

Index HPLC Chromatography

HPLC Chromatography

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USP Column Listing

L1	Octadecyl silane chemically bonded to porous silica or ceramic microparticles, 3 to 10 µm in diameter.	MEDITERRANEA SEA18 TRACER EXCEL 120 ODS A TRACER EXCEL 120 ODS B Brisa LC ² C18 TRACER EXTRASIL ODS2 TRACER EXTRASIL ODS1 Advantix ODS Hyperpack ODS Hyperpack BASIC TSKgel ODS YMC PRO C18 HYPERASIL HyPURITY C18 LICHROSORB RP18 LICHROSPHER RP18 NUCLEOSIL 100 C18 NUCLEOSIL 120 C18 PARTISIL ODS3
L3	Porous silica microparticles, 5 to 10 µm in diameter.	TRACER EXCEL 120 Si TRACER EXTRASIL Si PINNACLE Si HYPERASIL Si ULTRA Si PINNACLE Si LICHROSORB Si LICHROSPHER Si NUCLEOSIL 100 Si NUCLEOSIL 120 Si PARTISIL Si
L7	Octyl silane chemically bonded to totally porous microsilica particles, 5 to 10 µm in diameter.	TRACER EXCEL 120 C8 TRACER EXTRASIL C8 Advantix C8 ULTRA C8 PINNACLE C8 TSKgel oCTYL HYPERASIL C8 LICHROSORB RP8 LICHROSPHER RP8 NUCLEOSIL 100 C8 NUCLEOSIL 120 C8
L8	An essentially monomolecular layer of aminopropyl-silane chemically bonded to totally porous silica gel support, 10 µm in diameter.	TRACER EXCEL 120 APS TRACER EXTRASIL NH2 TRACER EXCEL 120 C8 HYPERASIL NH2 LICHROSORB NH2 LICHROSPHER NH2 NUCLEOSIL 100 NH2 NUCLEOSIL 120 NH2
L9		TRACER EXTRASIL SCX PARTISIL SCX
L10	Nitrile groups chemically bonded to porous silica microparticles, 5 to 10 µm in diameter.	TRACER EXCEL 120 CN TRACER EXTRASIL CN HYPERASIL CPS HYPERASIL BDS CPS LICHROSORB CN LICHROSPHER CN NUCLEOSIL 100 CN NUCLEOSIL 120 CN
L11	Phenyl groups chemically bonded to porous silica microparticles, 5 to 10 µm in diameter.	TRACER EXCEL 120 PHENYL TRACER EXTRASIL PHENYL NUCLEOSIL 100 P
L13	Trimethylsilane chemically bonded to porous silica microparticles, 5 to 10 µm in diameter.	TRACER EXCEL 120 C1 TRACER EXTRASIL C1

L14	Silica gel, 10 µm in diameter, having a chemically bonded, strongly basic quaternary ammonium anion-exchange coating.	TRACER EXTRASIL SAX
L15	Hexyl silane chemically bonded to totally porous silica particles, 3 to 10 µm in diameter.	TRACER EXTRASIL C6
L16	Dimethyl silane chemically bonded to totally porous silica particles, 5 to 10 µm in diameter.	NUCLEOSIL 100 C2
L17	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the hydrogen form, 7 to 11 µm in diameter.	HAMILTON HC-75 HYDROGEN FORM COREGEL 87H ORH-801 ION-300
L18	Amino and cyano groups chemically bonded to porous silica particles, 5 to 10 µm in diameter.	PARTISIL PAC
L19	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the calcium form, 9 µm in diameter.	CARBOSEP CHO-820 CARBOSEP CHO-620 COREGEL 87-C CARBOSEP USP L19 CA HAMILTON HC-75 CALCIUM
L20	Dihydroxypropane groups chemically bonded to porous silica particles, 5 to 10 µm in diameter.	LICHROSORB DIOL LICHROSPHER DIOL
L21	A rigid, spherical styrene-divinylbenzene copolymer, 5 to 10 µm in diameter.	HAMILTON PRP-1
L22	A cation exchange resin made of porous polystyrene gel with sulfonic acid groups, about 10 µm in diameter.	HAMILTON PRP-X200
L23	An ion exchange resin made of porous polymethacrylate or polyacrylate gel with quaternary ammonium groups, about 10 µm in size.	HAMILTON PRP-X500
L24	A semi-rigid hydrophilic gel consisting of vinyl polymers with numerous hydroxyl groups on the matrix surface, 32 to 63µm in diameter.	TOYOPEARL HW, F Grade
L25	Packing having the capacity to separate compounds with a MW range from 100 to 5000 daltons (as determined by polyethylene oxide), applied to neutral, anionic, and cationic water-soluble polymers. A polymethacrylate resin base, crosslinked with polyhydroxylated ether (surface contained some residual carboxyl functional groups) was found suitable.	TSK-GEL G2500PW TSK-GEL G2500PWXL TSK-GEL G-Oligo PW
L26	Butyl silane chemically bonded to totally porous silica particles, 5 to 10 µm in diameter.	TRACER EXCEL 120 C4
L27	Porous silica particles, 30 to 50 µm in diameter.	Ymc-PACK SILICA 30/60
L30	Ethyl silane chemically bonded to a totally porous silica particle, 3 to 10 µm in diameter.	LICHROSORB RP-2
L33	Packing having the capacity to separate proteins of 4000 to 400000 daltons. It is spherical, silica-based and processed to provide pH stability.	TSK GEL SW AND SWXL SERIES
L34	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the lead form, about 9 µm in diameter.	CARBOSEP CHO-682 HAMILTON HC-75 Pb
L37	Polymethacrylate gel packing having the capacity to separate proteins by molecular size over a range of 2,000–40,000Da MW	TSK-Gel G 3000 PWXL
L38	Methacrylate-based size exclusion packing for water-solubles	TSK-GEL PW/PWXL
L40	Cellulose tris-3,5-dimethylphenylcarbamate coated porous silica particles, 5 to 20 µm in diameter	CHIRALCEL AD
L41	Immobilized alpha-acid glyco-protein on spherical silica particles, 5 µm in diameter	CHIRAL-AGP
L43	Pentafluorophenyl groups chemically bonded to silica particles 5 to 10 µm in diameter	Hypersil GOLD PFP

New Hardware Design Column: Ultrafit™ System

The new Ultrafit™ design will make your work in the laboratory more comfortable and efficient. The Ultrafit™ system, as well as helping in the replacement of the frit at the column entrance, enables you to easily include either additional frits or a pre-column, always with the utmost simplicity and economy and in no way whatsoever is the quality of the separation affected.

In designing the Ultrafit™ column, the greatest care has been taken to cover all the aspects that may occur in the loss of efficiency of the column. As a result of all this, dead volumes have been reduced to a minimum, entered by the system by means of a high precision mechanism, with inlet and outlet holes of 0.2 mm and first-class tapers for the perfect distribution of the inlet and outlet flows, as seen in the three depicted Ultrafit™ options. The Ultrafit™ system enables a pre-column to be included without loss of efficiency, to columns as small as 30 x 4 mm packed with particles of 3 μm.

Moreover, the very best material has been selected for the construction of the column, with an ultra-shiny interior finish, of extremely low RMS, ensuring that no tube imperfection in the column will affect the quality of the separation.

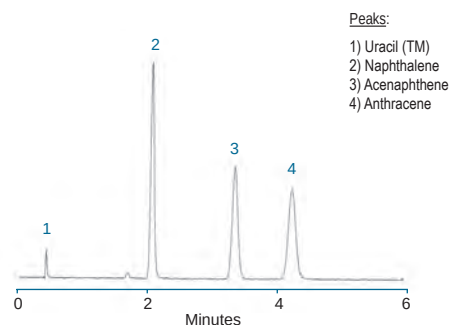
Ultrafit™ System Efficiency

Column	Efficiency (N/m)	AS (10%)
mediterranea sea18 Column 3 μm 5 x 0,46 cm Ultrafit™ System	134904	1,11
mediterranea sea18 Column 3 μm 5 x 0,46 cm with Prefilter Ultrafilter™	135042	1,05
mediterranea sea18 Column 3 μm 5 x 0,46 cm with Precolumn Ultraguard™	137819	1,07

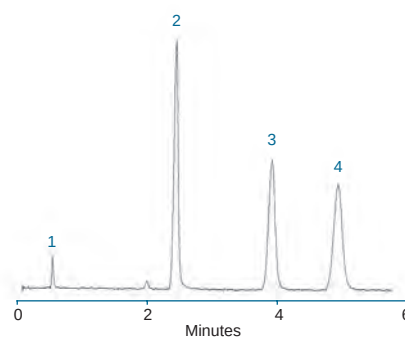
Chromatographic Conditions:

Column: mediterranea sea18 3 mm 5 x 0,46 cm
 Eluant: Acetonitrile/Water 65:35
 Flow: 0,9 ml/min
 Det: UV 254 nm
 Temp: Room
 Sample: Acenaphthene 0,2 mg/ml

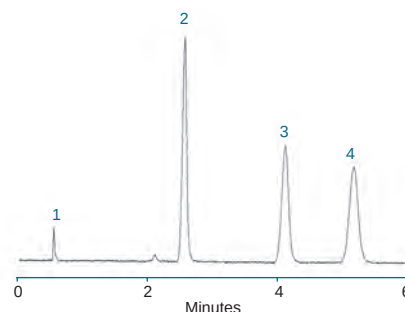
Our Columns **Mediterranea™**, **Europa Peptides**, **Europa Proteins & Tracer Excel** are built with the new Ultrafit™ System



Column with Ultrafit™ System

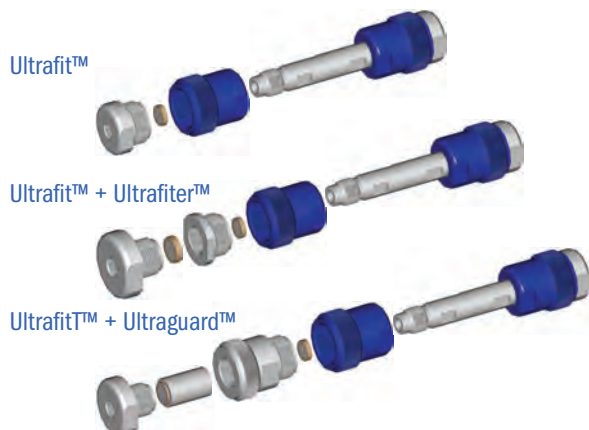


Column with Ultrafit™ System + Ultrafilter™



Column with Ultrafit™ System + Ultraguard™

Ultrafit™ System Configuration





To get HPLC columns with maximum efficiency and peak symmetry, Teknokroma uses tubing and connections designed and fully optimized to provide you superior performance than achievable with columns from the major manufacturers.

The Novacol™ columns, designed and manufactured by Teknokroma, use the best bonding reagents, packing support materials and proprietary Novabond™ procedures. Novacol™ tubing uniformity and polished interior finish generates higher efficiencies than columns from the major manufacturers. The latest in current research trends in HPLC are included in Novacol™ columns; including smaller particle size, greater particle uniformity, reduced tubing internal diameters and shorter columns for LC-MS applications. Novacol™ columns are designed with a new generation of tubing interior surfaces, connections, end-fittings and packing procedures. Our Novabond™ proprietary procedures allows us to manufacture columns as small as 2mm ID with 3 µm particles and columns as short as 5cm long with 2mm ID with no loss in theoretical efficiency.

Our Novacol™ columns have added another new feature - the incorporation of Microtaper™ in the design and manufacture of our Novacol frits to optimize the correct sample filtering distribution at the entry and exit of the column.

Lastly, we designed Novacol™ columns to allow you to easily change frits without running the risk of affecting the column packing during the exchange. Novacol™ columns are compatible with all 10/32 Valco-type connections.

Novacol™ columns are available in a wide range of standard internal diameters (4.6, 4.0, 3.0, and 2.1mm ID) and various standard lengths (3, 5, 10, 12.5, 15, 20, 25, and 30cm), which allows you to adapt to all chromatographic modes: microbore, ultrafast and analytical.



Microbore Columns

Microbore Columns

Low Dispersion Chromatography

Our experience in the manufacture of HPLC columns allow us to offer the possibility to work with this interesting chromatographic concept. These columns of 2 and 3mm of internal diameter, packed with the same packings than 3 and 5 μm analytical columns, contribute to an important solvents saving and at the time a detectability considerable increase.

Sensitivity of Detection

Since the detectability depends on the grade of dilution of the sample while it passes through the column, a reduction of the internal diameter of the column redounds directly in a minor dilution and therefore in an increment of the detection sensibility.

Solvents Saving

The same chromatogram obtained with a conventional 4,6 mm ID column working at 2 ml/min can be obtained with a flow of 0,4 ml/min when it is worked with a 2,1 mm ID microbore column. This represents a 80 % saving of the eluyent wasted in HPLC, which means that for a standard job in a chromatograph will represent a saving of 15 liters of solvent.

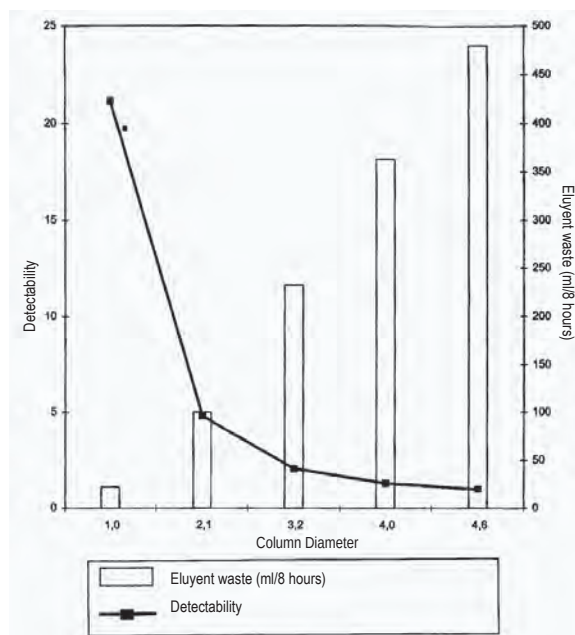
Instrumentation

The level of development achieved by the instrumentation of HPLC allows that these kind of columns can be used by most of the commercialized chromatographs.

In many cases, the 90 % of efficiency loss owed to the chromatograph system, can be eliminated simply with the optimization of connections and the capilar tubes that connect the injector to column and column to detector.

