31 58 77 27

For NAFTA countries:

Telephone: +1 845 276 8223

Fax: +1 845 277 1406

### Order by e-mail

[kromasil@eka.com](mailto:kromasil@eka.com)

### Find your local distributor online

[www.kromasil.com/columns](http://www.kromasil.com/columns)

## Ordering guard cartridges

Just add “x guard” after the column inner diameter, and we will ensure that you will get a guard cartridge of the right size, packed with the correct Kromasil phase.

For example: a guard cartridge for the column 100-16-C4 21.2x100 will have the following ordering number:

**100-16-C4 21.2 x guard**

## Columns for analysis (3.5 and 5 µm)

## ■ Micro bore 2.1 mm i.d.



Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm
60 Å	SIL	5 µm	60-5-SIL 2.1x50	60-5-SIL 2.1x100	60-5-SIL 2.1x150	60-5-SIL 2.1x250
	CN	5 µm	60-5-CN 2.1x50	60-5-CN 2.1x100	60-5-CN 2.1x150	60-5-CN 2.1x250
	Diol	5 µm	60-5-Diol 2.1x50	60-5-Diol 2.1x100	60-5-Diol 2.1x150	60-5-Diol 2.1x250
100 Å	SIL	3.5 µm	100-3.5-SIL 2.1x50	100-3.5-SIL 2.1x100	100-3.5-SIL 2.1x150	100-3.5-SIL 2.1x250
		5 µm	100-5-SIL 2.1x50	100-5-SIL 2.1x100	100-5-SIL 2.1x150	100-5-SIL 2.1x250
	C4	3.5 µm	100-3.5-C4 2.1x50	100-3.5-C4 2.1x100	100-3.5-C4 2.1x150	100-3.5-C4 2.1x250
		5 µm	100-5-C4 2.1x50	100-5-C4 2.1x100	100-5-C4 2.1x150	100-5-C4 2.1x250
	C8	3.5 µm	100-3.5-C8 2.1x50	100-3.5-C8 2.1x100	100-3.5-C8 2.1x150	100-3.5-C8 2.1x250
		5 µm	100-5-C8 2.1x50	100-5-C8 2.1x100	100-5-C8 2.1x150	100-5-C8 2.1x250
	C18	3.5 µm	100-3.5-C18 2.1x50	100-3.5-C18 2.1x100	100-3.5-C18 2.1x150	100-3.5-C18 2.1x250
		5 µm	100-5-C18 2.1x50	100-5-C18 2.1x100	100-5-C18 2.1x150	100-5-C18 2.1x250
	NH2	3.5 µm	100-3.5-NH2 2.1x50	100-3.5-NH2 2.1x100	100-3.5-NH2 2.1x150	100-3.5-NH2 2.1x250
		5 µm	100-5-NH2 2.1x50	100-5-NH2 2.1x100	100-5-NH2 2.1x150	100-5-NH2 2.1x250
	Phenyl	5 µm	100-5-Phenyl 2.1x50	100-5-Phenyl 2.1x100	100-5-Phenyl 2.1x150	100-5-Phenyl 2.1x250
	300 Å	SIL	5 µm	300-5-SIL 2.1x50	300-5-SIL 2.1x100	300-5-SIL 2.1x150
C4		5 µm	300-5-C4 2.1x50	300-5-C4 2.1x100	300-5-C4 2.1x150	300-5-C4 2.1x250
C8		5 µm	300-5-C8 2.1x50	300-5-C8 2.1x100	300-5-C8 2.1x150	300-5-C8 2.1x250
C18		5 µm	300-5-C18 2.1x50	300-5-C18 2.1x100	300-5-C18 2.1x150	300-5-C18 2.1x250

## Columns for analysis (3.5 and 5 µm)

## ■ Analytical 4.6 mm i.d.



Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm
60 Å	SIL	5 µm	60-5-SIL 4.6x50	60-5-SIL 4.6x100	60-5-SIL 4.6x150	60-5-SIL 4.6x250
	CN	5 µm	60-5-CN 4.6x50	60-5-CN 4.6x100	60-5-CN 4.6x150	60-5-CN 4.6x250
	Diol	5 µm	60-5-Diol 4.6x50	60-5-Diol 4.6x100	60-5-Diol 4.6x150	60-5-Diol 4.6x250
100 Å	SIL	3.5 µm	100-3.5-SIL 4.6x50	100-3.5-SIL 4.6x100	100-3.5-SIL 4.6x150	100-3.5-SIL 4.6x250
		5 µm	100-5-SIL 4.6x50	100-5-SIL 4.6x100	100-5-SIL 4.6x150	100-5-SIL 4.6x250
	C4	3.5 µm	100-3.5-C4 4.6x50	100-3.5-C4 4.6x100	100-3.5-C4 4.6x150	100-3.5-C4 4.6x250
		5 µm	100-5-C4 4.6x50	100-5-C4 4.6x100	100-5-C4 4.6x150	100-5-C4 4.6x250
	C8	3.5 µm	100-3.5-C8 4.6x50	100-3.5-C8 4.6x100	100-3.5-C8 4.6x150	100-3.5-C8 4.6x250
		5 µm	100-5-C8 4.6x50	100-5-C8 4.6x100	100-5-C8 4.6x150	100-5-C8 4.6x250
	C18	3.5 µm	100-3.5-C18 4.6x50	100-3.5-C18 4.6x100	100-3.5-C18 4.6x150	100-3.5-C18 4.6x250
		5 µm	100-5-C18 4.6x50	100-5-C18 4.6x100	100-5-C18 4.6x150	100-5-C18 4.6x250
	NH2	3.5 µm	100-3.5-NH2 4.6x50	100-3.5-NH2 4.6x100	100-3.5-NH2 4.6x150	100-3.5-NH2 4.6x250
		5 µm	100-5-NH2 4.6x50	100-5-NH2 4.6x100	100-5-NH2 4.6x150	100-5-NH2 4.6x250
	Phenyl	5 µm	100-5-Phenyl 4.6x50	100-5-Phenyl 4.6x100	100-5-Phenyl 4.6x150	100-5-Phenyl 4.6x250

The table continues on next page ►

**Guard cartridges:** We have guard cartridges for all columns. For ordering: just add "x guard" after the column inner diameter, e.g. "100-16-C4 21.2 x guard"

## Columns for analysis (3.5 and 5 µm) – analytical 4.6 mm i.d., cont.

Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm
300 Å	SIL	5 µm	300-5-SIL 4.6x50	300-5-SIL 4.6x100	300-5-SIL 4.6x150	300-5-SIL 4.6x250
	C4	5 µm	300-5-C4 4.6x50	300-5-C4 4.6x100	300-5-C4 4.6x150	300-5-C4 4.6x250
	C8	5 µm	300-5-C8 4.6x50	300-5-C8 4.6x100	300-5-C8 4.6x150	300-5-C8 4.6x250
	C18	5 µm	300-5-C18 4.6x50	300-5-C18 4.6x100	300-5-C18 4.6x150	300-5-C18 4.6x250

