



HICHROM

Chromatography Columns and Supplies

LC COLUMNS
Kromasil

Catalogue 9

Hichrom Limited

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- Spherical porous high purity silica
- Analytical to preparative particle sizes
- Robust and reproducible
- 300Å and chiral phases available

The Kromasil® range of products is based on a highly recommended, robust, pure silica manufactured by Eka Chemicals AB of Sweden (now known as Akzo Nobel Pulp and Performance Chemicals). The Kromasil classic phases are designed to meet the highest demand in HPLC, SFC and SMB from analytical to process scale and are available in six particle sizes, ranging from 3.5 to 16µm. Kromasil Eternity is a newer platform with a grafted organosilane surface for extended pH stability (2 -12) and is available in 2.5 and 5µm particle sizes (see pages 150 and 151). For small pore phases, see pages 141-147. For wide pore phases, see page 148. For chiral phases, see pages 152-155.

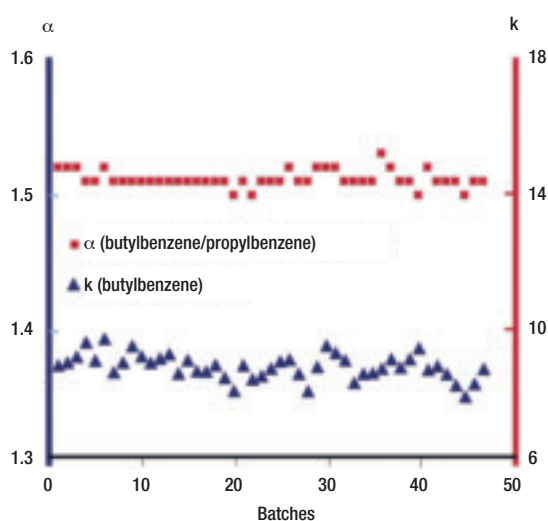
Kromasil Classical Phases

Kromasil Phase	Functional Group	Endcapped	Particle Size (µm)	Pore Size (Å)	Surface Area (m ² /g)	Carbon Load (%)
Silica	-	-	5, 7, 10, 13, 16	60	540	-
Silica	-	-	3.5, 5, 7, 10, 13, 16	100	320	-
C1	Methyl	Yes	5	100	320	4.7
C4	Butyl	Yes	3.5, 5, 7, 10, 13, 16	100	320	8.0
C8	Octyl	Yes	3.5, 5, 7, 10, 13, 16	100	320	12.0
C18	Octadecyl	Yes	3.5, 5, 7, 10, 13, 16	100	320	20.0
NH2	Amino	No ¹	3.5, 5, 7, 10, 13, 16	100	320	1.7
CN	Cyano	No ¹	5, 10, 16	60	540	12.0
Diol	Dihydroxy	No ¹	5, 10, 16	60	540	10.0
Phenyl	Phenyl	Yes	5, 10, 16	100	320	14.0
Silica	-	-	5, 10, 16	300	110	-
C4	Butyl	Yes	5, 10, 16	300	110	2.9
C8	Octyl	Yes	5, 10, 16	300	110	4.7
C18	Octadecyl	Yes	5, 10, 16	300	110	8.7

¹ Due to its well optimised manufacturing process, the endcapping step, in this case, has no effect on the performance

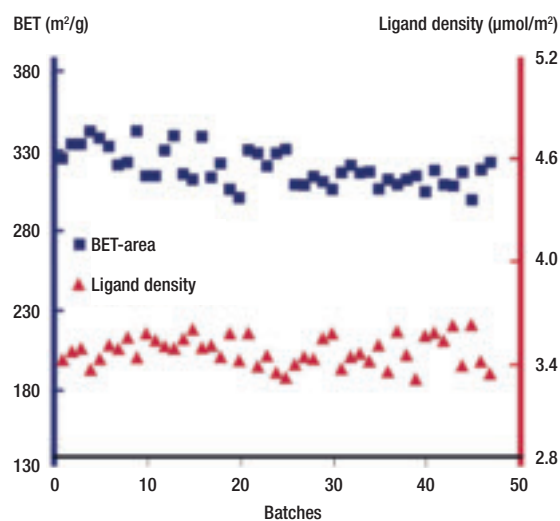
Batch to Batch Reproducibility

Kromasil material is manufactured using the well-known sol-gel technique which results in a silica with optimised chemical and mechanical stability, optimised pore structure and reproducible surface area. Development and production of the Kromasil packings are ISO 9001:2000 certified. Extensive control and testing is performed throughout the whole production process, ensuring the highest possible reproducibility. Proof of this can be seen in Figures 1 and 2, which show the reproducibility of batches of Kromasil. Kromasil packings for process scale HPLC are manufactured in batches of over 100kg, within a modern plant whose capacity is several tonnes per year.