Column (mm)	Eluyent Waste	Detectability
4.6	480	1
4.0	363	1.322
3.2	232	2.066
2.1	100	4.798
1	22.68	21.16

**Available also 1 mm internal diameter columns.
Please contact with your representative.**



High-speed chromatography

The use of ultrarapid columns is ideal when short times of analyses are needed (0.5-3.0 min) and high efficiencies of separation. These columns 3-10 cm of length, are packed with spherical packs of 3 μm , and offer efficiencies of 5-15000 N column (equivalents to 120-150000 N/m), more than enough for the majority of separations.

Sensitivity of detection

Reducing the size of particle the dispersion of the sample in the inside of the column decreases also.

In this way, the use of ultrarapid columns give a significant improvement of the limit of detection when compared with the one obtained with analytical conventional columns.

High resolution

Columns of 15-25 cm length packaged with 3 μm packs achieve efficiencies of over 30000 N/column, which can be very useful when very complex samples require high separation capabilities.

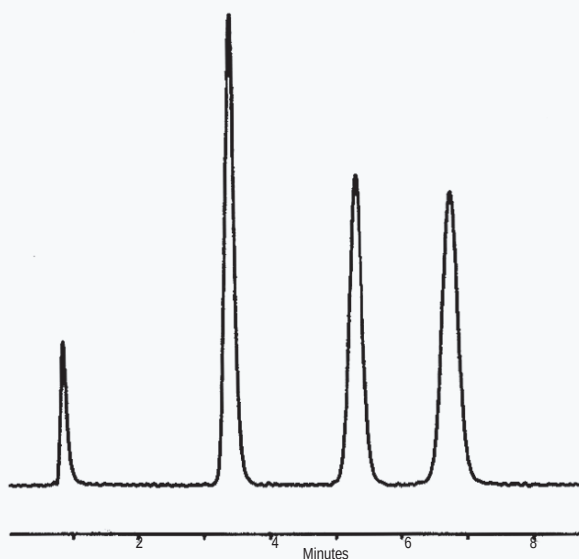
Economy

The reduced time of analysis that is achieved with these columns and therefore the elevated number of samples that can be processed per time unit, compared with conventional columns, allows optimizing to the full the performance of one chromatographic equipment. The extensive selection of available phases allows turning any chromatographic separation into ultrarapid, with all the advantages that this bears.

Instrumentation

The use of this kind of columns does not require any especial chromatographic equipment.

In some cases it may be necessary to optimize the system with the use of adequate conductions to minimize the efficiency losses due to extra-column dead volumes. Besides, thanks to the elevated number of plates (N/col) of these columns, it can be tolerated a certain loss of efficiency due to the system, without affecting greatly to the resolution.



Sample:

1. Uracil
2. Naphtalene
3. Acenaphthene
4. Anthracene

140,000 N m

4.900 N column

Time of analysis: 40 seg.

Column: Tracer Extrasil
ODS2 3 μ 3,5 x 0,46 cm

Eluyent: Acetonitrile/H₂O 65:35

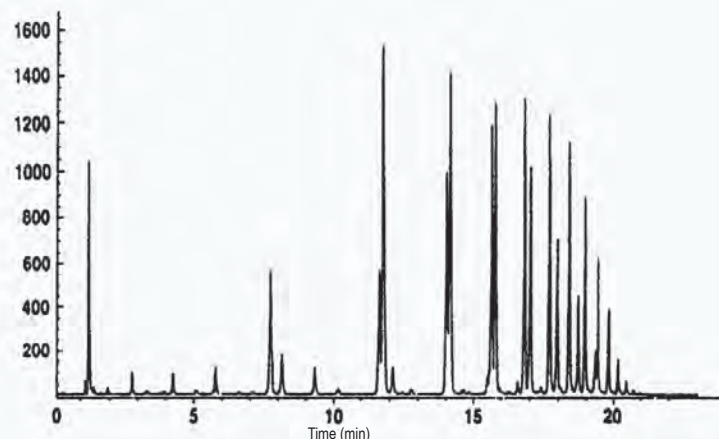
Flow: 4.0 ml/min

Pressure: 110 bar

Sample volume: 10 μl

Temperature: Amb.

Detection: UV 254 nm



Sample : Oligomeres of Polycarbonate

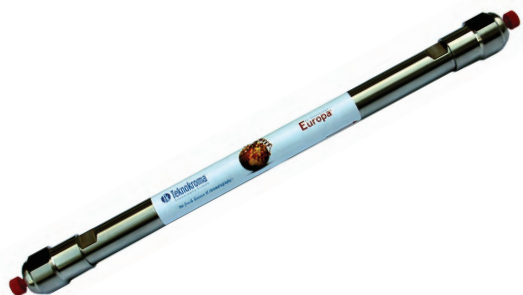
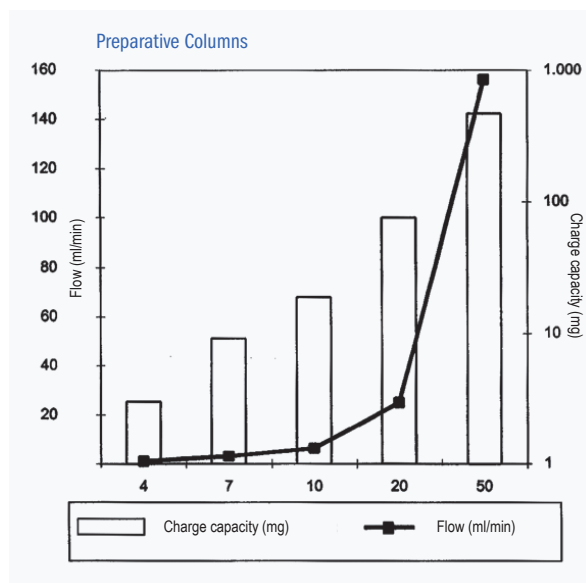
Column: Nucleosil 120 3 μ C-18 25 x 0.4 cm

Eluyent: A: 10mM phosphoric acid
B: Acetonitrile

Gradient: 70-100% of B in 30 min

Flow: 3.0 ml/min

Temperature: 70 °C; Detection: UV 200 nm



Preparative Chromatography

Teknokroma has developed the semi-preparative columns with the same criteria of quality and versatility that has taken us to lead the market of HPLC analytical columns.

Versatility

Teknokroma offers the highest range of phases of the market, covering practically all kind of functional groups. This simplifies enormously the transposition from the analytical scale to the preparative.

Besides, a complete range of dimensions of column, from 7.8 mm to 21 mm of diameter, with lengths up to 25 cm and with a high selection of particle sizes, makes it easy the definition of the ideal configuration of column in relation to his volume capacity and the kind of chromatographic equipment available in the laboratory.

Quality

Teknokroma has selected only those materials that offer the maximum efficiency and reproducibility.

Each column is individually tested to guarantee that will fulfil the high standards of quality demanded, controlling the parameters of efficiency, peak symmetry and selectivity.

Analytical Quality Packing

The preparative columns packaged with 5 and 10 μ m analytical packing offer exactly the same benefit levels than the correspondent analytical columns.

Its high pressure packing ensures a high stability and consequently a long life use of the column.

Preparative quality packings

The packing of preparative quality are the recommended for 20 mm ID or upper columns. These packings are manufactured under the same quality standards, with the difference that they present a particle size normally bigger and a size dispersion not as adjusted as the analytical packings.

The result is an inferior cost of the column and, therefore, in many cases an optimized cost for preparative separations. Higher diameters of column available.

All kind of preparative packings and process packings. Consult our technical department.

Guard Columns for HPLC



Guard Column 1 cm x 0,32 cm



Reference	Description
TR-C-160	Holder for 1 cm guard columns
TR-C-160K1	Holder + 2 cartridges ODS
TR-C-160K2	Holder + 2 cartridges Si
TR-C-160K3	Holder + 2 cartridges C8
TR-C-160K4	Holder + 2 cartridges NH2
TR-C-160K5	Holder + 2 cartridges SAX
TR-C-160K6	Holder + 2 cartridges CN
TR-C-160K7	Holder + 2 cartridges PAH
TR-C-160K8	Holder + 2 cartridges C6H5
TR-C-160K9	Holder + 2 cartridges CARBOHYDRATES
TR-C-160K10	Holder + 2 cartridges ANION
TR-C-160K11	Holder + 2 cartridges SCX
TR-C-160K12	Holder + 2 cartridges C2
TR-C-160K13	Holder + 2 cartridges 300 C4
TR-C-160K14	Holder + 2 cartridges 300 C8
TR-C-160K15	Holder + 2 cartridges DIOL
TR-C-160K16	Holder + 2 cartridges 300 C18
TR-C-160K17	Holder + 2 cartridges C4
TR-C-160K18	Holder + 2 cartridges PRP-1
TR-C-160K19	Holder + 2 cartridges PEPTIDE C18
TR-C-160K20	Holder + 2 cartridges C1
TR-C-160K21	Holder + 2 cartridges C6
TR-C-160-1	ODS Cartridges (5 units)
TR-C-160-2	Si Cartridges (5 units)
TR-C-160-3	C8 Cartridges (5 units)
TR-C-160-4	NH2 Cartridges (5 units)
TR-C-160-5	SAX Cartridges (5 units)
TR-C-160-6	CN Cartridges (5 units)
TR-C-160-7	PAH Cartridges (5 units)
TR-C-160-8	C6H5 Cartridges (5 units)
TR-C-160-9	CARBOHYDRATES Cartridges (5 units)
TR-C-160-10	ANION Cartridges (5 units)
TR-C-160-11	SCX Cartridges (5 units)
TR-C-160-12	C2 Cartridges (5 units)
TR-C-160-13	300C4 Cartridges (5 units)
TR-C-160-14	300C8 Cartridges (5 units)
TR-C-160-15	DIOL Cartridges (5 units)
TR-C-160-16	300C18 Cartridges (5 units)
TR-C-160-17	C4 Cartridges (5 units)
TR-C-160-18	PRP-1 Cartridges (5 units)
TR-C-160-19	PEPTIDE C18 Cartridges (5 units)
TR-C-160-20	C1 Cartridges (5 units)
TR-C-160-21	C6 Cartridges (5 units)

Guard Column 1 cm x 0,40 cm



Reference	Description
TR-C-160	Holder for 1 cm guard columns
TR-C-160K1-4	Holder + 2 cartridges ODS
TR-C-160K2-4	Holder + 2 cartridges Si
TR-C-160K3-4	Holder + 2 cartridges C8
TR-C-160K4-4	Holder + 2 cartridges NH2
TR-C-160K5-4	Holder + 2 cartridges SAX
TR-C-160K6-4	Holder + 2 cartridges CN
TR-C-160K7-4	Holder + 2 cartridges PAH
TR-C-160K8-4	Holder + 2 cartridges C6H5
TR-C-160K9-4	Holder + 2 cartridges CARBOHYDRATES
TR-C-160K10-4	Holder + 2 cartridges ANION
TR-C-160K11-4	Holder + 2 cartridges SCX
TR-C-160K12-4	Holder + 2 cartridges C2
TR-C-160K13-4	Holder + 2 cartridges 300 C4
TR-C-160K14-4	Holder + 2 cartridges 300 C8
TR-C-160K15-4	Holder + 2 cartridges DIOL
TR-C-160K16-4	Holder + 2 cartridges 300 C18
TR-C-160K17-4	Holder + 2 cartridges C4
TR-C-160K18-4	Holder + 2 cartridges PRP-1
TR-C-160K19-4	Holder + 2 cartridges PEPTIDE C18
TR-C-160K20-4	Holder + 2 cartridges C1
TR-C-160K21-4	Holder + 2 cartridges C6
TR-C-160-1-4	ODS Cartridges (5 units)
TR-C-160-2-4	Si Cartridges (5 units)
TR-C-160-3-4	C8 Cartridges (5 units)
TR-C-160-4-4	NH2 Cartridges (5 units)
TR-C-160-5-4	SAX Cartridges (5 units)
TR-C-160-6-4	CN Cartridges (5 units)
TR-C-160-7-4	PAH Cartridges (5 units)
TR-C-160-8-4	C6H5 Cartridges (5 units)
TR-C-160-9-4	CARBOHYDRATES Cartridges (5 units)
TR-C-160-10-4	ANION Cartridges (5 units)
TR-C-160-11-4	SCX Cartridges (5 units)
TR-C-160-12-4	C2 Cartridges (5 units)
TR-C-160-13-4	300C4 Cartridges (5 units)
TR-C-160-14-4	300C8 Cartridges (5 units)
TR-C-160-15-4	DIOL Cartridges (5 units)
TR-C-160-16-4	300C18 Cartridges (5 units)
TR-C-160-17-4	C4 Cartridges (5 units)
TR-C-160-18-4	PRP-1 Cartridges (5 units)
TR-C-160-19-4	PEPTIDE C18 Cartridges (5 units)
TR-C-160-20-4	C1 Cartridges (5 units)
TR-C-160-21-4	C6 Cartridges (5 units)

Guard Column 2 cm x 0,32 cm



(2 cm x 0,32 cm)

Reference	Description
TR-C-460	Holder for 2 cm guard columns
TR-C-460K1	Holder + 2 cartridges ODS
TR-C-460K2	Holder + 2 cartridges Si
TR-C-460K3	Holder + 2 cartridges C8
TR-C-460K4	Holder + 2 cartridges NH2
TR-C-460K5	Holder + 2 cartridges SAX
TR-C-460K6	Holder + 2 cartridges CN
TR-C-460K7	Holder + 2 cartridges PAH
TR-C-460K8	Holder + 2 cartridges C6H5
TR-C-460K9	Holder + 2 cartridges CARBOHYDRATES
TR-C-460K10	Holder + 2 cartridges ANION
TR-C-460K11	Holder + 2 cartridges SCX
TR-C-460K12	Holder + 2 cartridges C2
TR-C-460K13	Holder + 2 cartridges 300 C4
TR-C-460K14	Holder + 2 cartridges 300 C8
TR-C-460K15	Holder + 2 cartridges DIOL
TR-C-460K16	Holder + 2 cartridges 300 C18
TR-C-460K17	Holder + 2 cartridges C4
TR-C-460K18	Holder + 2 cartridges PRP-1
TR-C-460K19	Holder + 2 cartridges PEPTIDE C18
TR-C-460K20	Holder + 2 cartridges C1
TR-C-460K21	Holder + 2 cartridges C6
TR-C-460-1	ODS Cartridges (5 units)
TR-C-460-2	Si Cartridges (5 units)
TR-C-460-3	C8 Cartridges (5 units)
TR-C-460-4	NH2 Cartridges (5 units)
TR-C-460-5	SAX Cartridges (5 units)
TR-C-460-6	CN Cartridges (5 units)
TR-C-460-7	PAH Cartridges (5 units)
TR-C-460-8	C6H5 Cartridges (5 units)
TR-C-460-9	CARBOHYDRATES Cartridges (5 units)
TR-C-460-10	ANION Cartridges (5 units)
TR-C-460-11	SCX Cartridges (5 units)
TR-C-460-12	C2 Cartridges (5 units)
TR-C-460-13	300C4 Cartridges (5 units)
TR-C-460-14	300C8 Cartridges (5 units)
TR-C-460-15	DIOL Cartridges (5 units)
TR-C-460-16	300C18 Cartridges (5 units)
TR-C-460-17	C4 Cartridges (5 units)
TR-C-460-18	PRP-1 Cartridges (5 units)
TR-C-460-19	PEPTIDE C18 Cartridges (5 units)
TR-C-460-20	C1 Cartridges (5 units)
TR-C-460-21	C6 Cartridges (5 units)