## Columns for scale up work (7, 10, 13 and 16 µm)

### ■ 4.6 mm i.d.



Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm	
60 Å	SIL	7 µm	60-7-SIL 4.6x50	60-7-SIL 4.6x100	60-7-SIL 4.6x150	60-7-SIL 4.6x250	
		10 µm	60-10-SIL 4.6x50	60-10-SIL 4.6x100	60-10-SIL 4.6x150	60-10-SIL 4.6x250	
		13 µm	60-13-SIL 4.6x50	60-13-SIL 4.6x100	60-13-SIL 4.6x150	60-13-SIL 4.6x250	
		16 µm	60-16-SIL 4.6x50	60-16-SIL 4.6x100	60-16-SIL 4.6x150	60-16-SIL 4.6x250	
	CN	10 µm	60-10-CN 4.6x50	60-10-CN 4.6x100	60-10-CN 4.6x150	60-10-CN 4.6x250	
		16 µm	60-16-CN 4.6x50	60-16-CN 4.6x100	60-16-CN 4.6x150	60-16-CN 4.6x250	
	Diol	10 µm	60-10-Diol 4.6x50	60-10-Diol 4.6x100	60-10-Diol 4.6x150	60-10-Diol 4.6x250	
	100 Å	SIL	7 µm	100-7-SIL 4.6x50	100-7-SIL 4.6x100	100-7-SIL 4.6x150	100-7-SIL 4.6x250
			10 µm	100-10-SIL 4.6x50	100-10-SIL 4.6x100	100-10-SIL 4.6x150	100-10-SIL 4.6x250
			13 µm	100-13-SIL 4.6x50	100-13-SIL 4.6x100	100-13-SIL 4.6x150	100-13-SIL 4.6x250
16 µm			100-16-SIL 4.6x50	100-16-SIL 4.6x100	100-16-SIL 4.6x150	100-16-SIL 4.6x250	
C4		7 µm	100-7-C4 4.6x50	100-7-C4 4.6x100	100-7-C4 4.6x150	100-7-C4 4.6x250	
		10 µm	100-10-C4 4.6x50	100-10-C4 4.6x100	100-10-C4 4.6x150	100-10-C4 4.6x250	
		13 µm	100-13-C4 4.6x50	100-13-C4 4.6x100	100-13-C4 4.6x150	100-13-C4 4.6x250	
		16 µm	100-16-C4 4.6x50	100-16-C4 4.6x100	100-16-C4 4.6x150	100-16-C4 4.6x250	
C8		7 µm	100-7-C8 4.6x50	100-7-C8 4.6x100	100-7-C8 4.6x150	100-7-C8 4.6x250	
		10 µm	100-10-C8 4.6x50	100-10-C8 4.6x100	100-10-C8 4.6x150	100-10-C8 4.6x250	
		13 µm	100-13-C8 4.6x50	100-13-C8 4.6x100	100-13-C8 4.6x150	100-13-C8 4.6x250	
		16 µm	100-16-C8 4.6x50	100-16-C8 4.6x100	100-16-C8 4.6x150	100-16-C8 4.6x250	
C18		7 µm	100-7-C18 4.6x50	100-7-C18 4.6x100	100-7-C18 4.6x150	100-7-C18 4.6x250	
		10 µm	100-10-C18 4.6x50	100-10-C18 4.6x100	100-10-C18 4.6x150	100-10-C18 4.6x250	
		13 µm	100-13-C18 4.6x50	100-13-C18 4.6x100	100-13-C18 4.6x150	100-13-C18 4.6x250	
		16 µm	100-16-C18 4.6x50	100-16-C18 4.6x100	100-16-C18 4.6x150	100-16-C18 4.6x250	
NH2		7 µm	100-7-NH2 4.6x50	100-7-NH2 4.6x100	100-7-NH2 4.6x150	100-7-NH2 4.6x250	
		10 µm	100-10-NH2 4.6x50	100-10-NH2 4.6x100	100-10-NH2 4.6x150	100-10-NH2 4.6x250	
		13 µm	100-13-NH2 4.6x50	100-13-NH2 4.6x100	100-13-NH2 4.6x150	100-13-NH2 4.6x250	
		16 µm	100-16-NH2 4.6x50	100-16-NH2 4.6x100	100-16-NH2 4.6x150	100-16-NH2 4.6x250	
Phenyl		10 µm	100-10-Phenyl 4.6x50	100-10-Phenyl 4.6x100	100-10-Phenyl 4.6x150	100-10-Phenyl 4.6x250	
		16 µm	100-16-Phenyl 4.6x50	100-16-Phenyl 4.6x100	100-16-Phenyl 4.6x150	100-16-Phenyl 4.6x250	
300 Å		SIL	10 µm	300-10-SIL 4.6x50	300-10-SIL 4.6x100	300-10-SIL 4.6x150	300-10-SIL 4.6x250
			16 µm	300-16-SIL 4.6x50	300-16-SIL 4.6x100	300-16-SIL 4.6x150	300-16-SIL 4.6x250
		C4	10 µm	300-10-C4 4.6x50	300-10-C4 4.6x100	300-10-C4 4.6x150	300-10-C4 4.6x250
			16 µm	300-16-C4 4.6x50	300-16-C4 4.6x100	300-16-C4 4.6x150	300-16-C4 4.6x250
		C8	10 µm	300-10-C8 4.6x50	300-10-C8 4.6x100	300-10-C8 4.6x150	300-10-C8 4.6x250
			16 µm	300-16-C8 4.6x50	300-16-C8 4.6x100	300-16-C8 4.6x150	300-16-C8 4.6x250
		C18	10 µm	300-10-C18 4.6x50	300-10-C18 4.6x100	300-10-C18 4.6x150	300-10-C18 4.6x250
			16 µm	300-16-C18 4.6x50	300-16-C18 4.6x100	300-16-C18 4.6x150	300-16-C18 4.6x250

## Columns for semi preparative work (5, 7, 10, 13 and 16 $\mu\text{m}$ ) ■ 10 mm i.d.



Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm	
60 Å	SIL	5 $\mu\text{m}$	60-5-SIL 10x50	60-5-SIL 10x100	60-5-SIL 10x150	60-5-SIL 10x250	
		7 $\mu\text{m}$	60-7-SIL 10x50	60-7-SIL 10x100	60-7-SIL 10x150	60-7-SIL 10x250	
		10 $\mu\text{m}$	60-10-SIL 10x50	60-10-SIL 10x100	60-10-SIL 10x150	60-10-SIL 10x250	
		13 $\mu\text{m}$	60-13-SIL 10x50	60-13-SIL 10x100	60-13-SIL 10x150	60-13-SIL 10x250	
		16 $\mu\text{m}$	60-16-SIL 10x50	60-16-SIL 10x100	60-16-SIL 10x150	60-16-SIL 10x250	
	CN	5 $\mu\text{m}$	60-5-CN 10x50	60-5-CN 10x100	60-5-CN 10x150	60-5-CN 10x250	
		10 $\mu\text{m}$	60-10-CN 10x50	60-10-CN 10x100	60-10-CN 10x150	60-10-CN 10x250	
		16 $\mu\text{m}$	60-16-CN 10x50	60-16-CN 10x100	60-16-CN 10x150	60-16-CN 10x250	
	Diol	5 $\mu\text{m}$	60-5-Diol 10x50	60-5-Diol 10x100	60-5-Diol 10x150	60-5-Diol 10x250	
		10 $\mu\text{m}$	60-10-Diol 10x50	60-10-Diol 10x100	60-10-Diol 10x150	60-10-Diol 10x250	
	100 Å	SIL	5 $\mu\text{m}$	100-5-SIL 10x50	100-5-SIL 10x100	100-5-SIL 10x150	100-5-SIL 10x250
			7 $\mu\text{m}$	100-7-SIL 10x50	100-7-SIL 10x100	100-7-SIL 10x150	100-7-SIL 10x250
			10 $\mu\text{m}$	100-10-SIL 10x50	100-10-SIL 10x100	100-10-SIL 10x150	100-10-SIL 10x250
			13 $\mu\text{m}$	100-13-SIL 10x50	100-13-SIL 10x100	100-13-SIL 10x150	100-13-SIL 10x250
			16 $\mu\text{m}$	100-16-SIL 10x50	100-16-SIL 10x100	100-16-SIL 10x150	100-16-SIL 10x250
C4		5 $\mu\text{m}$	100-5-C4 10x50	100-5-C4 10x100	100-5-C4 10x150	100-5-C4 10x250	
		7 $\mu\text{m}$	100-7-C4 10x50	100-7-C4 10x100	100-7-C4 10x150	100-7-C4 10x250	
		10 $\mu\text{m}$	100-10-C4 10x50	100-10-C4 10x100	100-10-C4 10x150	100-10-C4 10x250	
		13 $\mu\text{m}$	100-13-C4 10x50	100-13-C4 10x100	100-13-C4 10x150	100-13-C4 10x250	
		16 $\mu\text{m}$	100-16-C4 10x50	100-16-C4 10x100	100-16-C4 10x150	100-16-C4 10x250	
C8		5 $\mu\text{m}$	100-5-C8 10x50	100-5-C8 10x100	100-5-C8 10x150	100-5-C8 10x250	
		7 $\mu\text{m}$	100-7-C8 10x50	100-7-C8 10x100	100-7-C8 10x150	100-7-C8 10x250	
		10 $\mu\text{m}$	100-10-C8 10x50	100-10-C8 10x100	100-10-C8 10x150	100-10-C8 10x250	
		13 $\mu\text{m}$	100-13-C8 10x50	100-13-C8 10x100	100-13-C8 10x150	100-13-C8 10x250	
		16 $\mu\text{m}$	100-16-C8 10x50	100-16-C8 10x100	100-16-C8 10x150	100-16-C8 10x250	
C18		5 $\mu\text{m}$	100-5-C18 10x50	100-5-C18 10x100	100-5-C18 10x150	100-5-C18 10x250	
		7 $\mu\text{m}$	100-7-C18 10x50	100-7-C18 10x100	100-7-C18 10x150	100-7-C18 10x250	
		10 $\mu\text{m}$	100-10-C18 10x50	100-10-C18 10x100	100-10-C18 10x150	100-10-C18 10x250	
		13 $\mu\text{m}$	100-13-C18 10x50	100-13-C18 10x100	100-13-C18 10x150	100-13-C18 10x250	
		16 $\mu\text{m}$	100-16-C18 10x50	100-16-C18 10x100	100-16-C18 10x150	100-16-C18 10x250	
NH2		5 $\mu\text{m}$	100-5-NH2 10x50	100-5-NH2 10x100	100-5-NH2 10x150	100-5-NH2 10x250	
		7 $\mu\text{m}$	100-7-NH2 10x50	100-7-NH2 10x100	100-7-NH2 10x150	100-7-NH2 10x250	
		10 $\mu\text{m}$	100-10-NH2 10x50	100-10-NH2 10x100	100-10-NH2 10x150	100-10-NH2 10x250	
		13 $\mu\text{m}$	100-13-NH2 10x50	100-13-NH2 10x100	100-13-NH2 10x150	100-13-NH2 10x250	
		16 $\mu\text{m}$	100-16-NH2 10x50	100-16-NH2 10x100	100-16-NH2 10x150	100-16-NH2 10x250	
Phenyl		5 $\mu\text{m}$	100-5-Phenyl 10x50	100-5-Phenyl 10x100	100-5-Phenyl 10x150	100-5-Phenyl 10x250	
		10 $\mu\text{m}$	100-10-Phenyl 10x50	100-10-Phenyl 10x100	100-10-Phenyl 10x150	100-10-Phenyl 10x250	
		16 $\mu\text{m}$	100-16-Phenyl 10x50	100-16-Phenyl 10x100	100-16-Phenyl 10x150	100-16-Phenyl 10x250	

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## Columns for semi preparative work (5, 7, 10, 13 and 16 µm) – 10 mm i.d., cont.

Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm
300 Å	SIL	5 µm	300-5-SIL 10x50	300-5-SIL 10x100	300-5-SIL 10x150	300-5-SIL 10x250
		10 µm	300-10-SIL 10x50	300-10-SIL 10x100	300-10-SIL 10x150	300-10-SIL 10x250
		16 µm	300-16-SIL 10x50	300-16-SIL 10x100	300-16-SIL 10x150	300-16-SIL 10x250
	C4	5 µm	300-5-C4 10x50	300-5-C4 10x100	300-5-C4 10x150	300-5-C4 10x250
		10 µm	300-10-C4 10x50	300-10-C4 10x100	300-10-C4 10x150	300-10-C4 10x250
		16 µm	300-16-C4 10x50	300-16-C4 10x100	300-16-C4 10x150	300-16-C4 10x250
	C8	5 µm	300-5-C8 10x50	300-5-C8 10x100	300-5-C8 10x150	300-5-C8 10x250
		10 µm	300-10-C8 10x50	300-10-C8 10x100	300-10-C8 10x150	300-10-C8 10x250
		16 µm	300-16-C8 10x50	300-16-C8 10x100	300-16-C8 10x150	300-16-C8 10x250
	C18	5 µm	300-5-C18 10x50	300-5-C18 10x100	300-5-C18 10x150	300-5-C18 10x250
		10 µm	300-10-C18 10x50	300-10-C18 10x100	300-10-C18 10x150	300-10-C18 10x250
		16 µm	300-16-C18 10x50	300-16-C18 10x100	300-16-C18 10x150	300-16-C18 10x250

## Columns for semi preparative work (5, 7, 10, 13 and 16 µm) ■ 21.2 mm i.d.



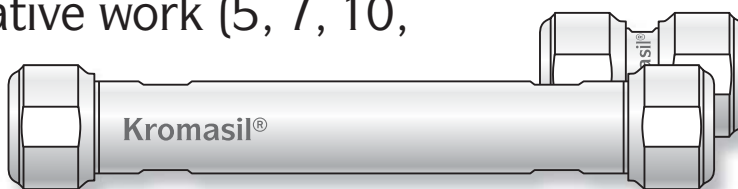
Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm	
60 Å	SIL	5 µm	60-5-SIL 21.2x50	60-5-SIL 21.2x100	60-5-SIL 21.2x150	60-5-SIL 21.2x250	
		7 µm	60-7-SIL 21.2x50	60-7-SIL 21.2x100	60-7-SIL 21.2x150	60-7-SIL 21.2x250	
		10 µm	60-10-SIL 21.2x50	60-10-SIL 21.2x100	60-10-SIL 21.2x150	60-10-SIL 21.2x250	
		13 µm	60-13-SIL 21.2x50	60-13-SIL 21.2x100	60-13-SIL 21.2x150	60-13-SIL 21.2x250	
		16 µm	60-16-SIL 21.2x50	60-16-SIL 21.2x100	60-16-SIL 21.2x150	60-16-SIL 21.2x250	
	CN	5 µm	60-5-CN 21.2x50	60-5-CN 21.2x100	60-5-CN 21.2x150	60-5-CN 21.2x250	
		10 µm	60-10-CN 21.2x50	60-10-CN 21.2x100	60-10-CN 21.2x150	60-10-CN 21.2x250	
		16 µm	60-16-CN 21.2x50	60-16-CN 21.2x100	60-16-CN 21.2x150	60-16-CN 21.2x250	
	Diol	5 µm	60-5-Diol 21.2x50	60-5-Diol 21.2x100	60-5-Diol 21.2x150	60-5-Diol 21.2x250	
		10 µm	60-10-Diol 21.2x50	60-10-Diol 21.2x100	60-10-Diol 21.2x150	60-10-Diol 21.2x250	
	100 Å	SIL	5 µm	100-5-SIL 21.2x50	100-5-SIL 21.2x100	100-5-SIL 21.2x150	100-5-SIL 21.2x250
			7 µm	100-7-SIL 21.2x50	100-7-SIL 21.2x100	100-7-SIL 21.2x150	100-7-SIL 21.2x250
			10 µm	100-10-SIL 21.2x50	100-10-SIL 21.2x100	100-10-SIL 21.2x150	100-10-SIL 21.2x250
			13 µm	100-13-SIL 21.2x50	100-13-SIL 21.2x100	100-13-SIL 21.2x150	100-13-SIL 21.2x250
			16 µm	100-16-SIL 21.2x50	100-16-SIL 21.2x100	100-16-SIL 21.2x150	100-16-SIL 21.2x250
C4			5 µm	100-5-C4 21.2x50	100-5-C4 21.2x100	100-5-C4 21.2x150	100-5-C4 21.2x250
		7 µm	100-7-C4 21.2x50	100-7-C4 21.2x100	100-7-C4 21.2x150	100-7-C4 21.2x250	
		10 µm	100-10-C4 21.2x50	100-10-C4 21.2x100	100-10-C4 21.2x150	100-10-C4 21.2x250	
		13 µm	100-13-C4 21.2x50	100-13-C4 21.2x100	100-13-C4 21.2x150	100-13-C4 21.2x250	
		16 µm	100-16-C4 21.2x50	100-16-C4 21.2x100	100-16-C4 21.2x150	100-16-C4 21.2x250	
		C8	5 µm	100-5-C8 21.2x50	100-5-C8 21.2x100	100-5-C8 21.2x150	100-5-C8 21.2x250
7 µm			100-7-C8 21.2x50	100-7-C8 21.2x100	100-7-C8 21.2x150	100-7-C8 21.2x250	
10 µm			100-10-C8 21.2x50	100-10-C8 21.2x100	100-10-C8 21.2x150	100-10-C8 21.2x250	
13 µm			100-13-C8 21.2x50	100-13-C8 21.2x100	100-13-C8 21.2x150	100-13-C8 21.2x250	
16 µm			100-16-C8 21.2x50	100-16-C8 21.2x100	100-16-C8 21.2x150	100-16-C8 21.2x250	

The table continues on next page ►

**Guard cartridges:** We have guard cartridges for all columns. For ordering: just add "x guard" after the column inner diameter, e.g. "100-16-C4 21.2 x guard"

Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm	
100 Å	C18	5 µm	100-5-C18 21.2x50	100-5-C18 21.2x100	100-5-C18 21.2x150	100-5-C18 21.2x250	
		7 µm	100-7-C18 21.2x50	100-7-C18 21.2x100	100-7-C18 21.2x150	100-7-C18 21.2x250	
		10 µm	100-10-C18 21.2x50	100-10-C18 21.2x100	100-10-C18 21.2x150	100-10-C18 21.2x250	
		13 µm	100-13-C18 21.2x50	100-13-C18 21.2x100	100-13-C18 21.2x150	100-13-C18 21.2x250	
		16 µm	100-16-C18 21.2x50	100-16-C18 21.2x100	100-16-C18 21.2x150	100-16-C18 21.2x250	
	NH2	5 µm	100-5-NH2 21.2x50	100-5-NH2 21.2x100	100-5-NH2 21.2x150	100-5-NH2 21.2x250	
		7 µm	100-7-NH2 21.2x50	100-7-NH2 21.2x100	100-7-NH2 21.2x150	100-7-NH2 21.2x250	
		10 µm	100-10-NH2 21.2x50	100-10-NH2 21.2x100	100-10-NH2 21.2x150	100-10-NH2 21.2x250	
		13 µm	100-13-NH2 21.2x50	100-13-NH2 21.2x100	100-13-NH2 21.2x150	100-13-NH2 21.2x250	
		16 µm	100-16-NH2 21.2x50	100-16-NH2 21.2x100	100-16-NH2 21.2x150	100-16-NH2 21.2x250	
	Phenyl	5 µm	100-5-Phenyl 21.2x50	100-5-Phenyl 21.2x100	100-5-Phenyl 21.2x150	100-5-Phenyl 21.2x250	
		10 µm	100-10-Phenyl 21.2x50	100-10-Phenyl 21.2x100	100-10-Phenyl 21.2x150	100-10-Phenyl 21.2x250	
		16 µm	100-16-Phenyl 21.2x50	100-16-Phenyl 21.2x100	100-16-Phenyl 21.2x150	100-16-Phenyl 21.2x250	
	300 Å	SIL	5 µm	300-5-SIL 21.2x50	300-5-SIL 21.2x100	300-5-SIL 21.2x150	300-5-SIL 21.2x250
			10 µm	300-10-SIL 21.2x50	300-10-SIL 21.2x100	300-10-SIL 21.2x150	300-10-SIL 21.2x250
16 µm			300-16-SIL 21.2x50	300-16-SIL 21.2x100	300-16-SIL 21.2x150	300-16-SIL 21.2x250	
C4		5 µm	300-5-C4 21.2x50	300-5-C4 21.2x100	300-5-C4 21.2x150	300-5-C4 21.2x250	
		10 µm	300-10-C4 21.2x50	300-10-C4 21.2x100	300-10-C4 21.2x150	300-10-C4 21.2x250	
		16 µm	300-16-C4 21.2x50	300-16-C4 21.2x100	300-16-C4 21.2x150	300-16-C4 21.2x250	
C8		5 µm	300-5-C8 21.2x50	300-5-C8 21.2x100	300-5-C8 21.2x150	300-5-C8 21.2x250	
		10 µm	300-10-C8 21.2x50	300-10-C8 21.2x100	300-10-C8 21.2x150	300-10-C8 21.2x250	
		16 µm	300-16-C8 21.2x50	300-16-C8 21.2x100	300-16-C8 21.2x150	300-16-C8 21.2x250	
C18		5 µm	300-5-C18 21.2x50	300-5-C18 21.2x100	300-5-C18 21.2x150	300-5-C18 21.2x250	
		10 µm	300-10-C18 21.2x50	300-10-C18 21.2x100	300-10-C18 21.2x150	300-10-C18 21.2x250	
		16 µm	300-16-C18 21.2x50	300-16-C18 21.2x100	300-16-C18 21.2x150	300-16-C18 21.2x250	