Column: 250 x 4.6 mm
Eluent: CH₃CN - H₂O (70:30)
Flow rate: 2ml/min

Figure 1. Batch to batch reproducibility of 50 batches of Kromasil C18 with respect to k and α



Column: 250 x 4.6 mm
Eluent: CH₃CN - H₂O (70:30)
Flow rate: 2ml/min

Figure 2. Batch to batch reproducibility of 50 batches of Kromasil C18 with respect to BET and ligand density

KROMASIL® (continued)

Chemical Stability

At low pH the major mechanism of column degradation is acid hydrolysis of the bonded phase. The nature of the surface silanols and the coating density of the monofunctional silane are key parameters. In Figure 3 Akzo Nobel demonstrate the excellent chemical stability of Kromasil® C8 material.

At pH 7 or higher, the major mechanism of degradation is dissolution of silica in aqueous eluents. The mode of manufacture of the silica, its surface treatment and the coating density of the silane, all affect higher pH stability.

Kromasil's stability in alkaline conditions was tested at ambient temperature by eluting a Kromasil 10-C8 column (200 x 4.6mm) with CH₃OH – NH₄Ac/NH₃, pH 9.25 (70:30) at a flow rate of 4.0ml/min for a prolonged period. The total number of column volumes was 10,000. Minimal change in column performance was seen after the test period.

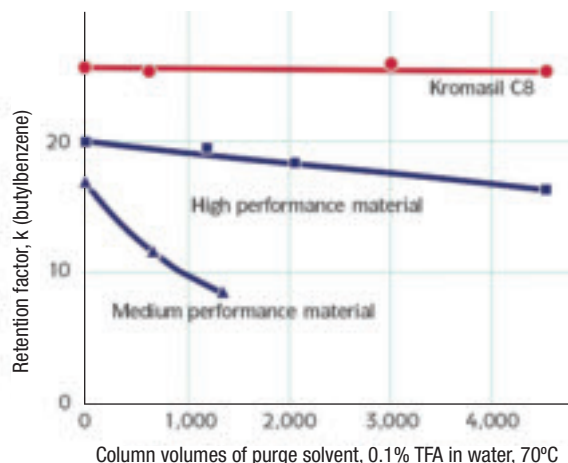


Figure 3. *k* values for butylbenzene plotted against column volumes of low pH eluent*

*The comparative data presented here may not be representative for all applications.

Analytical to Preparative Scale Applications

Kromasil columns are offered in a wide range of dimensions to enable simple, reproducible scale-up. The highly robust nature of the silica and the availability of a wide range of particle sizes makes Kromasil an ideal choice for preparative applications.

The following example (Figure 4) demonstrates the reproducible chromatography obtained when scaling up from a 4.6mm i.d. column to a 50.8mm (2") i.d. column.