Guard Column 2 cm x 0,40 cm



(2 cm x 0,40 cm)

Reference	Description
TR-C-460	Holder for 2 cm guard columns
TR-C-460K1-4	Holder + 2 cartridges ODS
TR-C-460K2-4	Holder + 2 cartridges Si
TR-C-460K3-4	Holder + 2 cartridges C8
TR-C-460K4-4	Holder + 2 cartridges NH2
TR-C-460K5-4	Holder + 2 cartridges SAX
TR-C-460K6-4	Holder + 2 cartridges CN
TR-C-460K7-4	Holder + 2 cartridges PAH
TR-C-460K8-4	Holder + 2 cartridges C6H5
TR-C-460K9-4	Holder + 2 cartridges CARBOHYDRATES
TR-C-460K10-4	Holder + 2 cartridges ANION
TR-C-460K11-4	Holder + 2 cartridges SCX
TR-C-460K12-4	Holder + 2 cartridges C2
TR-C-460K13-4	Holder + 2 cartridges 300 C4
TR-C-460K14-4	Holder + 2 cartridges 300 C8
TR-C-460K15-4	Holder + 2 cartridges DIOL
TR-C-460K16-4	Holder + 2 cartridges 300 C18
TR-C-460K17-4	Holder + 2 cartridges C4
TR-C-460K18-4	Holder + 2 cartridges PRP-1
TR-C-460K19-4	Holder + 2 cartridges PEPTIDE C18
TR-C-460K20-4	Holder + 2 cartridges C1
TR-C-460K21-4	Holder + 2 cartridges C6
TR-C-460-1-4	ODS Cartridges (5 units)
TR-C-460-2-4	Si Cartridges (5 units)
TR-C-460-3-4	C8 Cartridges (5 units)
TR-C-460-4-4	NH2 Cartridges (5 units)
TR-C-460-5-4	SAX Cartridges (5 units)
TR-C-460-6-4	CN Cartridges (5 units)
TR-C-460-7-4	PAH Cartridges (5 units)
TR-C-460-8-4	C6H5 Cartridges (5 units)
TR-C-460-9-4	CARBOHYDRATES Cartridges (5 units)
TR-C-460-10-4	ANION Cartridges (5 units)
TR-C-460-11-4	SCX Cartridges (5 units)
TR-C-460-12-4	C2 Cartridges (5 units)
TR-C-460-13-4	300C4 Cartridges (5 units)
TR-C-460-14-4	300C8 Cartridges (5 units)
TR-C-460-15-4	DIOL Cartridges (5 units)
TR-C-460-16-4	300C18 Cartridges (5 units)
TR-C-460-17-4	C4 Cartridges (5 units)
TR-C-460-18-4	PRP-1 Cartridges (5 units)
TR-C-460-19-4	PEPTIDE C18 Cartridges (5 units)
TR-C-460-20-4	C1 Cartridges (5 units)
TR-C-460-21-4	C6 Cartridges (5 units)

Guard Columns for HPLC

Guard Columns for HPLC Columns

- Interposed between the injector and the column these precolumns lengthen the life of the column and improve the reproducibility of their results.
- Packed with the most modern HPLC packings and Novabond™ proprietary packing procedures.
- Economic and easily replaced.
- For general use in any HPLC system.
- Packed at high pressure for maximum stability and duration.
- Their use does not imply any loss of efficiency, even with packings of 3 µm or with microbore columns of 2mm ID

BIOCOMPATIBLE Guard Columns

- 100% biocompatible.
- Economical cartridge system with titanium frits.

Constructed in PEEK® and packed with de-activated silica: the steel holder also ensures a total biocompatibility by having every µm in contact with the mobile phase made of PEEK®.

Guard Column Cartridges, Biocompatible

2.0mm ID X 1 cm, 10 µm

UP-C-280	Reversed Phase C18	3-pk
UP-C-282	Reversed Phase C18	10-pk
UP-C-753	Absorption Si	3-pk
UP-C-754	Absorption Si	10-pk
UP-C-755	Amino Phase NH ₂	3-pk
UP-C-756	Amino Phase NH ₂	10-pk
UP-C-757	Cyano Phase CN	3-pk
UP-C-758	Cyano Phase CN	10-pk

Guard Column Cartridges, Biocompatible

4.3mm ID X 1 cm, 5 µm

UP-C-750	Reversed Phase C18	3-pk
UP-C-752	Reversed Phase C18	10-pk
UP-C-759	Absorption Si	3-pk
UP-C-760	Absorption Si	10-pk
UP-C-761	Amino Phase NH ₂	3-pk
UP-C-762	Amino Phase NH ₂	10-pk
UP-C-763	Cyano Phase CN	3-pk
UP-C-764	Cyano Phase CN	10-pk

Guard Column Cartridge Holders, Biocompatible

UP-C-270 High Pressure, Stainless Steel, with (2) F-200 Fittings

UP-C-283 Low Pressure, Teflon, with (2) P-200/P-245 Fittings

Cartridge Guard Column Kits

UP-C-281 2.0mm ID C18 Cartridges (6-pk) with (1) C-270 Assembly

UP-C-751 4.3mm ID C18 Cartridges (6-pk) with (1) C-270 Assembly

Europa™ Guard Columns

Product	Description	Cat.Nbr.
Ultrafilter™	Ultrafit prefilter adaptor (frit not included)	TR-010067
	Frits of 0.5 µm pore (10 units)	TR-010069
	Frits of 2.0 µm pore (10 units)	TR-010070
Ultraguard™	Ultrafit Guardcolumn adaptor (guard column not included)	TR-010068
Guard Column	Peptide C18 10 x 3.2 mm (5 units)	TR-C-160-19
Guard Column	Protein 300 C18 10 x 3.2 mm (5 units)	TR-C-160-16
Guard Column	Protein 300 C8 10 x 3.2 mm (5 units)	TR-C-160-14
Guard Column	Protein 300 C4 10 x 3.2 mm (5 units)	TR-C-160-13

Tracer Excel™ Guard Columns

Product	Description	Cat.Nbr.
Ultrafilter™	Ultrafit prefilter adaptor (frit not included)	TR-010067
	Frits of 0.5 µm pore (10 units)	TR-010069
	Frits of 2.0 µm pore (10 units)	TR-010070
Ultraguard™	Ultrafit Guardcolumn adaptor (guard column not included)	TR-010068
Guard Column	ODS 10 x 3.2 mm (5 units)	TR-C-160-1
Guard Column	Si 10 x 3.2 mm (5 units)	TR-C-160-2
Guard Column	C8 x 3.2 mm (5 units)	TR-C-160-3
Guard Column	NH ₂ 10 x 3.2 mm (5 units)	TR-C-160-4
Guard Column	CN 10 x 3.2 mm (5 units)	TR-C-160-6
Guard Column	Ph 10 x 3.2 mm (5 units)	TR-C-160-8
Guard Column	C4 10 x 3.2 mm (5 units)	TR-C-160-17
Guard Column	C1 10 x 3.2 mm (5 units)	TR-C-160-20

mediterranea™ sea Guard Columns

Product	Description	Cat.Nbr.
Ultrafilter™	Ultrafit prefilter adaptor (frit not included)	TR-010067
	Frits of 0.5 µm pore (10 units)	TR-010069
	Frits of 2.0 µm pore (10 units)	TR-010070



Guard Columns for HPLC

Ultraguard™, Ultrafit Guardcolumn adaptor
(guard column not included)

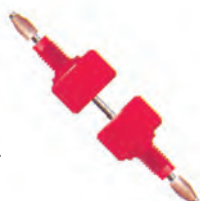


TR-010068

Guard Column	Sea18 10 x 3.2 mm (5 units)	TR-010071
Guard Column	Sea8 10 x 3.2 mm (5 units)	TR-010073
Guard Column	Sea4 10 x 3.2 mm (5 units)	TR-010074

COLUMN-GUARD COLUMN CONNECTOR

- Economical
- Minimum dead volume
- This column-Guard Column connector is the ideal solution for this type of connection, as its dead volume is practically negligible.



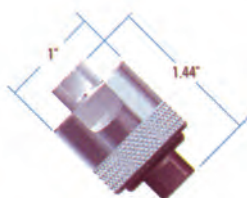
Column-Guard Column connectors

U-284 Union Column-Precolumn

Reference	Description
UP-U-284	Fingertight F-200 coupler, Delrin®, and .007" ID stainless steel tubing.
UP-U-287	Fingertight F-300 coupler, PEEK®, and .007" ID stainless steel tubing.

Semipreparative Guard Columns

- For semipreparative HPLC and SFC 1 cm I.D.



UP-C.1000. Holder for semipreparative cartridge

Reference	Description
UP-C-1000	Semi-Prep holder
TR-C-360K1	Semi-Prep cartridge ODS (2 units) + UP-C-1000 holder
TR-C-360K2	Semi-Prep cartridge Si (2 units) + UP-C-1000 holder
TR-C-360K3	Semi-Prep cartridge C8 (2 units) + UP-C-1000 holder
TR-C-360K4	Semi-Prep cartridge NH2 (2 units) + UP-C-1000 holder
TR-C-360K6	Semi-Prep cartridge CN (2 units) + UP-C-1000 holder
TR-C-360K13	Semi-Prep cartridge Protein C4 (2 units) + UP-C-1000 holder
TR-C-360K14	Semi-Prep cartridge Protein C8 (2 units) + UP-C-1000 holder
TR-C-360K16	Semi-Prep cartridge Protein C18 (2 units) + UP-C-1000 holder
TR-C-360K17	Semi-Prep cartridge Peptide C18 (2 units) + UP-C-1000 holder
TR-C-360K18	Semi-Prep cartridge Mediterranean Sea 18 (2 units) + UP-C-1000 holder
TR-C-360-1	Semi-Prep cartridge ODS (2 units)
TR-C-360-2	Semi-Prep cartridge Si (2 units)
TR-C-360-3	Semi-Prep cartridge C8 (2 units)
TR-C-360-4	Semi-Prep cartridge NH2 (2 units)
TR-C-360-6	Semi-Prep cartridge CN (2 units)
TR-C-360-13	Semi-Prep cartridge Protein C4 (2 units)
TR-C-360-14	Semi-Prep cartridge Protein C8 (2 units)
TR-C-360-16	Semi-Prep cartridge Protein C18 (2 units)
TR-C-360-17	Semi-Prep cartridge Peptide C18 (2 units)
TR-C-360-18	Semi-Prep cartridge Mediterranean Sea 18 (2 units)

Spares for Guard Column cartridges

Reference	Description
TR-C-1030	Stainless steel frit 2 µm
TR-C-1031	Titanium frit 2 µm

Preparative Guard Column

- Valuable prep column protection, 20-50mm ID
- Low Pressure Drop
- High performance sample distribution mechanism



Reference	Description
TR-C-260	Preparative Holder
TR-C-260K1	Prep cartridge ODS (2 units) + TR-C-260 Preparative Holder
TR-C-260K2	Prep cartridge Peptide C18 (2 units) + TR-C-260 Preparative Holder
TR-C-260K3	Prep cartridge C8 (2 units) + TR-C-260 Preparative Holder
TR-C-260K4	Prep cartridge NH2 (2 units) + TR-C-260 Preparative Holder
TR-C-260K6	Prep cartridge CN (2 units) + TR-C-260 Preparative Holder
TR-C-260K13	Prep cartridge Protein C4 (2 units) + TR-C-260 Preparative Holder
TR-C-260K14	Prep cartridge Protein C8 (2 units) + TR-C-260 Preparative Holder
TR-C-260K16	Prep cartridge Protein C18 (2 units) + TR-C-260 Preparative Holder
TR-C-260K17	Prep cartridge Si (2 units) + TR-C-260 Preparative Holder
TR-C-260K18	Prep cartridge Mediterranean Sea 18 (2 units) + TR-C-260 Preparative Holder

TR-C-260-1	Prep cartridge ODS (2 units)
TR-C-260-2	Prep cartridge Peptide C18 (2 units)
TR-C-260-3	Prep cartridge C8 (2 units)
TR-C-260-4	Prep cartridge NH2 (2 units)
TR-C-260-6	Prep cartridge CN (2 units)
TR-C-260-13	Prep cartridge Protein C4 (2 units)
TR-C-260-14	Prep cartridge Protein C8 (2 units)
TR-C-260-16	Prep cartridge Protein C18 (2 units)
TR-C-260-17	Prep cartridge Si (2 units)
TR-C-260-18	Prep cartridge Mediterranean Sea 18 (2 units)

Iso-Prep™ Filter for Preparative Columns



- Economical protection for preparative HPLC column and injector
- Precolumn/Inline filter functionality
- Stable to 8,000 psi
- Replaceable filters

Reference	Description
TR-C-260-F	In Line Filter
TR-C-260-FX	Replacement Filter (10 units)



Introduction

The mediterranea™ sea18 column provides a performance level that, until now, has not been reached in efficiency, inertness, pH-robustness, reproducibility and reliability. mediterranea™ sea18 columns simplify and make your HPLC work more pleasant. You won't worry about the extreme basic or acidic natures of your samples with the mediterranea™ sea18 column.

The versatility of the mediterranea™ sea18 column will enable you to deal successfully with the immense variety of separations in the fields of pharmaceuticals, life sciences, environment, foods, etc.

Once every ten years, the world of chromatography experiences a revolutionary technology that surpasses all others and meets the expectations of chromatographic scientists.

Teknokroma has focused all its efforts and all its know-how, accumulated through more than 30 years of chromatographic research and development, in offering the global-best reverse phase HPLC packing mediterranea™ sea18.