Columns for semi preparative work (5, 7, 10, 13 and 16 µm)  
**■ 30 mm i.d.**



Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm	
60 Å	SIL	7 µm	60-7-SIL 30x50	60-7-SIL 30x100	60-7-SIL 30x150	60-7-SIL 30x250	
		10 µm	60-10-SIL 30x50	60-10-SIL 30x100	60-10-SIL 30x150	60-10-SIL 30x250	
		13 µm	60-13-SIL 30x50	60-13-SIL 30x100	60-13-SIL 30x150	60-13-SIL 30x250	
		16 µm	60-16-SIL 30x50	60-16-SIL 30x100	60-16-SIL 30x150	60-16-SIL 30x250	
	CN	10 µm	60-10-CN 30x50	60-10-CN 30x100	60-10-CN 30x150	60-10-CN 30x250	
		16 µm	60-16-CN 30x50	60-16-CN 30x100	60-16-CN 30x150	60-16-CN 30x250	
	Diol	10 µm	60-10-Diol 30x50	60-10-Diol 30x100	60-10-Diol 30x150	60-10-Diol 30x250	
	100 Å	SIL	7 µm	100-7-SIL 30x50	100-7-SIL 30x100	100-7-SIL 30x150	100-7-SIL 30x250
			10 µm	100-10-SIL 30x50	100-10-SIL 30x100	100-10-SIL 30x150	100-10-SIL 30x250
13 µm			100-13-SIL 30x50	100-13-SIL 30x100	100-13-SIL 30x150	100-13-SIL 30x250	
16 µm			100-16-SIL 30x50	100-16-SIL 30x100	100-16-SIL 30x150	100-16-SIL 30x250	

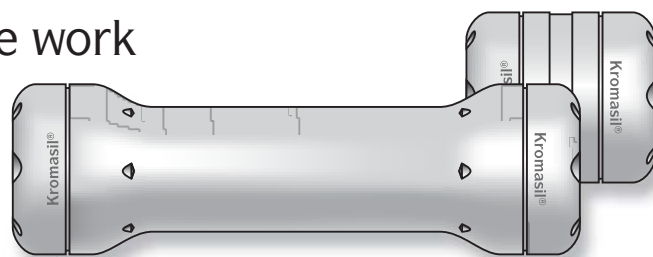
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## Columns for semi preparative work (5, 7, 10, 13 and 16 µm) – 30 mm i.d., cont.

Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm	
100 Å	C4	7 µm	100-7-C4 30x50	100-7-C4 30x100	100-7-C4 30x150	100-7-C4 30x250	
		10 µm	100-10-C4 30x50	100-10-C4 30x100	100-10-C4 30x150	100-10-C4 30x250	
		13 µm	100-13-C4 30x50	100-13-C4 30x100	100-13-C4 30x150	100-13-C4 30x250	
		16 µm	100-16-C4 30x50	100-16-C4 30x100	100-16-C4 30x150	100-16-C4 30x250	
	C8	7 µm	100-7-C8 30x50	100-7-C8 30x100	100-7-C8 30x150	100-7-C8 30x250	
		10 µm	100-10-C8 30x50	100-10-C8 30x100	100-10-C8 30x150	100-10-C8 30x250	
		13 µm	100-13-C8 30x50	100-13-C8 30x100	100-13-C8 30x150	100-13-C8 30x250	
		16 µm	100-16-C8 30x50	100-16-C8 30x100	100-16-C8 30x150	100-16-C8 30x250	
	C18	7 µm	100-7-C18 30x50	100-7-C18 30x100	100-7-C18 30x150	100-7-C18 30x250	
		10 µm	100-10-C18 30x50	100-10-C18 30x100	100-10-C18 30x150	100-10-C18 30x250	
		13 µm	100-13-C18 30x50	100-13-C18 30x100	100-13-C18 30x150	100-13-C18 30x250	
		16 µm	100-16-C18 30x50	100-16-C18 30x100	100-16-C18 30x150	100-16-C18 30x250	
	NH2	7 µm	100-7-NH2 30x50	100-7-NH2 30x100	100-7-NH2 30x150	100-7-NH2 30x250	
		10 µm	100-10-NH2 30x50	100-10-NH2 30x100	100-10-NH2 30x150	100-10-NH2 30x250	
		13 µm	100-13-NH2 30x50	100-13-NH2 30x100	100-13-NH2 30x150	100-13-NH2 30x250	
		16 µm	100-16-NH2 30x50	100-16-NH2 30x100	100-16-NH2 30x150	100-16-NH2 30x250	
	Phenyl	10 µm	100-10-Phenyl 30x50	100-10-Phenyl 30x100	100-10-Phenyl 30x150	100-10-Phenyl 30x250	
		16 µm	100-16-Phenyl 30x50	100-16-Phenyl 30x100	100-16-Phenyl 30x150	100-16-Phenyl 30x250	
	300 Å	SIL	10 µm	300-10-SIL 30x50	300-10-SIL 30x100	300-10-SIL 30x150	300-10-SIL 30x250
			16 µm	300-16-SIL 30x50	300-16-SIL 30x100	300-16-SIL 30x150	300-16-SIL 30x250
C4		10 µm	300-10-C4 30x50	300-10-C4 30x100	300-10-C4 30x150	300-10-C4 30x250	
		16 µm	300-16-C4 30x50	300-16-C4 30x100	300-16-C4 30x150	300-16-C4 30x250	
C8		10 µm	300-10-C8 30x50	300-10-C8 30x100	300-10-C8 30x150	300-10-C8 30x250	
		16 µm	300-16-C8 30x50	300-16-C8 30x100	300-16-C8 30x150	300-16-C8 30x250	
C18		10 µm	300-10-C18 30x50	300-10-C18 30x100	300-10-C18 30x150	300-10-C18 30x250	
		16 µm	300-16-C18 30x50	300-16-C18 30x100	300-16-C18 30x150	300-16-C18 30x250	

**Guard cartridges:** We have guard cartridges for all columns. For ordering: just add "x guard" after the column inner diameter, e.g. "100-16-C4 21.2 x guard"

## Columns for semi preparative work (7, 10, 13 and 16 µm) ■ 50 mm i.d.

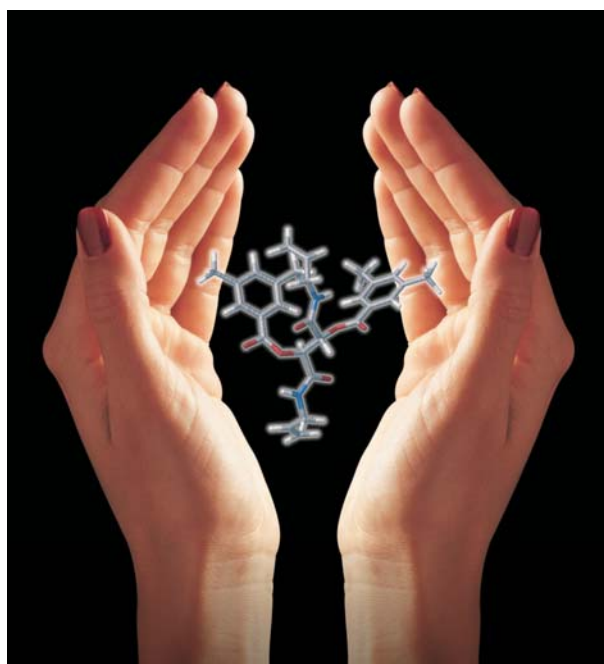


Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm	
60 Å	SIL	7 µm	60-7-SIL 50x50	60-7-SIL 50x100	60-7-SIL 50x150	60-7-SIL 50x250	
		10 µm	60-10-SIL 50x50	60-10-SIL 50x100	60-10-SIL 50x150	60-10-SIL 50x250	
		13 µm	60-13-SIL 50x50	60-13-SIL 50x100	60-13-SIL 50x150	60-13-SIL 50x250	
		16 µm	60-16-SIL 50x50	60-16-SIL 50x100	60-16-SIL 50x150	60-16-SIL 50x250	
	CN	10 µm	60-10-CN 50x50	60-10-CN 50x100	60-10-CN 50x150	60-10-CN 50x250	
		16 µm	60-16-CN 50x50	60-16-CN 50x100	60-16-CN 50x150	60-16-CN 50x250	
	Diol	10 µm	60-10-Diol 50x50	60-10-Diol 50x100	60-10-Diol 50x150	60-10-Diol 50x250	
	100 Å	SIL	7 µm	100-7-SIL 50x50	100-7-SIL 50x100	100-7-SIL 50x150	100-7-SIL 50x250
			10 µm	100-10-SIL 50x50	100-10-SIL 50x100	100-10-SIL 50x150	100-10-SIL 50x250
13 µm			100-13-SIL 50x50	100-13-SIL 50x100	100-13-SIL 50x150	100-13-SIL 50x250	
16 µm			100-16-SIL 50x50	100-16-SIL 50x100	100-16-SIL 50x150	100-16-SIL 50x250	
C4		7 µm	100-7-C4 50x50	100-7-C4 50x100	100-7-C4 50x150	100-7-C4 50x250	
		10 µm	100-10-C4 50x50	100-10-C4 50x100	100-10-C4 50x150	100-10-C4 50x250	
		13 µm	100-13-C4 50x50	100-13-C4 50x100	100-13-C4 50x150	100-13-C4 50x250	
		16 µm	100-16-C4 50x50	100-16-C4 50x100	100-16-C4 50x150	100-16-C4 50x250	
C8		7 µm	100-7-C8 50x50	100-7-C8 50x100	100-7-C8 50x150	100-7-C8 50x250	
		10 µm	100-10-C8 50x50	100-10-C8 50x100	100-10-C8 50x150	100-10-C8 50x250	
		13 µm	100-13-C8 50x50	100-13-C8 50x100	100-13-C8 50x150	100-13-C8 50x250	
		16 µm	100-16-C8 50x50	100-16-C8 50x100	100-16-C8 50x150	100-16-C8 50x250	
C18		7 µm	100-7-C18 50x50	100-7-C18 50x100	100-7-C18 50x150	100-7-C18 50x250	
		10 µm	100-10-C18 50x50	100-10-C18 50x100	100-10-C18 50x150	100-10-C18 50x250	
		13 µm	100-13-C18 50x50	100-13-C18 50x100	100-13-C18 50x150	100-13-C18 50x250	
		16 µm	100-16-C18 50x50	100-16-C18 50x100	100-16-C18 50x150	100-16-C18 50x250	
NH2		7 µm	100-7-NH2 50x50	100-7-NH2 50x100	100-7-NH2 50x150	100-7-NH2 50x250	
		10 µm	100-10-NH2 50x50	100-10-NH2 50x100	100-10-NH2 50x150	100-10-NH2 50x250	
		13 µm	100-13-NH2 50x50	100-13-NH2 50x100	100-13-NH2 50x150	100-13-NH2 50x250	
		16 µm	100-16-NH2 50x50	100-16-NH2 50x100	100-16-NH2 50x150	100-16-NH2 50x250	
Phenyl		10 µm	100-10-Phenyl 50x50	100-10-Phenyl 50x100	100-10-Phenyl 50x150	100-10-Phenyl 50x250	
		16 µm	100-16-Phenyl 50x50	100-16-Phenyl 50x100	100-16-Phenyl 50x150	100-16-Phenyl 50x250	
300 Å		SIL	10 µm	300-10-SIL 50x50	300-10-SIL 50x100	300-10-SIL 50x150	300-10-SIL 50x250
			16 µm	300-16-SIL 50x50	300-16-SIL 50x100	300-16-SIL 50x150	300-16-SIL 50x250
		C4	10 µm	300-10-C4 50x50	300-10-C4 50x100	300-10-C4 50x150	300-10-C4 50x250
			16 µm	300-16-C4 50x50	300-16-C4 50x100	300-16-C4 50x150	300-16-C4 50x250
		C8	10 µm	300-10-C8 50x50	300-10-C8 50x100	300-10-C8 50x150	300-10-C8 50x250
	16 µm		300-16-C8 50x50	300-16-C8 50x100	300-16-C8 50x150	300-16-C8 50x250	
	C18	10 µm	300-10-C18 50x50	300-10-C18 50x100	300-10-C18 50x150	300-10-C18 50x250	
		16 µm	300-16-C18 50x50	300-16-C18 50x100	300-16-C18 50x150	300-16-C18 50x250	