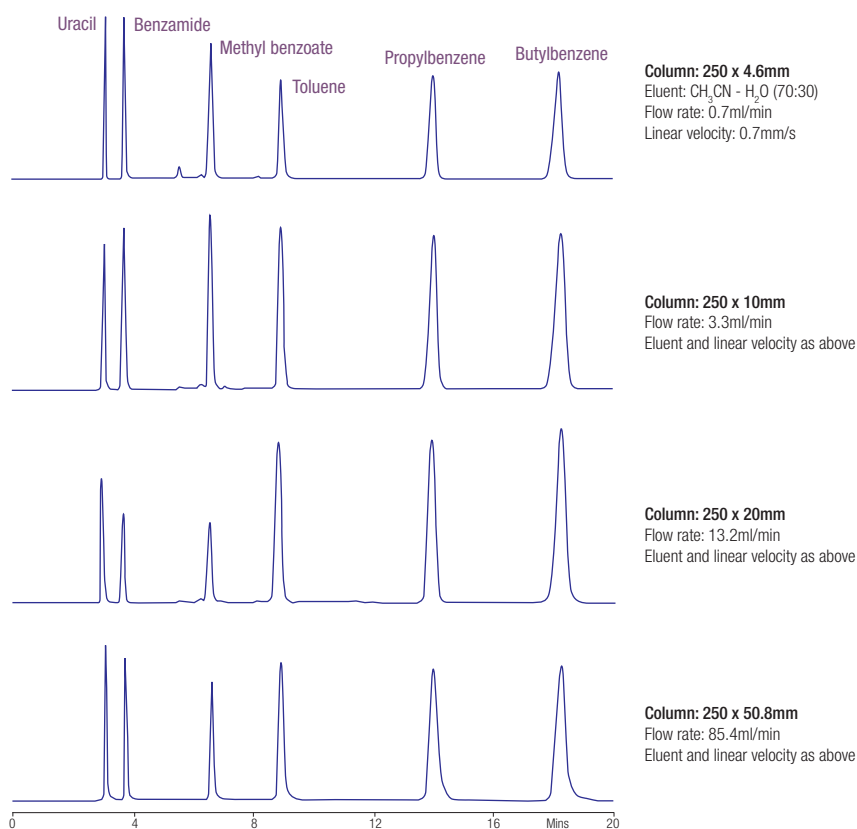


Figure 4. Scale-up reproducibility on Kromasil 10-C8 columns

Ordering Information - Kromasil®
Microbore (1.0mm i.d.) Columns

Kromasil Phase	Column Dimensions ¹ (mm)				Guard Cartridges ² (For 1.0mm i.d. Columns)
	50 x 1.0	100 x 1.0	150 x 1.0	250 x 1.0	
3.5µm					
Silica (100Å)	MH3SII05	MH3SII10	MH3SII15	MH3SII25	MH3SIIIGC
C4	MH3CSI05	MH3CSI10	MH3CSI15	MH3CSI25	MH3CSIGC
C8	MH3CMI05	MH3CMI10	MH3CMI15	MH3CMI25	MH3CMIGC
C18	MH3CLI05	MH3CLI10	MH3CLI15	MH3CLI25	MH3CLIGC
NH2	MH3NHI05	MH3NHI10	MH3NHI15	MH3NHI25	MH3NHIGC
5µm					
Silica (60Å)	S05SII05	S05SII10	S05SII15	S05SII25	S05SIIIGC
Silica (100Å)	M05SII05	M05SII10	M05SII15	M05SII25	M05SIIIGC
C1	M05C1I05	M05C1I10	M05C1I15	M05C1I25	M05C1IGC
C4	M05CSI05	M05CSI10	M05CSI15	M05CSI25	M05CSIGC
C8	M05CMI05	M05CMI10	M05CMI15	M05CMI25	M05CMIGC
C18	M05CLI05	M05CLI10	M05CLI15	M05CLI25	M05CLIGC
NH2	M05NHI05	M05NHI10	M05NHI15	M05NHI25	M05NHIGC
CN	S05CNI05	S05CNI10	S05CNI15	S05CNI25	S05CNIGC
Diol	S05DII05	S05DII10	S05DII15	S05DII25	S05DIIGC
Phenyl	M05PHI05	M05PHI10	M05PHI15	M05PHI25	M05PHIGC

Microbore (2.1mm i.d.) Columns

Kromasil Phase	Column Dimensions ¹ (mm)				Guard Cartridges ² (For 2.1mm i.d. Columns)
	50 x 2.1	100 x 2.1	150 x 2.1	250 x 2.1	
3.5µm					
Silica (100Å)	MH3SID05	MH3SID10	MH3SID15	MH3SID25	MH3SIDGC
C4	MH3CSD05	MH3CSD10	MH3CSD15	MH3CSD25	MH3CSDGC
C8	MH3CMD05	MH3CMD10	MH3CMD15	MH3CMD25	MH3CMDGC
C18	MH3CLD05	MH3CLD10	MH3CLD15	MH3CLD25	MH3CLDGC
NH2	MH3NHD05	MH3NHD10	MH3NHD15	MH3NHD25	MH3NHDGC
5µm					
Silica (60Å)	S05SID05	S05SID10	S05SID15	S05SID25	S05SIDGC
Silica (100Å)	M05SID05	M05SID10	M05SID15	M05SID25	M05SIDGC
C1	M05C1D05	M05C1D10	M05C1D15	M05C1D25	M05C1DGC
C4	M05CSD05	M05CSD10	M05CSD15	M05CSD25	M05CSDGC
C8	M05CMD05	M05CMD10	M05CMD15	M05CMD25	M05CMDGC
C18	M05CLD05	M05CLD10	M05CLD15	M05CLD25	M05CLDGC
NH2	M05NHD05	M05NHD10	M05NHD15	M05NHD25	M05NHDGC
CN	S05CND05	S05CND10	S05CND15	S05CND25	S05CNDGC
Diol	S05DID05	S05DID10	S05DID15	S05DID25	S05DIDGC
Phenyl	M05PHD05	M05PHD10	M05PHD15	M05PHD25	M05PHDGC

Medium Bore (3.0mm i.d.) Columns

Kromasil Phase	Column Dimensions ¹ (mm)				Guard Cartridges ² (For 3.0mm i.d. Columns)
	50 x 3.0	100 x 3.0	150 x 3.0	250 x 3.0	
3.5µm					
Silica (100Å)	MH3SIC05	MH3SIC10	MH3SIC15	MH3SIC25	MH3SICGC
C4	MH3CSC05	MH3CSC10	MH3CSC15	MH3CSC25	MH3CSCGC
C8	MH3CMC05	MH3CMC10	MH3CMC15	MH3CMC25	MH3CMCGC
C18	MH3CLC05	MH3CLC10	MH3CLC15	MH3CLC25	MH3CLCGC
NH2	MH3NHC05	MH3NHC10	MH3NHC15	MH3NHC25	MH3NHCGC
5µm					
Silica (60Å)	S05SIC05	S05SIC10	S05SIC15	S05SIC25	S05SICGC
Silica (100Å)	M05SIC05	M05SIC10	M05SIC15	M05SIC25	M05SICGC
C1	M05C1C05	M05C1C10	M05C1C15	M05C1C25	M05C1CGC
C4	M05CSC05	M05CSC10	M05CSC15	M05CSC25	M05CSCGC
C8	M05CMC05	M05CMC10	M05CMC15	M05CMC25	M05CMCGC
C18	M05CLC05	M05CLC10	M05CLC15	M05CLC25	M05CLCGC
NH2	M05NHC05	M05NHC10	M05NHC15	M05NHC25	M05NHCGC
CN	S05CNC05	S05CNC10	S05CNC15	S05CNC25	S05CNCGC
Diol	S05DIC05	S05DIC10	S05DIC15	S05DIC25	S05DICGC
Phenyl	M05PHC05	M05PHC10	M05PHC15	M05PHC25	M05PHCGC