While developing the mediterranea™ sea18 column we created two novel proprietary bonding & packing technologies. In order to demonstrate the global-best technology of mediterranea™ sea18, we compared chromatographic results from the world's most popular reverse-phase HPLC columns. We invite you to try our mediterranea™ sea18 when you experience less-than-satisfactory results with your favourite column.

Today there is still a consensus about the fact that the best material to use as chromatographic packing continues to be silica. The particles of this material are very physically resistant, enable multiple functions, present maximum levels of efficiency and are also compatible with practically all solvents.

Teknokroma has been concentrated on obtaining the best silica particle in the market. The silica particle on which the mediterranea™ sea18 column is based is the result of an optimisation process in which, starting off from extremely pure materials with unusual low metal content, a perfectly spherical, rigid and inert particle has been obtained. Furthermore, the "porification" process developed for these ends (Surface Enhanced Accessibility, SEA) has achieved a high surface without losing any of its properties of physical resistance while also showing a very high load capacity, ideal for preparatory scaled processes. Moreover, the obtained porous structure ensures the maximum transfer speed of the solutes between the stationary and mobile phases, resulting in a greater separation efficiency.

Let us demonstrate the superior chromatographic properties of the mediterranea™ sea18 column, so you will feel comfortable with the performance of the world's best reverse-phase HPLC column.



mediterranea™ Sea HPLC Column

Purity of Silica

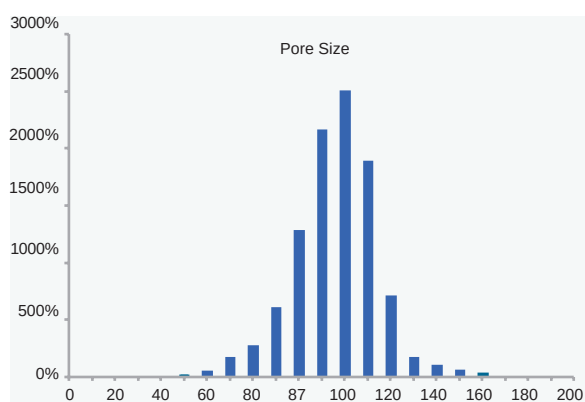
After evaluating many materials as a base for the global-best reverse phase chromatographic packing, the clear consensus is that the special characteristics of silica packings classify them as unsurpassable. No other packing material, apart from ultra-pure silica, achieves the perfect balance of physical resistance, functional use, chemical inertness, reproducibility and efficiency. Ultra-pure silica is also compatible with practically all solvents. Teknokroma concentrated on presenting the best silica particle to the HPLC market.

An essential condition for obtaining the global-best reverse phase packing is an extremely pure silica. The silica particle, on which the new mediterranea™ sea18 packing is based, is obtained from ultra-pure materials, using rigorously controlled manufacturing processes to ensure that the slightest possibility of contamination is avoided. The mediterranea™ sea18 silica required intensive optimisation of numerous processing factors to achieve a perfectly spherical, rigid and inert particle possessing unusually low metal content. The almost total absence of metals is one of the pillars over which the extraordinary properties of the mediterranea™ sea18 column reside.

Metals Content (ppm)

Metal	Values Obtained
Al	<1ppm
Fe	<1ppm
Ti	<1ppm
Zr	<1ppm

Porosity (Surface Enhanced Accessibility, SEA)



The pore distribution of the mediterranea™ sea18 column has been optimised by our own proprietary process called Surface Enhanced Accessibility (Sea). The Surface Enhanced Accessibility "porification" process creates high surface area without losing silica structural strength, chemical resistance, chemical inertness and high load capacity. Surface Enhanced Accessibility also ensures that practically 100% of the internal packing surface has been chemically bonded, endcapped, and is accessible to compounds being separated. Moreover, the Surface Enhanced Accessibility of mediterranea™ sea18 ensures the maximum transfer speed of the solutes between the stationary and mobile phases, resulting in a greater separation efficiency.

More than 98% of the silica surface area responsible for chromatographic separation of the sample is found inside the particle - within the pores. This explains the extreme importance of obtaining a very homogeneous pore distribution and the least possible number of nanopores. For most reverse-phase silica packings, these nanopores are not properly chemically bonded, endcapped or deactivated. So when nanopores are accessible to analytes, surface-analyte interactions frequently dominate. These surface-analyte interactions slow down the chromatographic process ("load transfer"), often resulting in decreased column efficiency. These treacherous nanopores may also negatively influence the phenomenon of dewetting which occurs with totally aqueous mobile phases.

Multifunctional Endcapping Deactivation (MED)

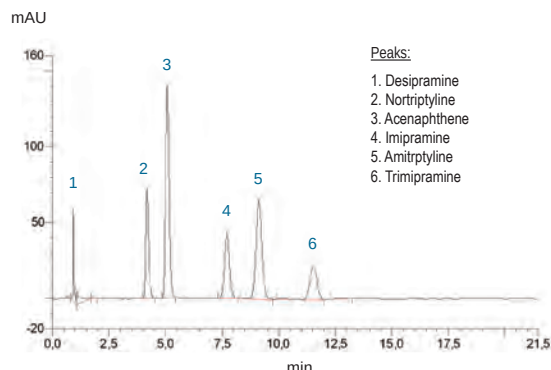
The endcapping process is a critical step in obtaining a perfectly deactivated mediterranea™ sea18 column. Our proprietary Multifunctional Endcapping Deactivation (MED) technology maximizes surface-bonding, blocking practically all the active centres that may have remained on the surface of the silica after bonding the C18 chains. Thanks to our new MED technology, the mediterranea™ sea18 column enjoys an unusual low level of silanol activity - helping you to obtain symmetrical peaks from even the most basic and acidic pharmaceuticals and their metabolites. mediterranea™ sea18 bonding chemistries will help you to achieve an extraordinary resistance and column lifetime when running at extreme pH levels.

Moreover, the mediterranea™ sea18 column has been designed to show an excellent retention of polar compounds in a 100% aqueous environment without the problems of unwanted interactions which inefficiently endcapped conventional packings produce. Packing chemistry based on the new MED technology, "multifunctional endcapping deactivated", achieves levels of deactivation, resistance to extreme pH values and versatility in its chromatographic applications never reached by conventional or polar-embedded reverse phase packings. The MED technology has been rigorously developed to achieve the maximum reproducibility, with the objective that its chromatographic separations will be, column to column, exactly the same.

The obtained deactivation is shown when we make chromatograms of a group of Basic compounds in neutral pH conditions, including a neutral compound (acenaphthene) as a comparison. Of the four tested columns, the mediterranea™ sea18 is the one that shows the greatest efficiency, whether measuring with the acenaphthene or with a peak as difficult as that of amitriptyline. The same occurs if we compare the asymmetry values of the peaks.

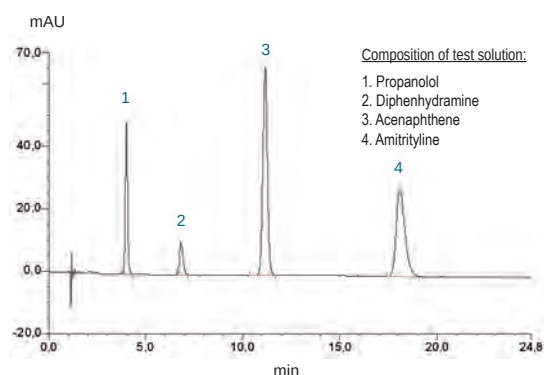
Column	As	Ncol	As	Ncol
	Acenaphthene	Acenaphthene	Amitriptyline	Amitriptyline
mediterranea™ sea18 5 µm 15 x 0,46	1,06	11031	1,21	8119
Xterra MSC18 5 µm 15 x 0,39	1,36	6476	1,32	4619
Gemini C18 5 µm 15 x 0,46	1,22	9524	1,23	7490
Nucleosil 100 C18 5 µm 15 x 0,46	1,07	7815	na	na

Tricyclic Anti-depressants

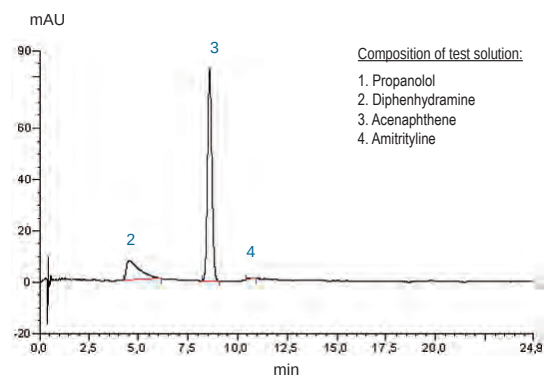


Column: **mediterranea sea 18**, 5 μ m 15 x 0,46 cm
 Eluent: Methanol/20mM K₂HPO₄ (pH 7.0) 70:30
 Flow: 1ml/min
 Room Temperature
 Detection: UV 254 nm

Basic Compounds



Column A - mediterranea™ sea 18



Column B - The Competition

Column A: **mediterranea sea 18**, 5 μ m 15 X 0,46 cm
 Column B: **Other column from market** 5 μ m 15 x 0,46 cm
 Eluent: Methanol/0,02M K₂HPO₄/KH₂PO₄ pH7,00 (75:25)
 Room temperature
 Flow: 1.4 ml/min
 Detection: UV 254 nm

Aqueous Environments

The mediterranea sea18 packing is a 100% pure reverse phase with the added advantage of showing excellent retention of polar compounds and also enables work with 100% aqueous mobile phases without any limitation.

Most chromatographers agree that polar embedded packing have an advantage over conventional packings, in that they can work in 100% aqueous environments and separate basic compounds.

Nevertheless, these advantages are achieved at the expense of less retention for polar compounds, and poor column stability. Polar-embedded packings exhibit chromatographic behavior that cannot be considered as 100% reverse phase, since secondary interaction mechanisms may co-exist due to the nature of the unspecified polar groups anchored at the base of the hydrocarbon chains.

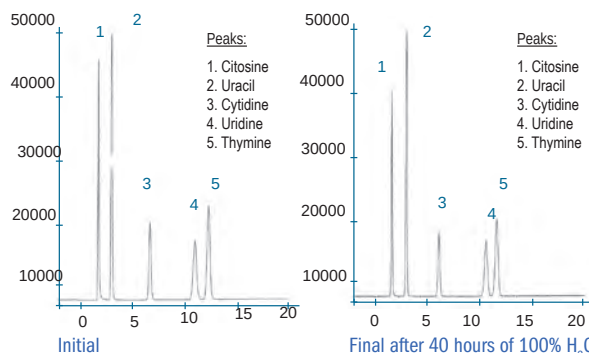
The mediterranea sea18 packing surpasses all the advantages of polar embedded packings by a wide margin and shows none of its inconveniences.

Furthermore, due to its specially optimised endcapping process (MED), the column has guaranteed pH-resistance, reproducibility and long life.

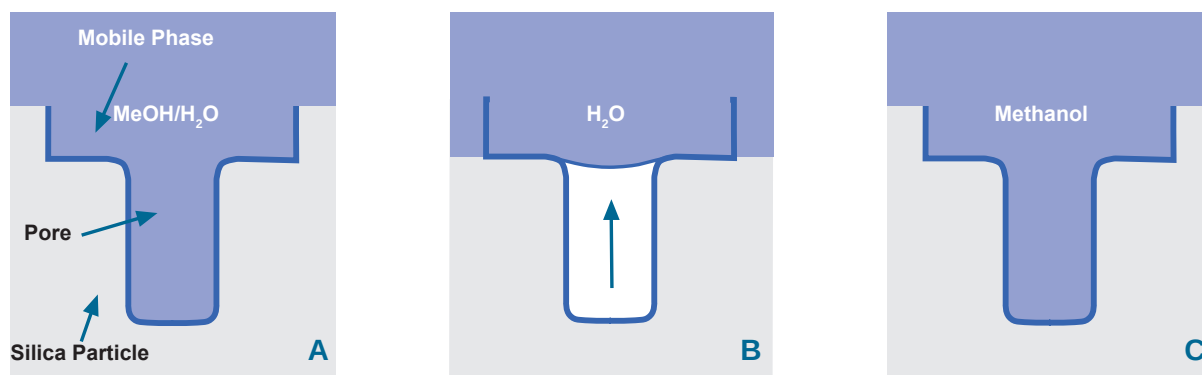
As can be seen, the chromatograms that are obtained after eluting the column with 100% water for more than 40 hours show no appreciable alteration in the retention times or in the efficiency of the chromatographed peaks.

The mediterranea™ sea18 column also widely surpasses the stop flow test, designed to be able to show up the dewetting phenomenon that usually occurs in highly deactivated ODS-type columns, causing irreversible expulsion of water included in the packing pores. As can be seen in the data of five successive Stop Flow Test cycles no significant alterations are observed in the chromatographed peaks.

Aqueous Environments



Column: **mediterranea sea18** 5 μ m 15 X 0,46 cm
 Mobile Phase: H₂O
 Flow: 1ml/min
 Vol. Inj.: 10 μ l
 Detection: UV 254 nm



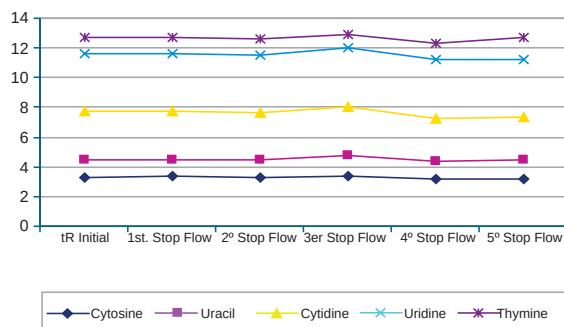
The phenomenon of “Dewetting”

When working with mixed mobile phases of an organic phase and water, for example Methanol/H₂O, the pores of the packings are totally occupied with the mobile phase (A). However, when working with 100% H₂O as the mobile phase in conventional reverse-phase columns, a phenomenon occurs with the expulsion of the mobile phase from the interior of the pore (B). The chromatographic effect that will be produced is a loss of retention and resolution of the chromatographic peaks since the solutes cannot enter the interior of the pores. These chromatographic losses can occur gradually or suddenly - making it difficult to restore to its initial conditions, especially with mostly aqueous mobile phases. (C).

This phenomenon is ruled by an equation which involves the pore's radius, the surface tension, the contact angle and the pressure exercised on the mobile phase. The surface tension and contact angle depends on the density of the bonded ligands and on their chemical functionality. The Stop Flow Test reproduces chromatographic run conditions by interrupting the flow of 100% aqueous mobile phase, the pressure goes to zero and favours the expulsion of water from the interior of the pores.