**Guard cartridges:** We have guard cartridges for all columns. For ordering: just add "x guard" after the column inner diameter, e.g. "100-16-C4 21.2 x guard"

# Columns for chiral separations

(3, 5, 10, 16 and 25  $\mu\text{m}$ )



## ■ 2.1 mm i.d.

Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm
100 Å	DMB	5 $\mu\text{m}$	100-5-DMB 2.1x50	100-5-DMB 2.1x100	100-5-DMB 2.1x150	100-5-DMB 2.1x250
	TBB	5 $\mu\text{m}$	100-5-TBB 2.1x50	100-5-TBB 2.1x100	100-5-TBB 2.1x150	100-5-TBB 2.1x250
n.a.	AmyCoat	3 $\mu\text{m}$	3-AmyCoat 2.1x50	—	3-AmyCoat 2.1x150	—
		5 $\mu\text{m}$	5-AmyCoat 2.1x50	—	5-AmyCoat 2.1x150	—
	CelluCoat	3 $\mu\text{m}$	3-CelluCoat 2.1x50	—	3-CelluCoat 2.1x150	—
		5 $\mu\text{m}$	5-CelluCoat 2.1x50	—	5-CelluCoat 2.1x150	—

## ■ 4.6 mm i.d.

Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm
100 Å	DMB	5 $\mu\text{m}$	100-5-DMB 4.6x50	100-5-DMB 4.6x100	100-5-DMB 4.6x150	100-5-DMB 4.6x250
		10 $\mu\text{m}$	100-10-DMB 4.6x50	100-10-DMB 4.6x100	100-10-DMB 4.6x150	100-10-DMB 4.6x250
		16 $\mu\text{m}$	100-16-DMB 4.6x50	100-16-DMB 4.6x100	100-16-DMB 4.6x150	100-16-DMB 4.6x250
	TBB	5 $\mu\text{m}$	100-5-TBB 4.6x50	100-5-TBB 4.6x100	100-5-TBB 4.6x150	100-5-TBB 4.6x250
		10 $\mu\text{m}$	100-10-TBB 4.6x50	100-10-TBB 4.6x100	100-10-TBB 4.6x150	100-10-TBB 4.6x250
		16 $\mu\text{m}$	100-16-TBB 4.6x50	100-16-TBB 4.6x100	100-16-TBB 4.6x150	100-16-TBB 4.6x250
n.a.	AmyCoat	3 $\mu\text{m}$	3-AmyCoat 4.6x50	—	3-AmyCoat 4.6x150	3-AmyCoat 4.6x250
		5 $\mu\text{m}$	5-AmyCoat 4.6x50	—	5-AmyCoat 4.6x150	5-AmyCoat 4.6x250
		10 $\mu\text{m}$	10-AmyCoat 4.6x50	—	10-AmyCoat 4.6x150	10-AmyCoat 4.6x250
		25 $\mu\text{m}$	—	—	25-AmyCoat 4.6x150	25-AmyCoat 4.6x250
	CelluCoat	3 $\mu\text{m}$	3-CelluCoat 4.6x50	—	3-CelluCoat 4.6x150	3-CelluCoat 4.6x250
		5 $\mu\text{m}$	5-CelluCoat 4.6x50	—	5-CelluCoat 4.6x150	5-CelluCoat 4.6x250
		10 $\mu\text{m}$	10-CelluCoat 4.6x50	—	10-CelluCoat 4.6x150	10-CelluCoat 4.6x250
		25 $\mu\text{m}$	—	—	25-CelluCoat 4.6x150	25-CelluCoat 4.6x250
	AmyCoat RP	3 $\mu\text{m}$	3-AmyCoat RP 4.6x50	—	3-AmyCoat RP 4.6x150	—
		10 $\mu\text{m}$	—	—	10-AmyCoat RP 4.6x150	10-AmyCoat RP 4.6x250
	CelluCoat RP	3 $\mu\text{m}$	3-CelluCoat RP 4.6x50	—	3-CelluCoat RP 4.6x150	—
		10 $\mu\text{m}$	—	—	10-CelluCoat RP 4.6x150	10-CelluCoat RP 4.6x250

n.a. = not applicable

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## Columns for chiral separations (3, 5, 10, 16 and 25 µm), cont.

## ■ 10 mm i.d.

Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm
100 Å	DMB	5 µm	100-5-DMB 10x50	100-5-DMB 10x100	100-5-DMB 10x150	100-5-DMB 10x250
		10 µm	100-10-DMB 10x50	100-10-DMB 10x100	100-10-DMB 10x150	100-10-DMB 10x250
		16 µm	100-16-DMB 10x50	100-16-DMB 10x100	100-16-DMB 10x150	100-16-DMB 10x250
	TBB	5 µm	100-5-TBB 10x50	100-5-TBB 10x100	100-5-TBB 10x150	100-5-TBB 10x250
		10 µm	100-10-TBB 10x50	100-10-TBB 10x100	100-10-TBB 10x150	100-10-TBB 10x250
		16 µm	100-16-TBB 10x50	100-16-TBB 10x100	100-16-TBB 10x150	100-16-TBB 10x250
n.a.	AmyCoat	5 µm	—	—	5-AmyCoat 10x150	5-AmyCoat 10x250
		10 µm	—	—	10-AmyCoat 10x150	10-AmyCoat 10x250
		25 µm	—	—	25-AmyCoat 10x150	25-AmyCoat 10x250
	CelluCoat	5 µm	—	—	5-CelluCoat 10x150	5-CelluCoat 10x250
		10 µm	—	—	10-CelluCoat 10x150	10-CelluCoat 10x250
		25 µm	—	—	25-CelluCoat 10x150	25-CelluCoat 10x250

## ■ 21.2 mm i.d.

Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm
100 Å	DMB	5 µm	100-5-DMB 21.2x50	100-5-DMB 21.2x100	100-5-DMB 21.2x150	100-5-DMB 21.2x250
		10 µm	100-10-DMB 21.2x50	100-10-DMB 21.2x100	100-10-DMB 21.2x150	100-10-DMB 21.2x250
		16 µm	100-16-DMB 21.2x50	100-16-DMB 21.2x100	100-16-DMB 21.2x150	100-16-DMB 21.2x250
	TBB	5 µm	100-5-TBB 21.2x50	100-5-TBB 21.2x100	100-5-TBB 21.2x150	100-5-TBB 21.2x250
		10 µm	100-10-TBB 21.2x50	100-10-TBB 21.2x100	100-10-TBB 21.2x150	100-10-TBB 21.2x250
		16 µm	100-16-TBB 21.2x50	100-16-TBB 21.2x100	100-16-TBB 21.2x150	100-16-TBB 21.2x250
n.a.	AmyCoat	5 µm	—	—	5-AmyCoat 21.2x150	5-AmyCoat 21.2x250
		10 µm	—	—	10-AmyCoat 21.2x150	10-AmyCoat 21.2x250
		25 µm	—	—	25-AmyCoat 21.2x150	25-AmyCoat 21.2x250
	CelluCoat	5 µm	—	—	5-CelluCoat 21.2x150	5-CelluCoat 21.2x250
		10 µm	—	—	10-CelluCoat 21.2x150	10-CelluCoat 21.2x250
		25 µm	—	—	25-CelluCoat 21.2x150	25-CelluCoat 21.2x250