¹ Other column dimensions available – please enquire

² Use with free-standing holder 00000HHO

and column coupler 00000KCO

³ Starter kits

also available

Ordering Information – Kromasil® (continued)
Analytical (4.6mm i.d.) Columns

Kromasil Phase	Column Dimensions ¹ (mm)				Guard Cartridges ² (For 4.6mm i.d. Columns)
	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	
3.5µm					
Silica (100Å)	MH3SIA05	MH3SIA10	MH3SIA15	MH3SIC25	MH3SIAGC
C4	MH3CSA05	MH3CSA10	MH3CSA15	MH3CSC25	MH3CSAGC
C8	MH3CMA05	MH3CMA10	MH3CMA15	MH3CMC25	MH3CMAGC
C18	MH3CLA05	MH3CLA10	MH3CLA15	MH3CLC25	MH3CLAGC
NH2	MH3NHA05	MH3NHA10	MH3NHA15	MH3NHC25	MH3NHAGC
5µm					
Silica (60Å)	S05SIA05	S05SIA10	S05SIA15	S05SIA25	S05SIAGC
Silica (100Å)	M05SIA05	M05SIA10	M05SIA15	M05SIA25	M05SIAGC
C1	M05C1A05	M05C1A10	M05C1A15	M05C1A25	M05C1AGC
C4	M05CSA05	M05CSA10	M05CSA15	M05CSA25	M05CSAGC
C8	M05CMA05	M05CMA10	M05CMA15	M05CMA25	M05CMAGC
C18	M05CLA05	M05CLA10	M05CLA15	M05CLA25	M05CLAGC
NH2	M05NHA05	M05NHA10	M05NHA15	M05NHA25	M05NHAGC
CN	S05CNA05	S05CNA10	S05CNA15	S05CNA25	S05CNAGC
Diol	S05DIA05	S05DIA10	S05DIA15	S05DIA25	S05DIAGC
Phenyl	M05PHA05	M05PHA10	M05PHA15	M05PHA25	M05PHAGC
10µm					
Silica (60Å)	S10SIA05	S10SIA10	S10SIA15	S10SIA25	S10SIAGC
Silica (100Å)	M10SIA05	M10SIA10	M10SIA15	M10SIA25	M10SIAGC
C4	M10CSA05	M10CSA10	M10CSA15	M10CSA25	M10CSAGC
C8	M10CMA05	M10CMA10	M10CMA15	M10CMA25	M10CMAGC
C18	M10CLA05	M10CLA10	M10CLA15	M10CLA25	M10CLAGC
NH2	M10NHA05	M10NHA10	M10NHA15	M10NHA25	M10NHAGC
CN	S10CNA05	S10CNA10	S10CNA15	S10CNA25	S10CNAGC
Diol	S10DIA05	S10DIA10	S10DIA15	S10DIA25	S10DIAGC
Phenyl	M10PHA05	M10PHA10	M10PHA15	M10PHA25	M10PHAGC