The mediterranea™ sea18 column surpasses this test with ease - the retention times of the five chromatographed compounds remain practically unaltered.

Stop Flow



Compound	1st stop	2nd stop	3rd stop	4th stop	5th stop	
tR initial	flow	flow	flow	flow	flow	
Cytosine	3,32	3,33	3,3	3,35	3,16	3,21
Uracil	4,45	4,45	4,44	4,75	4,36	4,44
Cytidine	7,73	7,73	7,63	8,00	7,24	7,34
Uridine	11,57	11,57	11,53	12,02	11,25	11,24
Thymine	12,70	12,7	12,62	12,87	12,35	12,70

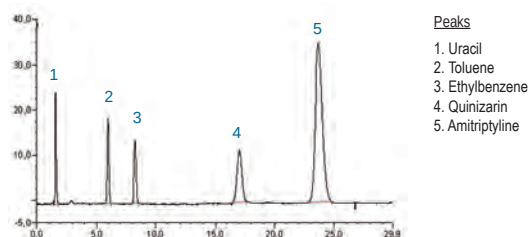
NIST Test for HPLC Packing Characterization

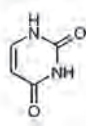
The new mediterranea™ sea18 column has been subjected to the SRM870 test. This test, designed by the NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGY and recently assessed by the experts committee of the USP (United States Pharmacopeia) is currently considered to be the most recommended for evaluating the most significant properties of a reverse phase column.

The high number of HPLC reverse phase packings available in the market and the big differences in their chromatographic behaviour has led to the need to design a characterisation and classification method for these packings.

This procedure uses a mixture of five organic components (uracil, toluene, ethylbenzene, quinizarin and amitriptyline) which are chromatographed using exact conditions of mobile phase, flow, and controlled temperatures.

The detailed analysis of the different peaks obtained will enable an objective, and more importantly, standardised evaluation of the behaviour of the chromatographic packing and therefore anticipate its suitability in normal analytical work.





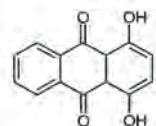
uracil - dead volume marker



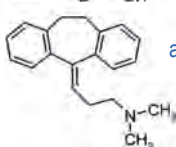
toluene - hydrophobic retention



ethylbenzene - methylene selectivity



quinizarin - activity towards chelating reagents



amitriptyline - activity towards bases

Uracil

This compound is commonly used as an indicator of the dead volume of the column (non-retained peak).

Toluene/Ethylbenzene

The selectivity factor between these two compounds can be used to characterise the differences between packings primarily due to solvophobic interactions. The absolute retention times of these compounds give an idea of the column reverse-phase strength. Both compounds can also be used to measure the quality of the packing through the number of theoretical plates.

Quinizarin (1,4-dihydroanthraquinone)

Quinizarin is a chelating compound and its behaviour in a reverse phase column is a clear indicator of the presence or absence of metals. A column of low activity will deliver symmetrical peaks whereas increasing surface activity exaggerates the tailing edge of the quinizarin peak - leading to higher asymmetry values. Quinizarin

normally elutes between the ethylbenzene and amitriptyline peaks. However, when the silica packing contains embedded polar groups they will retain this peak, causing it to elute after amitriptyline. In the mediterranea™ sea18 column, the quinizarin peak elutes with a perfect symmetrical form, indicating an extraordinary low level of metallic impurities.

According to quinizarin peak symmetry data obtained in our laboratories or published by the NIST (see Figure), the performance of the mediterranea™ sea18 column compares well with other popular reverse-phase packings.

The top-positioning of the mediterranea™ sea18 packing indicates the ultra-high purity of the optimized silica. Teknokroma's ultra-pure silica is your guarantee of reproducibility and of the absence of secondary (and uncontrolled) mechanisms of interaction (common to popular polar-embedded columns).

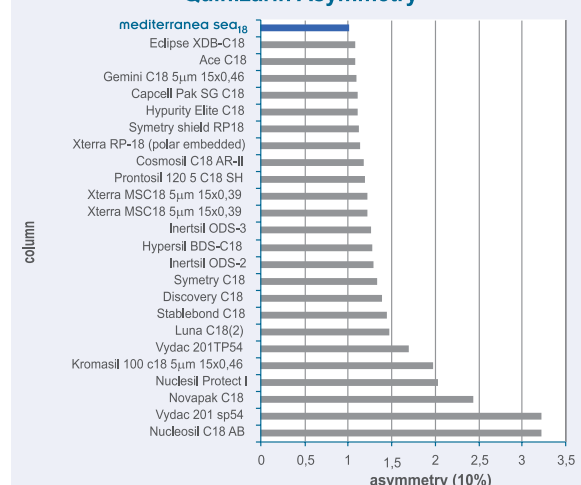
Amitriptyline

This basic (pKa=9.4) anti-depressant is an excellent indicator of residual silica surface silanol-activity. Amitriptyline will elute as a symmetrical peak on a well-deactivated column as seen with the new mediterranea™ sea18. In comparison, many popular reverse-phase packings leave many residual silanols through insufficient endcapping; leading to widespread peak tailing or to complete disappearance from the chromatogram.

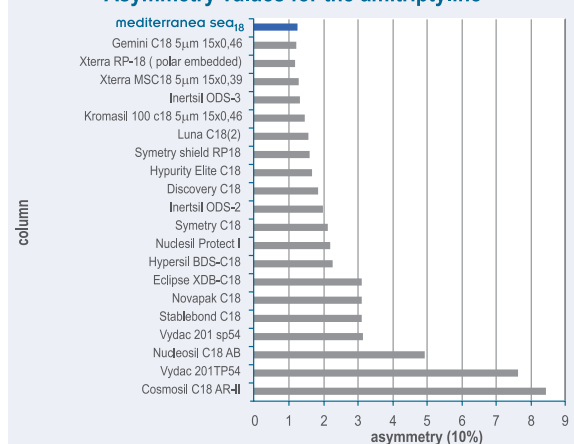
Proper amitriptyline elution is important in consideration of the number of basic compounds, particularly in the fields of pharmaceuticals and life science. In fact, it guarantees that the problems with tailing or complete peak disappearance will be almost eradicated - along with day-to-day laboratory adjustments and complex mobile phase systems designs. With mediterranea™ sea18 a simple pH adjustment will serve to correctly elute the most basic and acidic substances.

The comparison of asymmetry factors for mediterranea™ sea18 and other popular packings is a clear indication of deactivation. mediterranea™ sea18 enters the market with a deactivation level not previously achieved by other reverse-phase packings. The proprietary Multifunctional Endcapped Deactivation produces reproducible column-to-column peak symmetry for a wider variety of pharmaceutical compounds thanks to strict silica purity and batch-to-batch reproducibility.

Quinizarin Asymmetry



Asymmetry values for the amitriptyline





mediterranea™ Sea HPLC Column



Packaging Sample

Wide pH Range

A perfectly spherical particle, a totally controlled pore design, a total lack of metallic traces, a well-studied process of phase bonding and final endcapping, all combine in achieving a packing with a resistance to extreme pH values not previously reached.

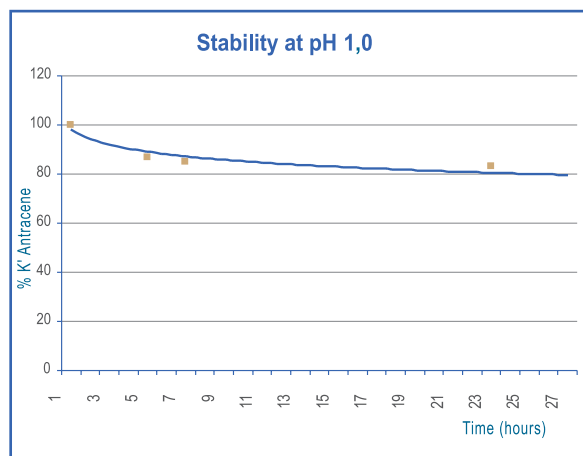
Until quite recently, silica packings were limited to working between pH 2 and pH 7 since below pH 2 the bonds between the C18 chains and the silica particle were hydrolysed, resulting in a gradual loss of retention capacity of the column. Above pH 7 the problem that arose was one of simply dissolving the silica, and therefore the pure destruction of the column.

Using mediterranea™ sea18 packing makes it is possible to work with eluents from pH 1 to pH 12. Such unusual pH-resistance values have been secured as a result of phase bonding efficiency and a proprietary endcapping process which provides a protective shield that impedes acidic and basic eluents from attacking the silica surface.

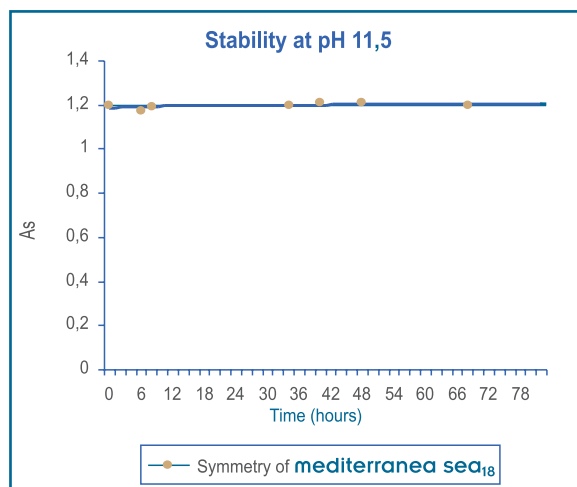
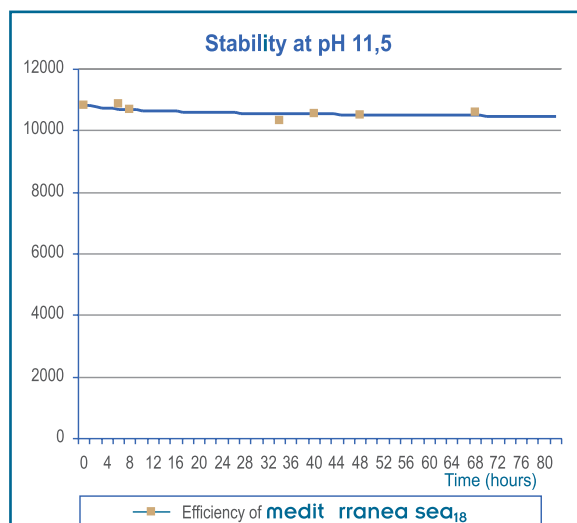
The pH stability graphs show the efficiency of the process.

Eluting the mediterranea™ sea18 column for 78 hours at pH 11.5, showed no significant deterioration in terms of both efficiency and peak symmetry for diphenhydramine..

With an eluent as acid as pH 1, the column stabilises in a short period of time so that it will even be possible to work in these extreme conditions.



An eluent of ACN/TFA1% pH 1.0 (10:90) 1ml/min 25°C is passed through the column at regular periods, checked with the reverse phase test and a retention comparison is made of the last anthracene peak.



An eluent of ACN//1- methylpyrrolidine 50mM pH 11,5 50:50, 1ml/min 25°C is passed through the column. With the same eluent 10 ml of diphenhydramine (1mg/ml dissolved in water) is injected and the efficiency and symmetry of the peak is tested.

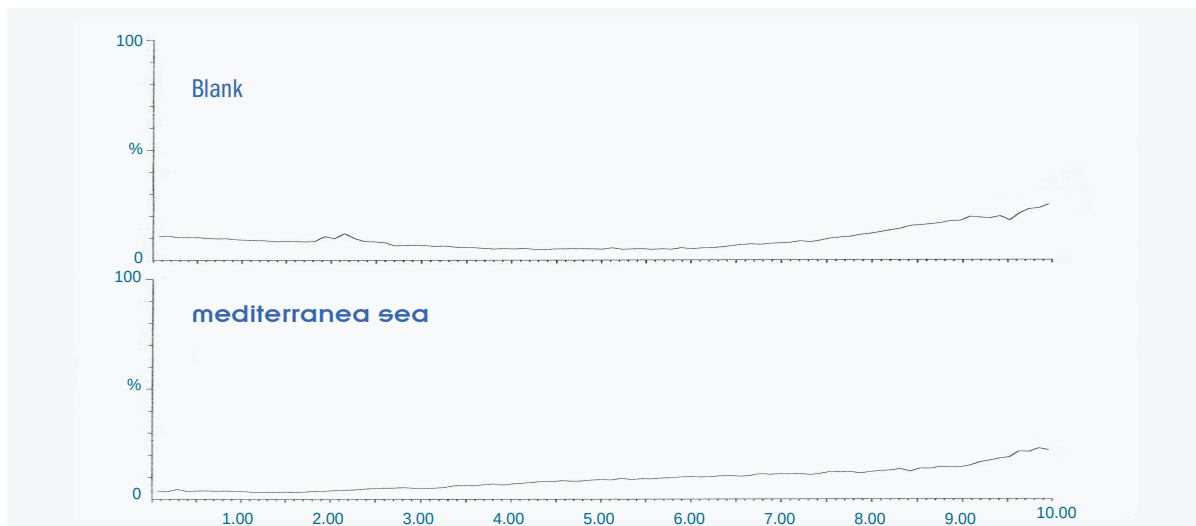
LC-MS Mediterranea™ Sea 18 Columns

The Multifunctional Endcapping Deactivation (MED) technology guarantees extreme stability for every mediterranea™ sea18 reverse-phase column.

Chromatographic stability (peak symmetry, peak retention times, and peak efficiency) under low-to-high pH (pH 1-12) conditions is required for high-speed, high-throughput LC-MS. The mediterranea™ sea18 is the ideal LC-MS reverse-phase column for stable chromatographic separation of pharmaceuticals and their metabolites.

The technological features designed into the mediterranea™ sea18 column makes it extremely useful for LC-MS applications where packing stability is demonstrated by low column bleed and consistent chromatographic results. The combination of mediterranea™ sea18 technology on a 3mm ultra-pure silica-based packing enables LC-MS separations to be made speedily and with maximum productivity.