## ■ 30 mm i.d.

Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm
100 Å	DMB	5 µm	100-5-DMB 30x50	100-5-DMB 30x100	100-5-DMB 30x150	100-5-DMB 30x250
		10 µm	100-10-DMB 30x50	100-10-DMB 30x100	100-10-DMB 30x150	100-10-DMB 30x250
		16 µm	100-16-DMB 30x50	100-16-DMB 30x100	100-16-DMB 30x150	100-16-DMB 30x250
	TBB	5 µm	100-5-TBB 30x50	100-5-TBB 30x100	100-5-TBB 30x150	100-5-TBB 30x250
		10 µm	100-10-TBB 30x50	100-10-TBB 30x100	100-10-TBB 30x150	100-10-TBB 30x250
		16 µm	100-16-TBB 30x50	100-16-TBB 30x100	100-16-TBB 30x150	100-16-TBB 30x250
n.a.	AmyCoat	5 µm	—	—	5-AmyCoat 30x150	5-AmyCoat 30x250
		10 µm	—	—	10-AmyCoat 30x150	10-AmyCoat 30x250
		25 µm	—	—	25-AmyCoat 30x150	25-AmyCoat 30x250
	CelluCoat	5 µm	—	—	5-CelluCoat 30x150	5-CelluCoat 30x250
		10 µm	—	—	10-CelluCoat 30x150	10-CelluCoat 30x250
		25 µm	—	—	25-CelluCoat 30x150	25-CelluCoat 30x250

n.a. = not applicable

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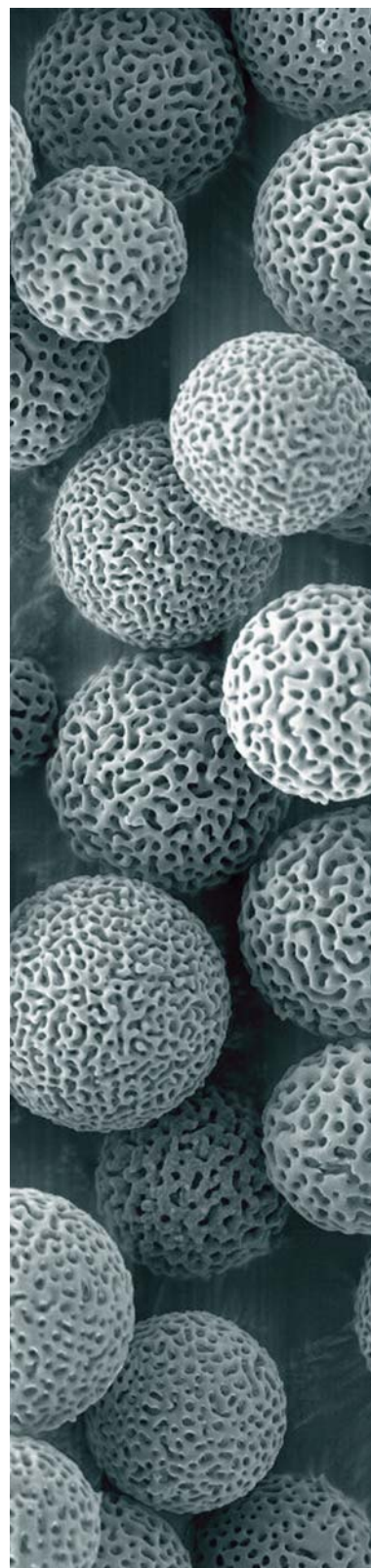
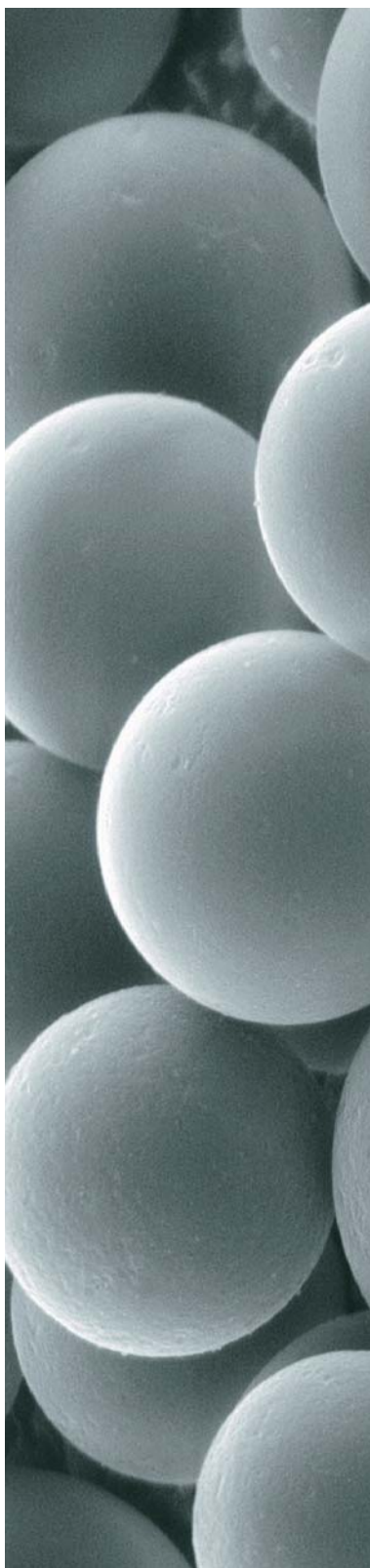
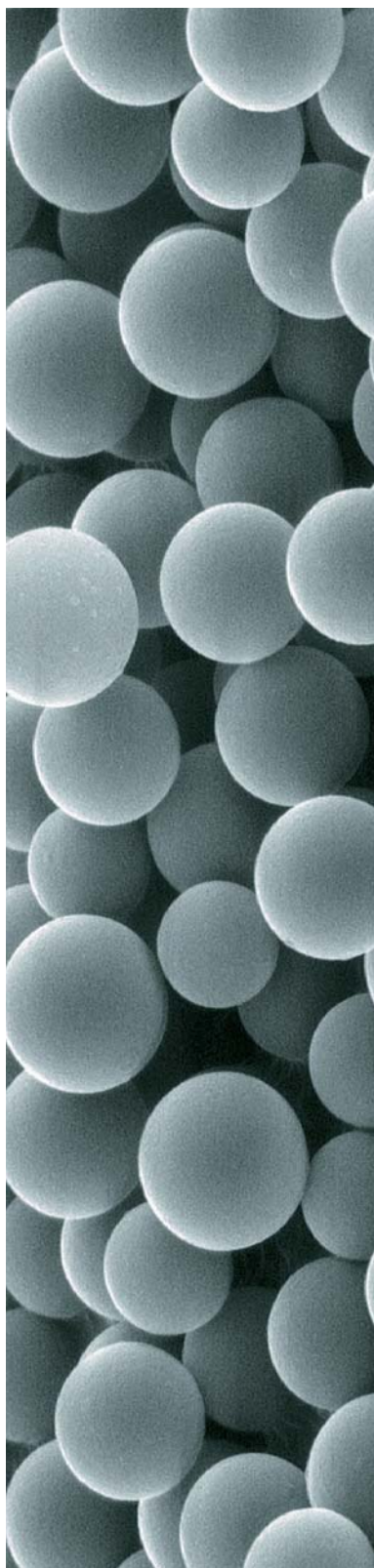
Columns for chiral separations (3, 5, 10, 16 and 25  $\mu\text{m}$ ), cont.

## ■ 50 mm i.d.

Pore size	Phase	Particle size	Length 50 mm	Length 100 mm	Length 150 mm	Length 250 mm
100 Å	DMB	10 $\mu\text{m}$	100-10-DMB 50x50	100-10-DMB 50x100	100-10-DMB 50x150	100-10-DMB 50x250
		16 $\mu\text{m}$	100-16-DMB 50x50	100-16-DMB 50x100	100-16-DMB 50x150	100-16-DMB 50x250
	TBB	10 $\mu\text{m}$	100-10-TBB 50x50	100-10-TBB 50x100	100-10-TBB 50x150	100-10-TBB 50x250
		16 $\mu\text{m}$	100-16-TBB 50x50	100-16-TBB 50x100	100-16-TBB 50x150	100-16-TBB 50x250
n.a.	AmyCoat	10 $\mu\text{m}$	—	—	10-AmyCoat 50x150	10-AmyCoat 50x250
		25 $\mu\text{m}$	—	—	25-AmyCoat 50x150	25-AmyCoat 50x250
	CelluCoat	10 $\mu\text{m}$	—	—	10-CelluCoat 50x150	10-CelluCoat 50x250
		25 $\mu\text{m}$	—	—	25-CelluCoat 50x150	25-CelluCoat 50x250

n.a. = not applicable

**Guard cartridges:** We have guard cartridges for all columns. For ordering: just add "x guard" after the column inner diameter, e.g. "100-16-C4 21.2 x guard"



*Kromasil particles – perfectly spherical independent of porosity and size.  
Left to right: Kromasil 3.5 µm, Kromasil 10 µm and silica matrix of Kromasil AmyCoat/CelluCoat*

# High performance Kromasil bulk products

Kromasil bulk products are available from gram quantities up to several metric tons. The Kromasil manufacturing plant has probably the largest capacity for producing high quality spherical HPLC packing material in the world. Kromasil products are in-house developed and manufactured in order to be the perfect choice from analytical to process scale liquid chromatography.

## Key assets of Kromasil

The combination of:

- High surface area
- Mechanical stability

Other outstanding properties are:

- Chemical purity
- Chemical stability
- Optimized surface properties
- Well-defined pore structure

## Mechanical stability

Dynamic axial compression (DAC) columns have to be packed at high piston pressure to achieve optimum efficiency. Further, high mobile phase velocity is used for high throughput. As a result, high back pressure is developed in the system. In large diameter DAC columns, the mechanical stress on the particles can be significant, and consequently a very high mechanical strength is essential. Kromasil has superior mechanical

stability and can handle all of the difficulties involved in a DAC column packing.

Mechanical stability is tightly coupled to chemical stability of the stationary phase. Damaged silica particles results in a damaged surface with altered properties and ultimately a shorter column life time.

## Chemical stability

Kromasil fulfills high requirements for excellent chemical stability for both high and low pH conditions.