Semi-Preparative (7.75mm i.d.) Columns

Kromasil Phase	Column Dimensions ¹ (mm)				Guard Cartridges ⁴ (For 7.75mm i.d. Columns)
	50 x 7.75	100 x 7.75	150 x 7.75	250 x 7.75	
5µm					
Silica (60Å)	S05SIS05	S05SIS10	S05SIS15	S05SIS25	S05SISGC
Silica (100Å)	M05SIS05	M05SIS10	M05SIS15	M05SIS25	M05SISGC
C4	M05CSS05	M05CSS10	M05CSS15	M05CSS25	M05CSSGC
C8	M05CMS05	M05CMS10	M05CMS15	M05CMS25	M05CMSGC
C18	M05CLS05	M05CLS10	M05CLS15	M05CLS25	M05CLSGC
NH2	M05NHS05	M05NHS10	M05NHS15	M05NHS25	M05NHSGC
CN	S05CNS05	S05CNS10	S05CNS15	S05CNS25	S05CNSGC
Diol	S05DIS05	S05DIS10	S05DIS15	S05DIS25	S05DISGC
Phenyl	M05PHS05	M05PHS10	M05PHS15	M05PHS25	M05PHSGC
10µm					
Silica (60Å)	S10SIS05	S10SIS10	S10SIS15	S10SIS25	S10SISGC
Silica (100Å)	M10SIS05	M10SIS10	M10SIS15	M10SIS25	M10SISGC
C4	M10CSS05	M10CSS10	M10CSS15	M10CSS25	M10CSSGC
C8	M10CMS05	M10CMS10	M10CMS15	M10CMS25	M10CMSGC
C18	M10CLS05	M10CLS10	M10CLS15	M10CLS25	M10CLSGC
NH2	M10NHS05	M10NHS10	M10NHS15	M10NHS25	M10NHSGC
CN	S10CNS05	S10CNS10	S10CNS15	S10CNS25	S10CNSGC
Diol	S10DIS05	S10DIS10	S10DIS15	S10DIS25	S10DISGC
Phenyl	M10PHS05	M10PHS10	M10PHS15	M10PHS25	M10PHSGC

¹ Other column dimensions available – please enquire

² Use with free-standing holder 00000HHO and column coupler 00000KCO

³ Starter kits also available

⁴ Use with free-standing holder 00000MHO and coupler 00000KCO

Ordering Information - Kromasil® (continued)
Semi-Preparative (10.0mm i.d.) Columns

Kromasil Phase	Column Dimensions ¹ (mm)				Guard Cartridges ² (For 10.0mm i.d. Columns)
	50 x 10.0	100 x 10.0	150 x 10.0	250 x 10.0	
5µm					
Silica (60Å)	S05SIP05	S05SIP10	S05SIP15	S05SIP25	S05SIPGC
Silica (100Å)	M05SIP05	M05SIP10	M05SIP15	M05SIP25	M05SIPGC
C4	M05CSP05	M05CSP10	M05CSP15	M05CSP25	M05CSPGC
C8	M05CMP05	M05CMP10	M05CMP15	M05CMP25	M05CMPGC
C18	M05CLP05	M05CLP10	M05CLP15	M05CLP25	M05CLPGC
NH2	M05NHP05	M05NHP10	M05NHP15	M05NHP25	M05NHPGC
CN	S05CNP05	S05CNP10	S05CNP15	S05CNP25	S05CNPGC
Diol	S05DIP05	S05DIP10	S05DIP15	S05DIP25	S05DIPGC
Phenyl	M05PHP05	M05PHP10	M05PHP15	M05PHP25	M05PHPGC
10µm					
Silica (60Å)	S10SIP05	S10SIP10	S10SIP15	S10SIP25	S10SIPGC
Silica (100Å)	M10SIP05	M10SIP10	M10SIP15	M10SIP25	M10SIPGC
C4	M10CSP05	M10CSP10	M10CSP15	M10CSP25	M10CSPGC
C8	M10CMP05	M10CMP10	M10CMP15	M10CMP25	M10CMPGC
C18	M10CLP05	M10CLP10	M10CLP15	M10CLP25	M10CLPGC
NH2	M10NHP05	M10NHP10	M10NHP15	M10NHP25	M10NHPGC
CN	S10CNP05	S10CNP10	S10CNP15	S10CNP25	S10CNPGC
Diol	S10DIP05	S10DIP10	S10DIP15	S10DIP25	S10DIPGC
Phenyl	M10PHP05	M10PHP10	M10PHP15	M10PHP25	M10PHPGC

¹ Other column dimensions available – please enquire

² Use with free-standing holder 00000MHO and column coupler 00000KCO

Preparative (21.2mm i.d.) Columns

Kromasil Phase	Column Dimensions ¹ (mm)				Guard Cartridges ² (For 21.2mm i.d. Columns)
	50 x 21.2	100 x 21.2	150 x 21.2	250 x 21.2	
5µm					
Silica (60Å)	S05SIQ05	S05SIQ10	S05SIQ15	S05SIQ25	S05SIQGC
Silica (100Å)	M05SIQ05	M05SIQ10	M05SIQ15	M05SIQ25	M05SIQGC
C4	M05CSQ05	M05CSQ10	M05CSQ15	M05CSQ25	M05CSQGC
C8	M05CMQ05	M05CMQ10	M05CMQ15	M05CMQ25	M05CMQGC
C18	M05CLQ05	M05CLQ10	M05CLQ15	M05CLQ25	M05CLQGC
NH2	M05NHQ05	M05NHQ10	M05NHQ15	M05NHQ25	M05NHQGC
CN	S05CNQ05	S05CNQ10	S05CNQ15	S05CNQ25	S05CNQGC
Diol	S05DIQ05	S05DIQ10	S05DIQ15	S05DIQ25	S05DIQGC
Phenyl	M05PHQ05	M05PHQ10	M05PHQ15	M05PHQ25	M05PHQGC
10µm					
Silica (60Å)	S10SIQ05	S10SIQ10	S10SIQ15	S10SIQ25	S10SIQGC
Silica (100Å)	M10SIQ05	M10SIQ10	M10SIQ15	M10SIQ25	M10SIQGC
C4	M10CSQ05	M10CSQ10	M10CSQ15	M10CSQ25	M10CSQGC
C8	M10CMQ05	M10CMQ10	M10CMQ15	M10CMQ25	M10CMQGC
C18	M10CLQ05	M10CLQ10	M10CLQ15	M10CLQ25	M10CLQGC
NH2	M10NHQ05	M10NHQ10	M10NHQ15	M10NHQ25	M10NHQGC
CN	S10CNQ05	S10CNQ10	S10CNQ15	S10CNQ25	S10CNQGC
Diol	S10DIQ05	S10DIQ10	S10DIQ15	S10DIQ25	S10DIQGC
Phenyl	M10PHQ05	M10PHQ10	M10PHQ15	M10PHQ25	M10PHQGC