Bleeding Profile Comparison



Assay by Instituto Químico de Sarrià I.Q.S. (Barcelona)

Chromatographic Conditions

Mobile Phase: A: CH₃CN (0,1% formic acid)
B: Water (0,1% formic acid)
Elution Gradient: 5/95(A/B) linear up to 95:5 in 8 minutes, maintaining the final composition 2 minutes.
Flow: 0,5mL/min
Column Temperature: 25°C

Conditions for MS Detection

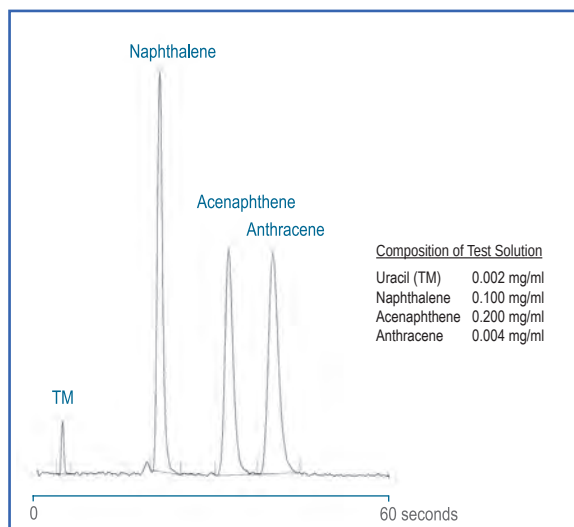
MS Instrument: Waters ZMD
Capillary Voltage: 3kV (ESI positive)
Cone Voltage: 20V
Source block Temp: 100°C
Desolvation Temp: 350°C
Gas: 500l/h
Gas of cone: 35 l/h
Mass Range: 60 to 100 amu

Ultra-Rapid Columns

Within the wide range of possible configurations, the mediterranea™ sea18 columns are available with 3 mm packing with lengths of 3, 5 and 10 cm and inner diameters of 2.1, 3.0, 4.0 and 4.6 mm. By maintaining high quality control and specifications in manufacturing the mediterranea™ sea18 packing, these columns enable you to do ultra-fast separations, with extremely high levels of productivity and reduced analysis times. Ultrarapid mediterranea™ sea18 columns will help you optimize your instrument time and give you more time to analyze data.

With Ultra-rapid column separations, total analysis times of less than one minute are common, even when using gradient elution methods, since the high porosity of the mediterranea™ sea18 packing enables rapid mobile phase equilibration times.

The combination of 3 mm mediterranea™ sea18 packing with the column diameter of 2.1 mm is recommended for high sensitivity LC/MS analyses. Many of these ultra-rapid LC-MS screening analyses utilize minute sample and solvent quantities - for which, the 3 mm mediterranea™ sea18 columns are ideal.



Chromatographic Conditions

Column: mediterranea sea18 3 µm 3 x 0,46 cm
Eluant: Acetonitrile/Water
Proportion: 65/35
Flow: 3.0 ml/min
Pressure: 70 bars
Vol Injection: 0.5 ml
Temperature: Room
Detección: UV 254 nm



mediterranea™ Sea HPLC Column



Preparative Columns

The mediterranea™ sea18 columns are characterized by their total inertness, by their wide range of working mobile phase pH, and by their high loading capacity - a result of the SEA process control (Surface Enhanced Accessibility).

The mediterranea™ sea18 preparative columns are the natural choice when high-service preparative columns are required, and in high-speed preparative applications as in the case of Combinatorial Chemistry.

New Hardware Design for Mediterranea™ Column: Ultrafit™ System

The new Ultrafit™ design will make your work in the laboratory more comfortable and efficient. The Ultrafit™ system, as well as helping in the replacement of the frit at the column entrance, enables you to easily include either additional frits or a pre-column, always with the utmost simplicity and economy and in no way whatsoever is the quality of the separation affected.

In designing the Ultrafit™ column, the greatest care has been taken to cover all the aspects that may occur in the loss of efficiency of the column. As a result of all this, dead volumes have been reduced to a minimum, entered by the system by means of a high precision mechanism, with inlet and outlet holes of 0.2 mm and first-class tapers for the perfect distribution of the inlet and outlet flows, as seen in the three depicted Ultrafit™ options. The Ultrafit™ system enables a pre-column to be included without loss of efficiency, to columns as small as 30 x 4 mm packed with particles of 3 µm.

Moreover, the very best material has been selected for the construction of the column, with an ultra-shiny interior finish, of extremely low RMS, ensuring that no tube imperfection in the column will affect the quality of the separation.

Ultrafit™ System Efficiency

Column	Efficiency (N/m)	AS (10%)
mediterranea sea18 Column 3 µm 5 x 0,46 cm Ultrafit™ System	134904	1,11
mediterranea sea18 Column 3 µm 5 x 0,46 cm with Prefilter Ultrafilter™	135042	1,05
mediterranea sea18 Column 3 µm 5 x 0,46 cm with Precolumn Ultraguard™	137819	1,07

Chromatographic Conditions:

Column: mediterranea™ sea18 3 µm 5 x 0,46 cm

Eluant: Acetonitrile/Water 65:35

Flow: 0,9 ml/min

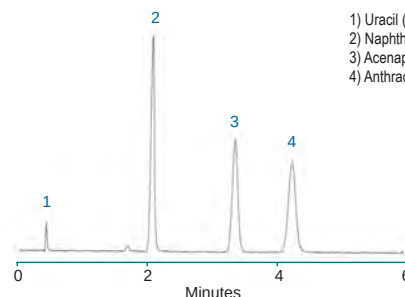
Det. UV 254 nm

Temp. Room

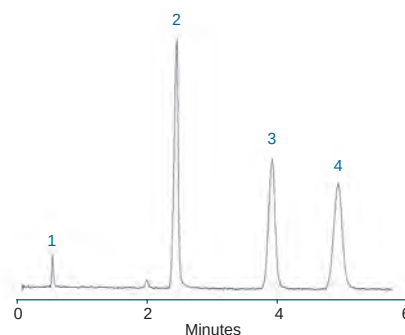
Sample: Acenaphthene 0.2 mg/ml

Peaks:

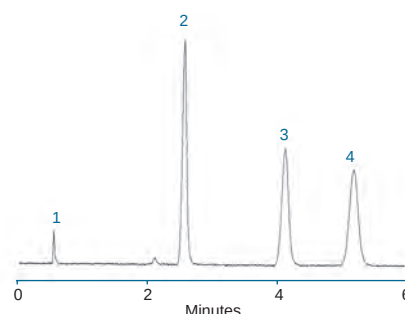
- 1) Uracil (TM)
- 2) Naphthalene
- 3) Acenaphthene
- 4) Anthracene



Column with Ultrafit™ System

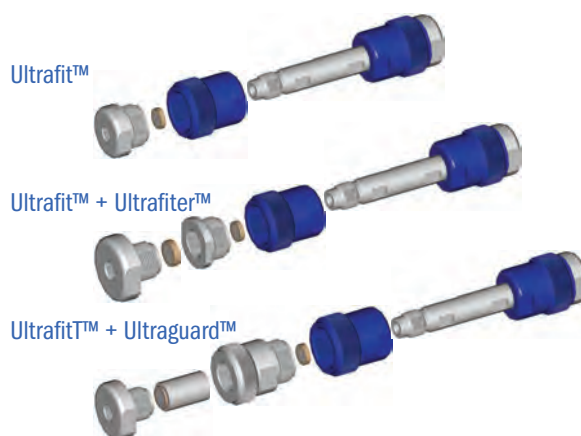


Column with Ultrafit™ System + Ultrafilter™



Column with Ultrafit™ System + Ultraguard™

Ultrafit™ System Configuration



mediterranea™ Sea 5 µm HPLC Column



Analytical Columns 0.46 cm ID
mediterranea™ sea 5 µm

Packing	Funct.	Length		Diameter	Cat.Nbr.
		µm	cm	cm	
mediterranea	Sea18	5	3	0.46	TR-010000
mediterranea	Sea18	5	4	0.46	TR-010001
mediterranea	Sea18	5	5	0.46	TR-010002
mediterranea	Sea18	5	10	0.46	TR-010003
mediterranea	Sea18	5	15	0.46	TR-010004
mediterranea	Sea18	5	20	0.46	TR-010005
mediterranea	Sea18	5	25	0.46	TR-010006
mediterranea	Sea8	5	3	0.46	TR-010355
mediterranea	Sea8	5	4	0.46	TR-010356
mediterranea	Sea8	5	5	0.46	TR-010357
mediterranea	Sea8	5	10	0.46	TR-010358
mediterranea	Sea8	5	15	0.46	TR-010359
mediterranea	Sea8	5	20	0.46	TR-010360
mediterranea	Sea8	5	25	0.46	TR-010361
mediterranea	Sea4	5	3	0.46	TR-010362
mediterranea	Sea4	5	4	0.46	TR-010363
mediterranea	Sea4	5	5	0.46	TR-010364
mediterranea	Sea4	5	10	0.46	TR-010365
mediterranea	Sea4	5	15	0.46	TR-010366
mediterranea	Sea4	5	20	0.46	TR-010367
mediterranea	Sea4	5	25	0.46	TR-010368

Analytical Columns 0.40 mm ID
mediterranea™ sea 5 µm

Packing	Funct.	Length		Diameter	Cat.Nbr.
		µm	cm	cm	
mediterranea	Sea18	5	3	0.40	TR-010007
mediterranea	Sea18	5	4	0.40	TR-010008
mediterranea	Sea18	5	5	0.40	TR-010009
mediterranea	Sea18	5	10	0.40	TR-010010
mediterranea	Sea18	5	15	0.40	TR-010011
mediterranea	Sea18	5	20	0.40	TR-010012
mediterranea	Sea18	5	25	0.40	TR-010013
mediterranea	Sea8	5	4	0.40	TR-410368
mediterranea	Sea8	5	5	0.40	TR-410369
mediterranea	Sea8	5	10	0.40	TR-410370
mediterranea	Sea8	5	15	0.40	TR-410371
mediterranea	Sea8	5	20	0.40	TR-410372
mediterranea	Sea8	5	25	0.40	TR-410373
mediterranea	Sea4	5	3	0.40	TR-410374
mediterranea	Sea4	5	4	0.40	TR-410375
mediterranea	Sea4	5	5	0.40	TR-410376
mediterranea	Sea4	5	10	0.40	TR-410377
mediterranea	Sea4	5	15	0.40	TR-410378
mediterranea	Sea4	5	20	0.40	TR-410379
mediterranea	Sea4	5	25	0.40	TR-410380

Microbore Columns 0.21 cm ID
mediterranea™ sea 5 µm

Packing	Funct.	Length		Diameter	
		µm	cm	cm	Cat.Nbr.
mediterranea	Sea18	5	3	0.21	TR-010014
mediterranea	Sea18	5	5	0.21	TR-010015
mediterranea	Sea18	5	10	0.21	TR-010016
mediterranea	Sea18	5	15	0.21	TR-010017
mediterranea	Sea18	5	20	0.21	TR-010018
mediterranea	Sea8	5	3	0.21	TR-010381
mediterranea	Sea8	5	5	0.21	TR-010382
mediterranea	Sea8	5	10	0.21	TR-010383
mediterranea	Sea8	5	15	0.21	TR-010384
mediterranea	Sea8	5	20	0.21	TR-010385
mediterranea	Sea4	5	3	0.21	TR-010386
mediterranea	Sea4	5	5	0.21	TR-010387
mediterranea	Sea4	5	10	0.21	TR-010388
mediterranea	Sea4	5	15	0.21	TR-010389
mediterranea	Sea4	5	20	0.21	TR-010390

Microbore Columns 0.30 cm ID
mediterranea™ sea 5 µm

Packing	Funct.	Length		Diameter	
		µm	cm	cm	Cat.Nbr.
mediterranea	Sea18	5	3	0.30	TR-010019
mediterranea	Sea18	5	5	0.30	TR-010020
mediterranea	Sea18	5	10	0.30	TR-010021
mediterranea	Sea18	5	15	0.30	TR-010022
mediterranea	Sea18	5	20	0.30	TR-010023
mediterranea	Sea18	5	25	0.30	TR-010024
mediterranea	Sea8	5	3	0.30	TR-010391
mediterranea	Sea8	5	5	0.30	TR-010392
mediterranea	Sea8	5	10	0.30	TR-010393
mediterranea	Sea8	5	15	0.30	TR-010394
mediterranea	Sea8	5	20	0.30	TR-010395
mediterranea	Sea8	5	25	0.30	TR-010396
mediterranea	Sea4	5	3	0.30	TR-010397
mediterranea	Sea4	5	5	0.30	TR-010398
mediterranea	Sea4	5	10	0.30	TR-010399
mediterranea	Sea4	5	15	0.30	TR-010400
mediterranea	Sea4	5	20	0.30	TR-010401
mediterranea	Sea4	5	25	0.30	TR-010402



mediterranea™ Sea 3 & 5 µm HPLC Column

SemiPreparative Columns

mediterranea™ sea 5 µm

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm	cm	
mediterranea	Sea18	5	10	0.78	1.00	TR-010025
mediterranea	Sea18	5	15	0.78	1.00	TR-010026
mediterranea	Sea18	5	25	0.78	1.00	TR-010027
mediterranea	Sea18	5	10	1.00	1.00	TR-010028
mediterranea	Sea18	5	15	1.00	1.00	TR-010029
mediterranea	Sea18	5	25	1.00	1.00	TR-010030
mediterranea	Sea18	5	5	2.12	2.12	TR-010031
mediterranea	Sea18	5	10	2.12	2.12	TR-010032
mediterranea	Sea18	5	15	2.12	2.12	TR-010033
mediterranea	Sea18	5	25	2.12	2.12	TR-010034
mediterranea	Sea8	5	10	0.78	1.00	TR-010403
mediterranea	Sea8	5	15	0.78	1.00	TR-010404
mediterranea	Sea8	5	25	0.78	1.00	TR-010405
mediterranea	Sea8	5	10	1.00	1.00	TR-010406
mediterranea	Sea8	5	15	1.00	1.00	TR-010407
mediterranea	Sea8	5	25	1.00	1.00	TR-010408
mediterranea	Sea8	5	5	2.12	2.12	TR-010409
mediterranea	Sea8	5	10	2.12	2.12	TR-010410
mediterranea	Sea8	5	15	2.12	2.12	TR-010411
mediterranea	Sea8	5	25	2.12	2.12	TR-010412
mediterranea	Sea4	5	10	0.78	1.00	TR-010413
mediterranea	Sea4	5	15	0.78	1.00	TR-010414
mediterranea	Sea4	5	25	0.78	1.00	TR-010415
mediterranea	Sea4	5	10	1.00	1.00	TR-010416
mediterranea	Sea4	5	15	1.00	1.00	TR-010417
mediterranea	Sea4	5	25	1.00	1.00	TR-010418
mediterranea	Sea4	5	5	2.12	2.12	TR-010419
mediterranea	Sea4	5	10	2.12	2.12	TR-010420
mediterranea	Sea4	5	15	2.12	2.12	TR-010421
mediterranea	Sea4	5	25	2.12	2.12	TR-010422