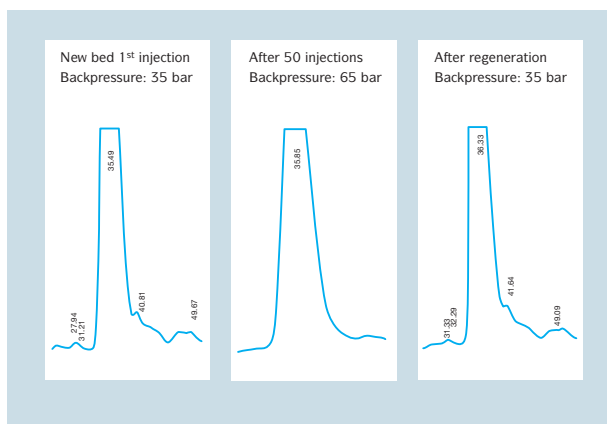
The advantage of using chemically stable silica-based materials are:

- Prolonged lifetime
- Reproducible retention times
- Minimized leakage from the silica matrix or silane ligands.

In order to show stability at basic conditions we have run a test under extremely harsh conditions. This method was developed as a regeneration step for the purification of insulin and used to remove polymeric insulin adsorbed on the reversed phase packing material.

**MECHANICAL STRENGTH IS CRUCIAL FOR  
THE LIFETIME OF THE PACKING AND FOR  
A PROBLEM-FREE PROCESS**

The column is cleaned in place with NaOH at pH > 13, see figure below.



*Regeneration of Kromasil offers a way to extend the overall column life time.*

Conditions:

Loading: 12 g porcine insulin/lit.

Regeneration with 0.1 M NaOH:EtOH (4:6), pH = 13.0, 5 column volumes

## Superior loadability

For preparative and process scale chromatography, loadability is probably the most important property besides selectivity.

Loadability is determined by the following parameters:

- Surface area
- Pore size
- Pore size distribution

and in some cases e.g. chiral purifications,

- Ligand density

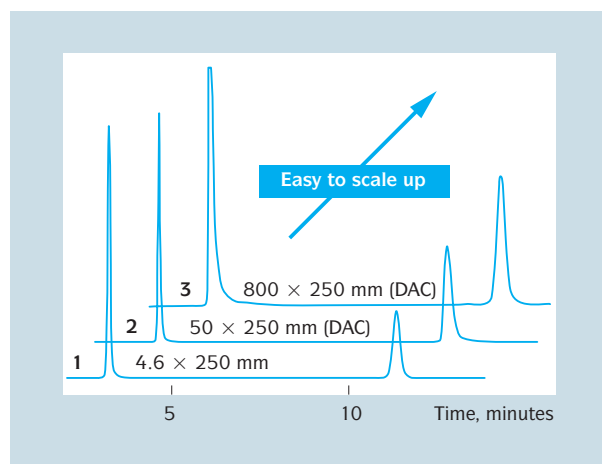
IN KROMASIL WE HAVE SUCCEEDED IN  
COMBINING HIGH LOADABILITY WITH  
HIGH MECHANICAL STRENGTH

When these parameters are optimized, high available surface area per unit column volume is obtained.

## Scaling up

Kromasil packings are manufactured in large batches and then sized into fractions with narrow particle size distribution, all with the same characteristics. This means that you can easily make your scale-up work from analytical scale to process scale. You will obtain the same column efficiency, selectivity and retention time when using Kromasil packed in an analytical column, or an 800 mm I.D. DAC column. Kromasil can be efficiently packed in all commercial industrial HPLC, SFC and SMB systems.

In following figure, the packing of Kromasil 100Å 10 µm C18 phase in three different column size is shown:



### Scaling up of Kromasil.

Conditions:

Packing: KR100-10-C18

Mobile phase: Acetonitrile/Water (70/30)

Linear velocity: 0.7 mm/s

1. 4.6 × 250 mm · Flow rate: 0.7 ml/min.

Peak no. 2 (Toluene) **54,700 pl/m**

2. 50 × 250 mm (DAC) · Flow rate: 82 ml/min.

Peak no. 2 (Toluene) **47,600 pl/m**

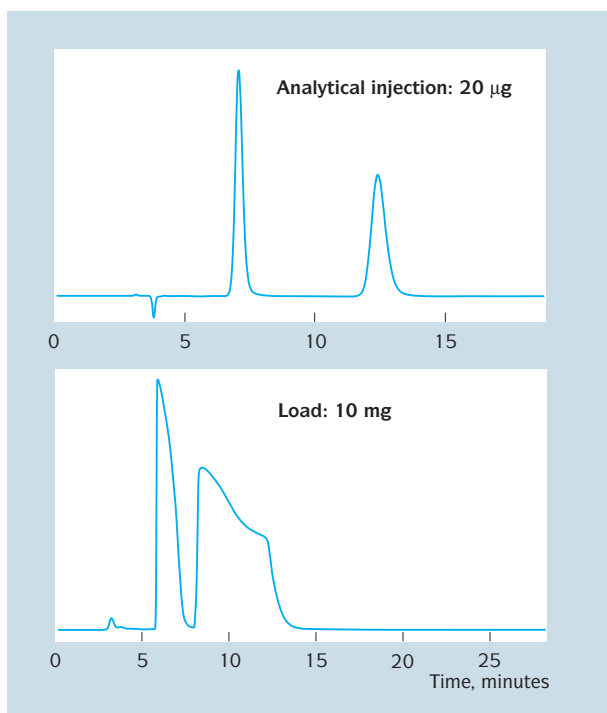
3. 800 × 250 mm (DAC) · Flow rate: 21 lit./min.

Peak no. 2 (Toluene) **42,000 pl/m**

## Preparative chiral separation

In the field of chiral chromatography preparative purification needs range from semi-prep purification in the lab during early development to full scale manufacturing of enantiopure drugs.

The figures below show the scale up from an analytical to a semi-preparative separation of the  $\beta$ -blocker metoprolol. With a load of 4.8 mg racemate per gram of stationary phase touching bands are obtained, leading to full recovery of pure enantiomers.



*Kromasil CelluCoat offers a broad selectivity and high loadability – Method development on an analytical column.*

**Conditions:**

Analyte: metoprolol, Column: Kromasil 10-CelluCoat 4.6 × 250 mm,  
Mobile phase: heptane/2-propanol/DEA 90/10/0.1, Flow rate: 1.0 ml/min.,  
Temperature: 25°C

## Ordering bulk silica

**Product codes** are given in the tables of this catalogue. We have listed our standard bulk products. Other combinations may be available upon request.

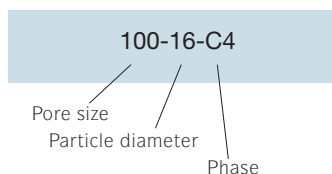
**Code elements**

- Silica pore size\*: 60, 100 or 300 Å
- Silica particle diameter\*: 3.5, 5, 7, 10, 13, 16 or 25 µm
- Phases\*: SIL, CN, C4, C8, C18, NH<sub>2</sub>, Diol, Phenyl, DMB, TBB, CelluCoat or AmyCoat
- AmyCoat and CelluCoat: omit silica pore size when ordering.

\*) Combinations restricted to existing media.

See availability in the media part of this catalogue (p. 22 – 26).

Code example for Kromasil 100 Å,  
16 µm particle diameter, C4 phase:



**Order by fax or phone**

World wide (apart from NAFTA countries):

Telephone: +46 31 58 73 60

Fax: +46 31 58 77 27

For NAFTA countries:

Telephone: +1 845 276 8223

Fax: +1 845 277 1406

**Order by e-mail**

kromasil@eka.com

# Kromasil bulk\* products – an overview

## Kromasil 60 Å

Phases	Particle sizes, $\mu\text{m}$						
	3.5	5	7	10	13	16	25
SIL	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Diol	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Kromasil 100 Å

Phases	Particle sizes, $\mu\text{m}$						
	3.5	5	7	10	13	16	25
SIL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C18	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
NH <sub>2</sub>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Phenyl	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Kromasil 300 Å

Phases	Particle sizes, $\mu\text{m}$						
	3.5	5	7	10	13	16	25
SIL	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C18	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Kromasil chiral

Phases	Particle sizes, $\mu\text{m}$						
	3	5	7	10	13	16	25
DMB	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TBB	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
AmyCoat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CelluCoat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

= available as standard product

= only available in pre-packed Kromasil columns

= not available as standard product

\*bulk = min. quantity 100 grams

# Kromasil 60 Å products

Derivatized products using Kromasil 60 Å silica are developed and manufactured in order to give high reproducibility and chemical stability.

## ■ Kromasil Silica – SIL

Particle size distribution (Coulter Multisizer):

$$\begin{aligned} dv_{90}/dv_{10}: &< 1.70 \text{ (10, 13, 16 } \mu\text{m)} \\ &< 1.60 \text{ (7 } \mu\text{m)} \\ &< 1.55 \text{ (5 } \mu\text{m)} \end{aligned}$$

Specific surface area (multi-point BET): 540 m<sup>2</sup>/g

Pore volume (N<sub>2</sub>-adsorption): 1.2 ml/g

Pore size (N<sub>2</sub>-adsorption): 80 Å

Pore size distribution (N<sub>2</sub>-adsorption): 80% ±15 Å

[97% of the surface is accessible for toluene, which indicates low amounts of inaccessible micro pores.]

Chemical purity (AAS or ICP):

Na < 10 ppm, Al < 5 ppm, Fe < 5 ppm

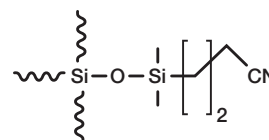
Packed density: 0.45 g/ml

## ■ Kromasil Cyano – CN

Element content: 12% C  
and 3.8% N

Coverage: 3.8 μmol/m<sup>2</sup>

Packed density: 0.48 g/ml



## ■ Kromasil Diol

Element content:

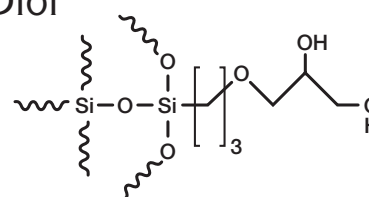
10% C

Coverage:

3.5 μmol/m<sup>2</sup>

Packed density:

0.53 g/ml



### More characteristics

can be obtained from Kromasil Datasheets at  
[www.kromasil.com/datasheets](http://www.kromasil.com/datasheets)

## Availability of Kromasil 60 Å products in bulk

Particle size	Product code		
	SIL	CN phase	Diol phase
5 μm	60-5-SIL	Please inquire	Please inquire
7 μm	60-7-SIL	Please inquire	Please inquire
10 μm	60-10-SIL	60-10-CN	60-10-Diol
13 μm	60-13-SIL	Please inquire	Please inquire
16 μm	60-16-SIL	60-16-CN	60-16-Diol

# Kromasil 100 Å products

Derivatized products using Kromasil 100 Å silica are developed and manufactured in order to give high reproducibility and chemical stability.