¹ Other column dimensions available – please enquire

² Use with free-standing holder 00000MHO and column coupler 00000KCO

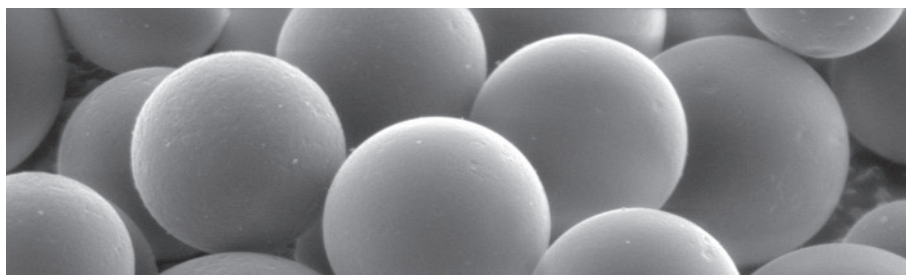
Ordering Information – Kromasil® (continued)
Preparative (30.0mm i.d.) Columns

Kromasil Phase	Column Dimensions ¹ (mm)				Guard Cartridges ² (For 30mm i.d. Columns)
	50 x 30.0	100 x 30.0	150 x 30.0	250 x 30.0	
5µm					
Silica (60Å)	S05SIR05	S05SIR10	S05SIR15	S05SIR25	S05SIRGC
Silica (100Å)	M05SIR05	M05SIR10	M05SIR15	M05SIR25	M05SIRGC
C4	M05CSR05	M05CSR10	M05CSR15	M05CSR25	M05CSRGC
C8	M05CMR05	M05CMR10	M05CMR15	M05CMR25	M05CMRGC
C18	M05CLR05	M05CLR10	M05CLR15	M05CLR25	M05CLRGC
NH2	M05NHR05	M05NHR10	M05NHR15	M05NHR25	M05NHRGC
CN	S05CNR05	S05CNR10	S05CNR15	S05CNR25	S05CNRGC
Diol	S05DIR05	S05DIR10	S05DIR15	S05DIR25	S05DIRGC
Phenyl	M05PHR05	M05PHR10	M05PHR15	M05PHR25	M05PHRGC
10µm					
Silica (60Å)	S10SIR05	S10SIR10	S10SIR15	S10SIR25	S10SIRGC
Silica (100Å)	M10SIR05	M10SIR10	M10SIR15	M10SIR25	M10SIRGC
C4	M10CSR05	M10CSR10	M10CSR15	M10CSR25	M10CSRGC
C8	M10CMR05	M10CMR10	M10CMR15	M10CMR25	M10CMRGC
C18	M10CLR05	M10CLR10	M10CLR15	M10CLR25	M10CLRGC
NH2	M10NHR05	M10NHR10	M10NHR15	M10NHR25	M10NHRGC
CN	S10CNR05	S10CNR10	S10CNR15	S10CNR25	S10CNRGC
Diol	S10DIR05	S10DIR10	S10DIR15	S10DIR25	S10DIRGC
Phenyl	M10PHR05	M10PHR10	M10PHR15	M10PHR25	M10PHRGC

¹ Other column dimensions available – please enquire

² Use with free-standing holder 00000RHO and column coupler 00000RCO

For 50mm (2") i.d. Kromasil columns, please see page 149.