Ultrarapid Columns 0.46 cm ID

mediterranea™ sea 3 µm

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm	cm	
mediterranea	Sea18	3	3	0.46	0.46	TR-010039
mediterranea	Sea18	3	4	0.46	0.46	TR-010040
mediterranea	Sea18	3	5	0.46	0.46	TR-010041
mediterranea	Sea18	3	10	0.46	0.46	TR-010042
mediterranea	Sea18	3	15	0.46	0.46	TR-010043
mediterranea	Sea18	3	20	0.46	0.46	TR-010044
mediterranea	Sea18	3	25	0.46	0.46	TR-010045
mediterranea	Sea8	3	3	0.46	0.46	TR-010431
mediterranea	Sea8	3	4	0.46	0.46	TR-010432
mediterranea	Sea8	3	5	0.46	0.46	TR-010433
mediterranea	Sea8	3	10	0.46	0.46	TR-010434
mediterranea	Sea8	3	15	0.46	0.46	TR-010435
mediterranea	Sea8	3	20	0.46	0.46	TR-010436
mediterranea	Sea8	3	25	0.46	0.46	TR-010437
mediterranea	Sea4	3	3	0.46	0.46	TR-010438
mediterranea	Sea4	3	4	0.46	0.46	TR-010439
mediterranea	Sea4	3	5	0.46	0.46	TR-010440
mediterranea	Sea4	3	10	0.46	0.46	TR-010441
mediterranea	Sea4	3	15	0.46	0.46	TR-010442
mediterranea	Sea4	3	20	0.46	0.46	TR-010443
mediterranea	Sea4	3	25	0.46	0.46	TR-010444

Ultrarapid Columns 0.40 cm ID

mediterranea™ sea 3 µm

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm	cm	
mediterranea	Sea18	3	3	0.40	0.40	TR-010046
mediterranea	Sea18	3	4	0.40	0.40	TR-010047
mediterranea	Sea18	3	5	0.40	0.40	TR-010048
mediterranea	Sea18	3	10	0.40	0.40	TR-010049
mediterranea	Sea18	3	15	0.40	0.40	TR-010050
mediterranea	Sea18	3	20	0.40	0.40	TR-010051
mediterranea	Sea18	3	25	0.40	0.40	TR-010052
mediterranea	Sea8	3	3	0.40	0.40	TR-410431
mediterranea	Sea8	3	4	0.40	0.40	TR-410432
mediterranea	Sea8	3	5	0.40	0.40	TR-410433
mediterranea	Sea8	3	10	0.40	0.40	TR-410434
mediterranea	Sea8	3	15	0.40	0.40	TR-410435
mediterranea	Sea8	3	20	0.40	0.40	TR-410436
mediterranea	Sea8	3	25	0.40	0.40	TR-410437
mediterranea	Sea4	3	3	0.40	0.40	TR-410438
mediterranea	Sea4	3	4	0.40	0.40	TR-410439
mediterranea	Sea4	3	5	0.40	0.40	TR-410440
mediterranea	Sea4	3	10	0.40	0.40	TR-410441
mediterranea	Sea4	3	15	0.40	0.40	TR-410442
mediterranea	Sea4	3	20	0.40	0.40	TR-410443
mediterranea	Sea4	3	25	0.40	0.40	TR-410444

mediterranea™ Sea 3 µm HPLC Column



Microbore Columns 0.21 cm ID mediterranea™ sea 3 µm

Packing	Funct.	Length		Diameter	Cat.Nbr.
		µm	cm	cm	
mediterranea	Sea18	3	3	0.21	TR-010053
mediterranea	Sea18	3	5	0.21	TR-010054
mediterranea	Sea18	3	10	0.21	TR-010055
mediterranea	Sea18	3	15	0.21	TR-010056
mediterranea	Sea18	3	20	0.21	TR-010057
mediterranea	Sea8	3	3	0.21	TR-010445
mediterranea	Sea8	3	5	0.21	TR-010446
mediterranea	Sea8	3	10	0.21	TR-010447
mediterranea	Sea8	3	15	0.21	TR-010448
mediterranea	Sea8	3	20	0.21	TR-010449
mediterranea	Sea4	3	3	0.21	TR-010450
mediterranea	Sea4	3	5	0.21	TR-010451
mediterranea	Sea4	3	10	0.21	TR-010452
mediterranea	Sea4	3	15	0.21	TR-010453
mediterranea	Sea4	3	20	0.21	TR-010454

Microbore Columns 0.30 cm ID mediterranea™ sea 3 µm

Packing	Funct.	Length		Diameter	
		µm	cm	cm	Cat.Nbr.
mediterranea	Sea18	3	3	0.30	TR-010058
mediterranea	Sea18	3	5	0.30	TR-010059
mediterranea	Sea18	3	10	0.30	TR-010060
mediterranea	Sea18	3	15	0.30	TR-010061
mediterranea	Sea18	3	20	0.30	TR-010062
mediterranea	Sea8	3	3	0.30	TR-010455
mediterranea	Sea8	3	5	0.30	TR-010456
mediterranea	Sea8	3	10	0.30	TR-010457
mediterranea	Sea8	3	15	0.30	TR-010458
mediterranea	Sea8	3	20	0.30	TR-010459
mediterranea	Sea4	3	3	0.30	TR-010460
mediterranea	Sea4	3	5	0.30	TR-010461
mediterranea	Sea4	3	10	0.30	TR-010462
mediterranea	Sea4	3	15	0.30	TR-010463
mediterranea	Sea4	3	20	0.30	TR-010464

Other Products

mediterranea™ sea

Product	Description	Cat.Nbr.
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Ultrafilter™, Ultrafit prefilter adaptor
(frit not included)



TR-010067

Frits of 0.5 µm pore (10 units)

TR-010069

Frits of 2.0 µm pore (10 units)

TR-010070

Ultraguard™, Ultrafit Guardcolumn adaptor
(guard column not included)



TR-010068

Guard Column Sea18 10 x 3.2 mm (5 units)

TR-010071

Guard Column Sea8 10 x 3.2 mm (5 units)

TR-010073

Guard Column Sea4 10 x 3.2 mm (5 units)

TR-010074





mediterranea uhplc



mediterranea™ Sea18 1.8 µm

- Ideal for LC-MS applications
- Fully scalable to Industrial Chromatography
- Compatible with 100% aqueous mobile phases
- Robustness and versatility
- Very high efficiency

mediterranea™ sea18 1.8 µm columns have been developed based on the same material as the recognized 5µm column. The result is a column with high efficiency, high reliability and full scalability from UHPLC analytical chromatography to industrial process chromatography.

mediterranea™ sea18 1.8 µm columns are available in 1.8, 2.2, 3, 5, 10, and 15 µm. Its versatility allows the separation of both nonpolar and polar substances, and its robustness to extreme pH values (1.5 to 11) makes it the ideal column for methods development.

mediterranea™ sea18 1.8 µm has been developed to offer the highest quality and reproducibility. Tecnokroma checks rigorously both each packing batch and every single column.

UHPLC Columns

mediterranea™ sea 1.8 µm

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm		
mediterranea	Sea18	1.8	5	0.21		TR-010902
mediterranea	Sea18	1.8	10	0.21		TR-010903
mediterranea	Sea18	1.8	15	0.21		TR-010906
mediterranea	Sea18	1.8	5	0.30		TR-010904
mediterranea	Sea18	1.8	10	0.30		TR-010909
mediterranea	Sea18	1.8	5	0.46		TR-010905
mediterranea	Sea18	1.8	10	0.46		TR-010907
mediterranea	Sea18	1.8	15	0.46		TR-010908

UHPLC Guardcolumns

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm		
Holder + 2 Cartridges	C18	1.9	1	0.21		GL-5020-88246
2 Cartridges	C18	1.9	1	0.21		GL-5020-88240
Holder + 2 Cartridges	C18	1.9	1	0.30		GL-5020-88248
2 Cartridges	C18	1.9	1	0.30		GL-5020-88242



GL-5020-20382



JR-69330-05

mediterranea™ Sea18 2.2 µm

- Reduces analysis costs with no resolution loss
- Less backpressure than 1.8 µm columns
- High flow rates with no efficiency loss
- Reduces solvent consumption
- Ideal for LC-MS applications

mediterranea™ sea18 2.2 µm is a transitional column fully compatible with cutting-edge HPLC and UHPLC systems, radically improving analysis performance and halving retention times.

The material used for the development of **mediterranea™ sea18 2.2 µm** columns is an ultra-pure, metal-free, state-of-the-art silica gel packing, with a particle size of 2.2 µm and a pore size of 100Å.

mediterranea™ sea18 2.2 µm uses state-of-the-art silica and the latest bonding and endcapping technology. Compatible with a 100% aqueous mobile phase and it stands extreme pH conditions (1 to 12).

mediterranea™ sea18 2.2 µm has been developed to offer the highest quality and reproducibility. Tecnokroma checks rigorously both each packing batch and every single column.

UHPLC Columns

mediterranea™ sea 2.2 µm

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm		
mediterranea	Sea18	2.2	5	0.21		TR-010900
mediterranea	Sea18	2.2	10	0.21		TR-010901
mediterranea	Sea18	2.2	15	0.21		TR-010921
mediterranea	Sea18	2.2	5	0.30		TR-010941
mediterranea	Sea18	2.2	10	0.30		TR-010942
mediterranea	Sea18	2.2	5	0.46		TR-010930
mediterranea	Sea18	2.2	10	0.46		TR-010935

UHPLC Guardcolumns

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm		
Holder + 2 Cartridges	C18	2	1	0.21		GL-5020-20382
2 Cartridges	C18	2	1	0.21		GL-5020-20331
Holder + 2 Cartridges	C18	2	1	0.30		GL-5020-20399
2 Cartridges	C18	2	1	0.30		GL-5020-20348

UHPLC Guardcolumn Filter

Description	Pore		Inter.Volume	Cat.Nbr.
	µm	µL		
Stainless Steel Precolumn Filter	0.5	0.61		JR-69330-05
Stainless Steel Precolumn Filter	2	0.66		JR-69330-2
Stainless Steel Precolumn Filter	5	0.68		JR-69330-5



Column Brisa LC² "Limited Cost x Liquid Chromatography"

The material used for this column development is an ultrapure and metal free silica packing. The pore size is 120 Å and it's available in 3 & 5 µm particle size.

Brisa "LC²" is a fully "endcapped" free silanol silica with a broad usable pH range (2-11).

Brisa "LC²" has been designed to get the highest reproducibility and quality. Teknokroma strictly controls each packing batch and each single column.

Analytical Columns

Brisa LC² 3 & 5 µm

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm		
Brisa LC ²	C18	5	15	0.46		TR-010480
Brisa LC ²	C18	5	25	0.46		TR-010481
Brisa LC ²	C18	3	15	0.46		TR-010498
Brisa LC ²	C18	3	10	0.46		TR-010499

UHPLC Columns

Brisa LC² C18-MS 5 µm

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm		
Brisa LC ²	C18-MS	1.8	5	0.21		TR-010490
Brisa LC ²	C18-MS	2.2	5	0.21		TR-010493

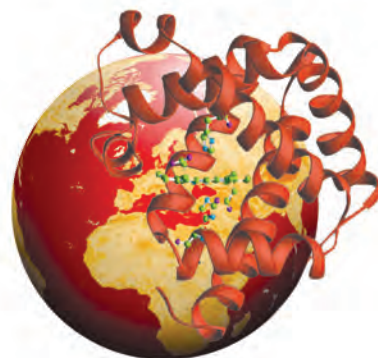
LC-MS Columns

Brisa LC² C18-MS 3 & 5 µm

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm		
Brisa LC ²	C18-MS	3	5	0.21		TR-010496
Brisa LC ²	C18-MS	3	10	0.21		TR-010497
Brisa LC ²	C18-MS	5	15	0.10		TR-010485
Brisa LC ²	C18-MS	5	15	0.21		TR-010486
Brisa LC ²	C18-MS	5	25	0.21		TR-010487



Europa HPLC Column for Peptides and Proteins



Introduction

Teknokroma introduces in the market the new line of **Europa HPLC columns**.

After the versatility of our popular **mediterranea™** column that enables you to deal successfully with the immense variety of separations in the fields of pharmaceuticals, life sciences, environment, foods, etc. Teknokroma has focused all its efforts and all its know-how, accumulated through more than 40 years of chromatographic research and development, in offering the best reverse phase HPLC packing for identification and purification of peptides and protein compounds.

Manufactured using novel proprietary technologies, analytical and preparative Europa columns are simply the best reverse phase columns available today.

As a result of these, we launch into the market the Line of Europa HPLC columns, one of the best columns in the field of analysis of biomolecules.

The Europa HPLC columns for peptides and proteins, provide the best performance and unsurpassed efficiency, reliability and reproducibility.

There is still a consensus that the best material to use as chromatographic packing continues to be silica. The particles of silica material are physically resistant, enable multiple functions, present maximum levels of efficiency and are also compatible with practically all solvents.

Teknokroma has dedicated years of research and development in obtaining the best silica particle on the market. The silica particle on which the Europa columns is based is the result of an optimisation process, starting with extremely pure materials with unusually low metal content, and obtaining a perfectly spherical, rigid and inert particle.

Furthermore, the proprietary "porification process" (Surface Enhanced Accessibility, SEA) for Europa silica has achieved high surface area without sacrificing important properties like physical resistance and high loading capacity- making it ideal for preparative-scale processing.

In addition, the Surface Enhanced Accessibility manufacturing process creates a porous structure that ensures maximum transfer speeds for solutes between the stationary and mobile phases- resulting in higher separation efficiency.

Our "Ultra-Fast" Europa columns are made in 3-5 cm length in order to get quick analytical results, whereas the "High Efficiency" columns are normally in 15-25 cm lengths to obtain best resolution.

The Teknokroma Europa Columns are uniquely designed with optimized pore size distribution; 120Å for Peptide and 300Å for the Protein Columns.

Europa columns are available for:

Peptides: Europa C18 with 0.21, 0.30, 0.40, 0.46, 0.78, 1.0 and 2.12 cm.

Proteins: Europa C18, C8 and C4 with 0.21, 0.30, 0.40, 0.46, 0.78, and 2.12 cm.

Purity of silica

The responsibility for chromatographic separation of peptides and proteins is found inside the particle-within the pores. To obtain a very homogeneous pore distribution the least possible number of nanopores is essential.