## ■ Kromasil Silica – SIL

Particle size distribution (Coulter Multisizer):

$$\begin{aligned} dv_{90}/dv_{10}: &< 1.70 \text{ (10, 13, 16 } \mu\text{m)} \\ &< 1.60 \text{ (7 } \mu\text{m)} \\ &< 1.55 \text{ (5 } \mu\text{m)} \\ &< 1.45 \text{ (3.5 } \mu\text{m)} \end{aligned}$$

Specific surface area (multi-point BET): 320 m<sup>2</sup>/g

Pore volume (N<sub>2</sub>-adsorption): 0.9 ml/g

Pore size (N<sub>2</sub>-adsorption): 110 Å

Pore size distribution (N<sub>2</sub>-adsorption): 80% ± 25 Å

[97% of the surface is accessible for toluene, which indicates low amounts of inaccessible micro pores.]

Chemical purity (AAS or ICP):

Na < 10 ppm, Al < 5 ppm, Fe < 5 ppm

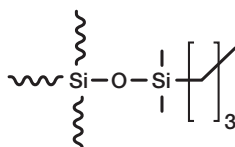
Packed density: 0.50 g/ml

## ■ Kromasil C4

Element content: 8% C

Coverage: 3.8 μmol/m<sup>2</sup>

Packed density: 0.57 g/ml

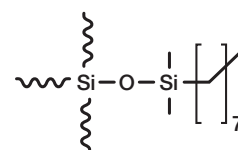


## ■ Kromasil C8

Element content: 12% C

Coverage: 3.7 μmol/m<sup>2</sup>

Packed density: 0.60 g/ml

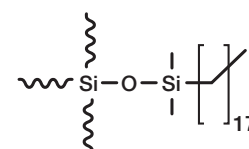


## ■ Kromasil C18

Element content: 20% C

Coverage: 3.5 μmol/m<sup>2</sup>

Packed density: 0.66 g/ml

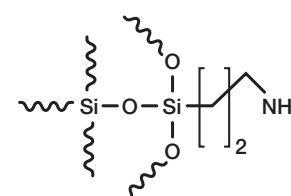


## ■ Kromasil Amino – NH<sub>2</sub>

Element content: 1.7 % N

Coverage: 4.5 μmol/m<sup>2</sup>

Packed density: 0.53 g/ml

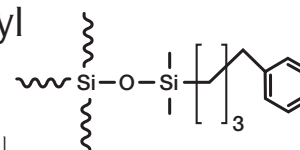


## ■ Kromasil Phenyl

Element content: 14% C

Coverage: 3.7 μmol/m<sup>2</sup>

Packed density: 0.59 g/ml



### More characteristics

can be obtained from Kromasil Datasheets at  
[www.kromasil.com/datasheets](http://www.kromasil.com/datasheets)

## Availability of Kromasil 100 Å products in bulk

Particle size	Product code					
	SIL	C4 phase	C8 phase	C18 phase	NH <sub>2</sub> phase	Phenyl phase
3.5 μm	100-3.5-SIL	—	—	—	—	—
5 μm	100-5-SIL	—	—	—	Please inquire	—
7 μm	100-7-SIL	100-7-C4	100-7-C8	100-7-C18	100-7-NH <sub>2</sub>	Please inquire
10 μm	100-10-SIL	100-10-C4	100-10-C8	100-10-C18	100-10-NH <sub>2</sub>	100-10-phenyl
13 μm	100-13-SIL	100-13-C4	100-13-C8	100-13-C18	100-13-NH <sub>2</sub>	Please inquire
16 μm	100-16-SIL	100-16-C4	100-16-C8	100-16-C18	100-16-NH <sub>2</sub>	100-16-phenyl

# Kromasil 300 Å products

Kromasil 300Å is designed to be the perfect choice for proteins and biomolecules larger than 8 – 10 kDa. A 300Å material with narrow pore size distribution ensures a good mass transfer for molecules in this range, resulting in narrow peaks and no size-exclusion effects.

## ■ Kromasil Silica – SIL

Particle size distribution (Coulter Multisizer):

$$dv_{90}/dv_{10}: < 1.70 \text{ (10, 16 } \mu\text{m)} \\ < 1.55 \text{ (5 } \mu\text{m)}$$

Specific surface area (multi-point BET): 110 m<sup>2</sup>/g

Pore volume (Mercury Intrusion Porosimetry): 0.9 ml/g

Pore size (Mercury Intrusion Porosimetry): 300 Å

Pore size distribution (Mercury Intrusion Porosimetry):

$$80\% \pm 25 \text{ Å}$$

Chemical purity (AAS or ICP):

Na < 10 ppm, Al < 5 ppm, Fe < 5 ppm

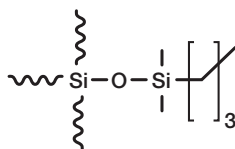
Packed density: 0.47 g/ml

## ■ Kromasil C4

Element content: 2.9% C

Coverage: 3.9 μmol/m<sup>2</sup>

Packed density: 0.48 g/ml

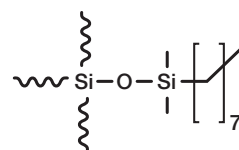


## ■ Kromasil C8

Element content: 4.7% C

Coverage: 3.8 μmol/m<sup>2</sup>

Packed density: 0.50 g/ml

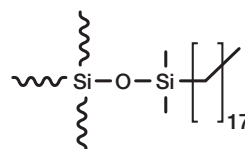


## ■ Kromasil C18

Element content: 8.7% C

Coverage: 3.7 μmol/m<sup>2</sup>

Packed density: 0.52 g/ml

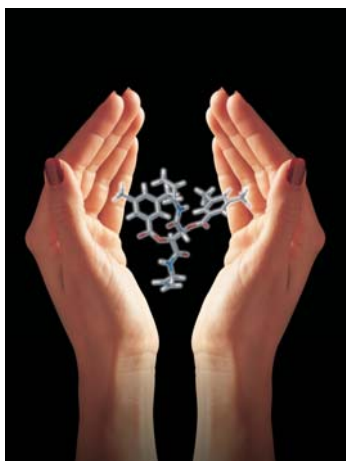


### More characteristics

can be obtained from Kromasil Datasheets at  
[www.kromasil.com/datasheets](http://www.kromasil.com/datasheets)

## Availability of Kromasil 300 Å products in bulk

Particle size	Product code			
	SIL	C4 phase	C8 phase	C18 phase
5 μm	300-5-SIL	—	—	—
10 μm	300-10-SIL	300-10-C4	300-10-C8	300-10-C18
13 μm	Please inquire	Please inquire	Please inquire	Please inquire
16 μm	300-16-SIL	300-16-C4	300-16-C8	300-16-C18



## Kromasil chiral products

All Kromasil chiral products are developed for analytical to process scale liquid chromatography.

Kromasil DMB and TBB are covalently bonded to the silica and Kromasil AmyCoat and CelluCoat are adsorbed to the silica.

### Covalently bonded chiral phases – Kromasil TBB and DMB

The chiral monomers are polymerized with a multi-functional hydrosilane, yielding a network polymer. This incorporates the bifunctional C2-symmetric chiral selector and is covalently bonded onto the Kromasil 100 Å silica.

#### ■ DMB derivatized – DMB

**DMB:** 0,0'-bis (3,5-dimethylbenzoyl)-N,N'-diallyl-L-tartar diamide.

**Particle size distribution** (Coulter Multisizer):

$dv_{90}/dv_{10}$ : < 1.70 (10, 13, 16  $\mu\text{m}$ )

**Element content:** 15.0% C

**Packed density:** 0.66 g/ml

#### ■ TBB derivatized – TBB

**TBB:** 0,0'-bis (4-tert-butylbenzoyl)-N,N'-diallyl-L-tartar diamide.

**Particle size distribution** (Coulter Multisizer):

$dv_{90}/dv_{10}$ : < 1.70 (10, 13, 16  $\mu\text{m}$ )

**Element content:** 15.5% C

**Packed density:** 0.66 g/ml

### Adsorbed chiral products – Kromasil AmyCoat and CelluCoat

The functionalized amylose and cellulose chiral selectors are coated onto a super wide pore silica (> 1000 Å) matrix.

#### ■ AmyCoat

**AmyCoat:** tris-(3,5-dimethylphenyl) carbamoyl amylose

**Packed density:** 0.6 g/ml

#### ■ CelluCoat

**CelluCoat:** tris-(3,5-dimethylphenyl) carbamoyl cellulose

**Packed density:** 0.6 g/ml

## Availability of Kromasil chiral products in bulk

Particle size	Product code			
	DMB	TBB	AmyCoat	CelluCoat
5 $\mu\text{m}$	Please inquire	Please inquire	Please inquire	Please inquire
10 $\mu\text{m}$	100-10-DMB	100-10-TBB	10-AmyCoat	10-CelluCoat
13 $\mu\text{m}$	Please inquire	Please inquire	—	—
16 $\mu\text{m}$	Please inquire	Please inquire	—	—
25 $\mu\text{m}$	—	—	25-AmyCoat	25-CelluCoat