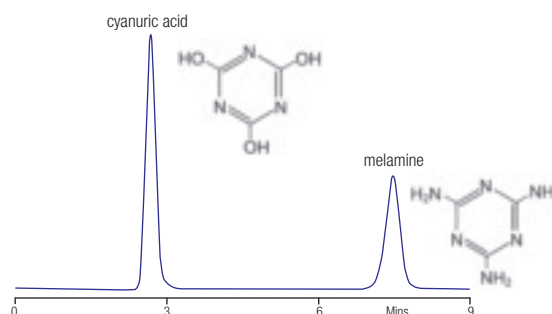
Kromasil® HILIC-D

- Orthogonal selectivity to C18 columns
- 100% MS compatibility
- High loadability
- Easy scale-up

Kromasil® HILIC-D is a diol-bonded silica phase designed for the separation of polar compounds, such as organic acids, nucleobases and water soluble vitamins, which can be difficult to separate on standard reversed-phase C18 columns. This diol-bonded phase offers excellent reproducibility compared to HILIC columns based on standard base silica. Kromasil HILIC-D is a low bleed phase and is 100% compatible with MS detection. Figure 5 shows the excellent MS sensitivity for the separation of melamine and cyanuric acid. When scaling up for preparative purifications, the high surface area can provide high loading capacity.

Kromasil HILIC-D Specifications

Pore Size	60Å
Particle Size	5µm
Surface Area	540m ² /g



Column: Kromasil 60-5-HILIC-D (100 x 2.1mm)
 Eluent: CH₃CN – 100mM ammonium acetate buffer, pH 4.5 (95:5)
 Flow rate: 0.4ml/min
 Temperature: 25°C
 Detection: +/- ESI TIC SIM

Figure 5. Melamine and cyanuric acid analysis

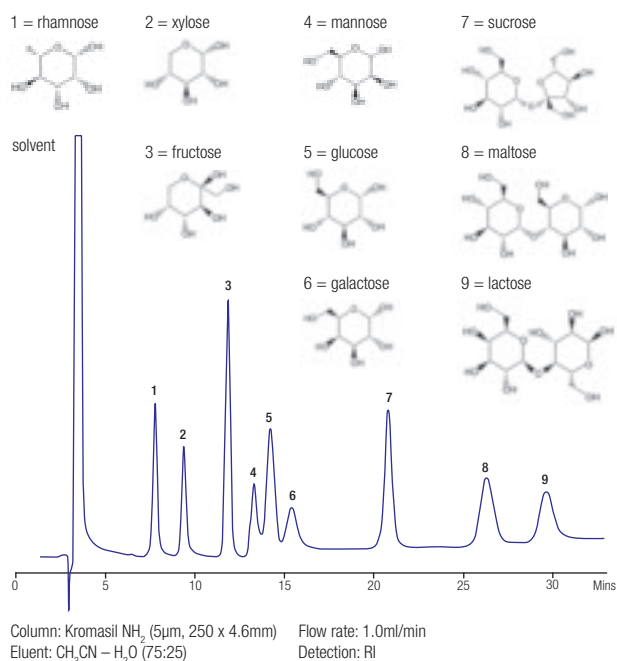
Ordering Information

Column Diameter (mm)	Column Length ¹ (mm)			
	50	100	150	250
2.1	S05HDD05	S05HDD10	S05HDD15	-
3.0	S05HDC05	S05HDC10	S05HDC15	-
4.6	S05HDA05	S05HDA10	S05HDA15	S05HDA25
10.0	-	-	-	S05HDP25
21.2	-	-	-	S05HDQ25
30.0	-	-	-	S05HDR25

¹ Other dimensions available on request. Guard columns also available.

Kromasil NH₂

The specifications of Kromasil NH₂ are given on page 141. One of the key application areas of this phase is in the analysis of carbohydrates. Figure 6 shows the separation of a mixture of sugars. Ordering details can be found on the previous pages.



Column: Kromasil NH₂ (5µm, 250 x 4.6mm) Flow rate: 1.0ml/min
 Eluent: CH₃CN – H₂O (75:25) Detection: RI

Figure 6. Analysis of sugars on Kromasil NH₂



Please contact Hichrom for a copy of
 the Kromasil Application Guide

Kromasil® 300Å Columns

- 300Å spherical silica
- SIL, C4, C8 and C18 phases
- 5, 10 and 16µm particle sizes
- High mechanical and chemical stability
- Protein separations from analytical to process scale

Kromasil® 300Å phases are manufactured to exhibit a surface chemistry similar to the well established Kromasil 100Å phases. They are designed for the analysis of proteins and biomolecules larger than 8 – 10kDa. A narrow pore size distribution ensures good mass transfer for molecules in this range, resulting in narrow peaks and no size exclusion effects. The high mechanical stability of the material is especially important for large diameter columns.

Kromasil 300Å Phases

Phase	Functional Group	Endcapped	Particle Size (µm)	Pore Size (Å)	Surface Area (m ² /g)	Carbon Load (%)
SIL	-	-	5, 10, 16	300	110	-
C4	Butyl	Yes	5, 10, 16	300	110	2.9
C8	Octyl	Yes	5, 10, 16	300	110	4.7
C18	Octadecyl	Yes	5, 10, 16	300	110	8.7

Ordering Information – Kromasil 300Å Phases

Microbore (1.0 – 2.1mm i.d.) and Medium Bore (3.0mm i.d.) Columns

Please contact Hichrom for further details of 1.0, 2.1 and 3.0mm i.d. columns.

Analytical (4.6mm i.d.) Columns

Kromasil Phase	Column Dimensions ¹ (mm)				Guard Cartridges ² (For 4.6mm i.d. Columns)
	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	
5µm					
SIL	L05SIA05	L05SIA10	L05SIA15	L05SIA25	L05SIAGC
C4	L05CSA05	L05CSA10	L05CSA15	L05CSA25	L05CSAGC
C8	L05CMA05	L05CMA10	L05CMA15	L05CMA25	L05CMAGC
C18	L05CLA05	L05CLA10	L05CLA15	L05CLA25	L05CLAGC
10µm					
SIL	L10SIA05	L10SIA10	L10SIA15	L10SIA25	L10SIAGC
C4	L10CSA05	L10CSA10	L10CSA15	L10CSA25	L10CSAGC
C8	L10CMA05	L10CMA10	L10CMA15	L10CMA25	L10CMAGC
C18	L10CLA05	L10CLA10	L10CLA15	L10CLA25	L10CLAGC

¹ Other column dimensions available – please enquire

² Starter kits also available

² Use with free-standing holder 00000HHO and column coupler 00000KCO

Semi-Preparative (7.75 – 10.0mm i.d.) Columns

Please contact Hichrom for further details of 7.75 – 10.0mm i.d. columns.

Preparative (21.2mm i.d.) Columns

Kromasil Phase	Column Dimensions ¹ (mm)				Guard Cartridges ² (For 21.2mm i.d. Columns)
	50 x 21.2	100 x 21.2	150 x 21.2	250 x 21.2	
5µm					
SIL	L05SIQ05	L05SIQ10	L05SIQ15	L05SIQ25	L05SIQGC
C4	L05CSQ05	L05CSQ10	L05CSQ15	L05CSQ25	L05CSQGC
C8	L05CMQ05	L05CMQ10	L05CMQ15	L05CMQ25	L05CMQGC
C18	L05CLQ05	L05CLQ10	L05CLQ15	L05CLQ25	L05CLQGC
10µm					
SIL	L10SIQ05	L10SIQ10	L10SIQ15	L10SIQ25	L10SIQGC
C4	L10CSQ05	L10CSQ10	L10CSQ15	L10CSQ25	L10CSQGC
C8	L10CMQ05	L10CMQ10	L10CMQ15	L10CMQ25	L10CMQGC
C18	L10CLQ05	L10CLQ10	L10CLQ15	L10CLQ25	L10CLQGC

¹ Other column dimensions available – please enquire

² Use with free-standing holder 00000MHO and column coupler 00000KCO

Preparative and Process-Scale Kromasil®

- Excellent scalability
- Mechanical strength
- Superior loadability
- Technical service

Kromasil® is pure, chemically stable and reproducible from one silica batch to another. Its mechanical strength, scalability and superior loadability also lead to its advantageous preparative properties. Kromasil is available in bulk silica or in large preparative columns.

Scalability

Kromasil phases are manufactured in large batches prior to fractionation into narrow particle size ranges with the same characteristics. Hence scale-up from analytical to process size operations is reliable and easily achieved.

Mechanical Strength

In large diameter dynamic axial compression HPLC systems, columns have to be packed at high piston pressures to achieve optimum performance. Often the column is repacked. Silica particle mechanical strength is crucial for optimum phase lifetime and for a problem free process. Kromasil particles retain a high mechanical strength.

Loadability

Kromasil silica particles are characterised by high pore volumes and surface areas, resulting in high loadability without weakening their mechanical strength.

Technical Service

Using KromaGuide software, Akzo Nobel offer a powerful tool for optimising running conditions. From a few analytical experiments and cost factor information, such as for solvents and equipment, KromaGuide can be used to predict optimal running conditions such as sample loading, column dimensions, flow rate and particle size. Please contact Hichrom for further advice.

Ordering Information – 50mm (2") i.d. Columns and Bulk Material

Kromasil Silica (60Å, 100Å)

Particle Size (µm)	Column Dimensions	Bulk Material			
	250 x 50mm (2")	200g	500g	1000g	2000g
7					
10					
13					
16					

Kromasil C4, C8, C18, NH₂, Phenyl (100Å) and Kromasil CN, Diol, HILIC-D (60Å)

Particle Size (µm)	Column Dimensions	Bulk Material			
	250 x 50mm (2")	200g	500g	1000g	2000g
7					
10					
13					
16					

Kromasil Silica (300Å)

Particle Size (µm)	Column Dimensions	Bulk Material			
	250 x 50mm (2")	200g	500g	1000g	2000g
10					
16					

Kromasil C4, C8, C18 (300Å)

Particle Size (µm)	Column Dimensions	Bulk Material			
	250 x 50mm (2")	200g	500g	1000g	2000g
10					
16					

For alternative quantities and further ordering information, please contact Hichrom.