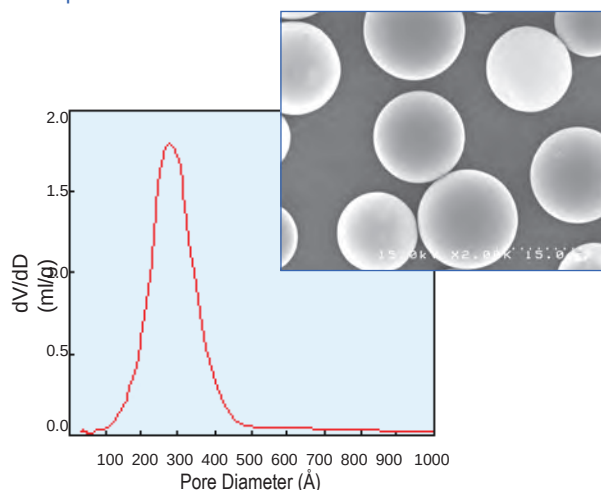
For most reverse-phase silica packings, these nanopores are not properly chemically bonded, endcapped or deactivated. So when nanopores are accessible to the peptides and proteins, surface-peptide and protein interactions frequently dominate. These interactions often result in a decrease of column efficiency.

Europa HPLC Column for Peptides and Proteins



Europa Protein C4 Pore Distribution

Europa Protein C 4 300



Deactivation Process

Thanks to our proprietary new Multifunctional Endcapping (MED) technology used with our popular HPLC columns *Mediterranea™* Sea 18, we obtain with the Europa packing a specially designed C4, C8 and C18 ligand configuration, that blocks practically all the active centres that may have remained on the surface of the silica.

As a result of this, Europa columns have an unusual low level of silanol activity, helping you to obtain symmetrical peaks for the most basic and acidic compounds. The improved high density bonding and full endcapping make them suitable to separate or purify low molecular weight compounds (especially small peptides when using Europa Peptide column 120 Å) and separate or purify high molecular weight compounds, especially proteins when using Europa Protein column 300 Å.

Europa C 18 bonding chemistries will help you to achieve an extraordinary resistance and column lifetime when running at extreme pH levels.

Wide pH Range

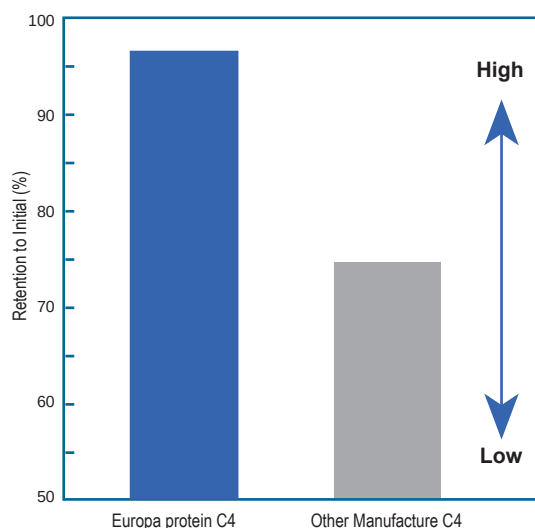
Using Europa C 18 packing materials it is possible to work with eluents from pH 1 to pH 12. Such unusual pH resistance values have been achieved as a result of phase bonding efficiency and a proprietary endcapping process which provides a protective shield against acidic and basic eluents.

Europa columns ensure greater separation efficiency, resistance to extreme pH conditions and can be used for an extended period of time.

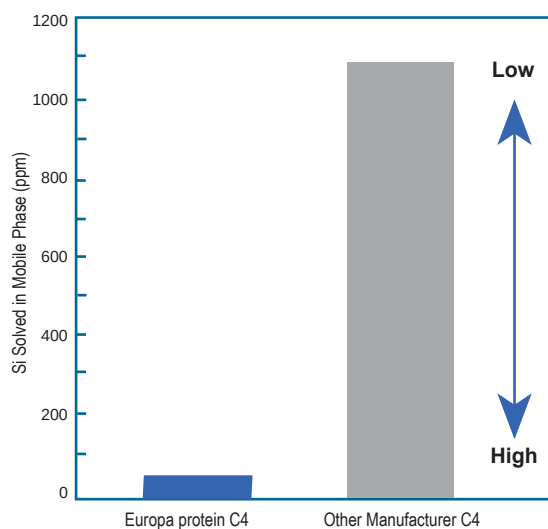
Europa Protein C4 Phase Stability

Phase stability of Europa Protein C4 columns has been checked purging one 25 x 0.78 cm column either with CH₃CN/1%TFA 10:90 (pH=1) during 15 hours at 0.9 ml/min or with CH₃CN/20 mM Na₃PO₄ 10:90 (pH=12) during 3 hours at 1.7 ml/min.

Acid Resistance pH=1



Alkali Resistance pH=12



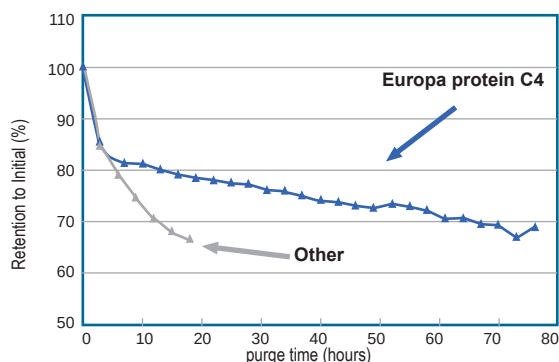


Europa HPLC Column for Peptides and Proteins

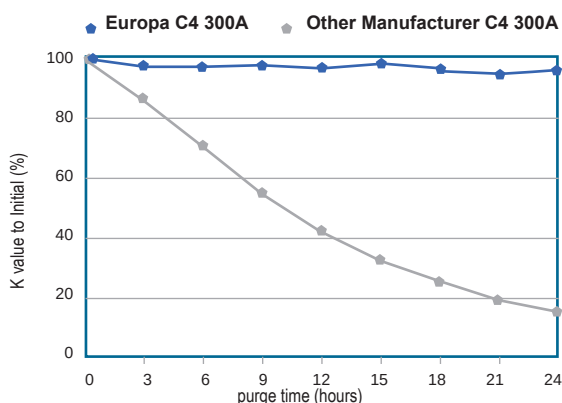
Durability comparison in Alkaline Medium/RT

The graphic below shows the durability of the column after more than 80 hours of purge time passing through one Europa Protein C4 column a flow rate of 1.0 ml of alkaline solution at pH 12, CH₃CN/0.01NaOH 10/90.

There is represented in the graphic the retention time of naphthalene after every three hours of purge, using CH₃CN / H₂O 35:65 at 1.7 ml/min and 40°C (UV detection at 254 nm). It is seen that after 80 hours, Europa columns still perform very well.

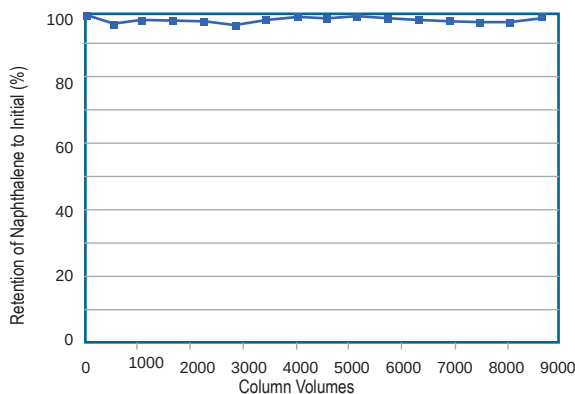


Durability comparison in Acidic Medium / K value



Durability of Europa C4 has also been compared against other manufacturers using a 15 x 0.46 cm column and CH₃CN / 1.0% TFA in water 10:90 (pH=1) at 70°C, and checking K values for naphthalene every 3 hours.

Durability under Acidic Condition



Retention time for naphthalene using the same chromatographic conditions has also been controlled after up to 9000 column volumes of CH₃CN / 0.05% TFA in water (pH=2) at a flow rate of 1.0 ml/min at room temperature. Column size was 15 x 0.46 cm

Europa C18 Peptide HPLC columns

We invite you to try our Europa C18 peptide column when you experience unsatisfactory results with your favorite column.

Europa C18 Peptide columns are suitable to separate or purify low molecular weight compounds, especially small peptides.

Europa HPLC columns for peptides provide a high performance that is unsurpassed in efficiency, reliability and reproducibility. Manufactured using novel proprietary technologies, analytical and preparative Europa columns are simply the best reverse phase columns available today. Europa columns ensure greater separation efficiency, resistance to extreme pH conditions and longer column life.

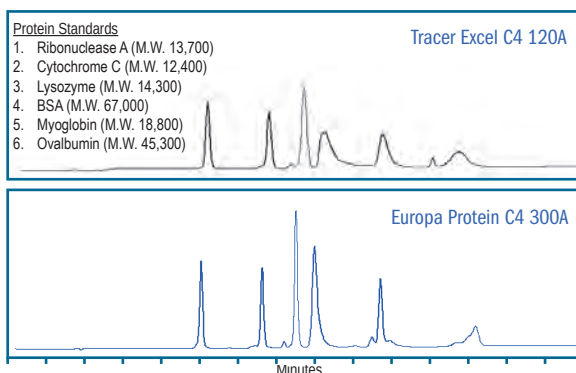
Our “Ultra-Fast” columns are made in 3-5 cm length in order to get quick analytical results, whereas the “High Efficiency” columns are normally in 15-25cm lengths to obtain the best resolution.

Specifications:

- Ultra high purity, totally spherical silica gel
- High density bonding for extreme performance proprietary fully end-capped silica
- Porous Size: 120 Å, narrow particle size distribution
- Surface Area 300 m²/g
- % of Carbon 19 %
- High loading capacity of crude peptides
- Stable under basic and extreme acidic conditions
- Packed with 5µm sized silica particles

Microbore Columns are available in: 0.21, 0.30 cm ID
Analytical Columns are available in: 0.40 and 0.46 cm ID
Semi-Prep Columns are available in: 0.78 and 1.0 cm
Prep Columns are available in: 2.1 cm ID
Larger diameter available by request

Influence of Pore size in Peak Shape



Column: 7.8 mm I.D. x 250 mm Length; Temperature: 35°C; Detector: UV 220 nm;
Mobile Phase: A) CH₃CN/H₂O/TFA = 20/80/0.1, B) CH₃CN/H₂O/TFA = 60/40/0.1,
Linear Gradient from A to B in 25 min and hold for 10 min; Flow Rate: 1.7 ml/min.

Europa HPLC Column for Peptides and Proteins



Europa packaging

Europa C18 Peptide Microbore HPLC Columns



Columns are particularly designed for LC/MS applications. The high detection sensitivity of these columns allows the use of smaller quantities of samples and also decreases the required volume of solvents.

Packing	Funct.	μm	Length		Diameter	
			cm	cm	cm	Cat.Nbr.
Europa	Peptide 120	C18	5	3	0.21	TR-010130
Europa	Peptide 120	C18	5	5	0.21	TR-010131
Europa	Peptide 120	C18	5	10	0.21	TR-010132
Europa	Peptide 120	C18	5	15	0.21	TR-010133
Europa	Peptide 120	C18	5	20	0.21	TR-010134
Europa	Peptide 120	C18	5	3	0.30	TR-010135
Europa	Peptide 120	C18	5	5	0.30	TR-010136
Europa	Peptide 120	C18	5	10	0.30	TR-010137
Europa	Peptide 120	C18	5	15	0.30	TR-010138
Europa	Peptide 120	C18	5	20	0.30	TR-010139
Europa	Peptide 120	C18	5	25	0.30	TR-010140

Europa C18 Peptide Analytical HPLC Columns



Packing	Funct.	μm	Length		Diameter	Cat.Nbr.
			μm	cm	cm	
Europa Peptide 120	C18	5	3	0.46	TR-010116	
Europa Peptide 120	C18	5	4	0.46	TR-010117	
Europa Peptide 120	C18	5	5	0.46	TR-010118	
Europa Peptide 120	C18	5	10	0.46	TR-010119	
Europa Peptide 120	C18	5	15	0.46	TR-010120	
Europa Peptide 120	C18	5	20	0.46	TR-010121	
Europa Peptide 120	C18	5	25	0.46	TR-010122	
Europa Peptide 120	C18	5	3	0.40	TR-010123	
Europa Peptide 120	C18	5	4	0.40	TR-010124	
Europa Peptide 120	C18	5	5	0.40	TR-010125	
Europa Peptide 120	C18	5	10	0.40	TR-010126	
Europa Peptide 120	C18	5	15	0.40	TR-010127	
Europa Peptide 120	C18	5	20	0.40	TR-010128	
Europa Peptide 120	C18	5	25	0.40	TR-010129	

Europa C18 Peptide Semi Preparative HPLC Columns



Packing	Funct.	μm	Length		Diameter	Cat.Nbr.
			μm	cm	cm	
Europa Peptide 120	C18	5	10	0.78	TR-010141	
Europa Peptide 120	C18	5	15	0.78	TR-010142	
Europa Peptide 120	C18	5	25	0.78	TR-010143	
Europa Peptide 120	C18	5	10	1.00	TR-010144	
Europa Peptide 120	C18	5	15	1.00	TR-010145	
Europa Peptide 120	C18	5	25	1.00	TR-010146	

Europa C18 Peptide Preparative HPLC Columns



Packing	Funct.	μm	Length		Diameter	
			cm	cm	cm	Cat.Nbr.
Europa Peptide 120	C18	5	5	2.12	TR-010147	
Europa Peptide 120	C18	5	10	2.12	TR-010148	
Europa Peptide 120	C18	5	15	2.12	TR-010149	
Europa Peptide 120	C18	5	25	2.12	TR-010150	



Europa HPLC Column for Peptides and Proteins

Europa C18 Protein HPLC Columns

We invite you to try our Europa C18 Protein column when you experience unsatisfactory results with your favorite column.

Europa C18 Protein columns are designed and manufactured for identification and purification of proteins and for compounds with high molecular weight.

Europa HPLC columns for proteins provide a high performance that is unsurpassed in efficiency, reliability and reproducibility. Manufactured using novel proprietary technologies, analytical and preparative Europa columns are simply the best reverse phase columns available today.

Europa columns ensure greater separation efficiency, resistance to extreme pH conditions and longer column life.

Our “**Ultra-Fast**” columns are made in 3-5 cm length in order to get quick analytical results, whereas the “**High Efficiency**” columns are normally in 15-25 cm lengths to obtain best resolution.

Specifications:

- Ultra high purity totally spherical silica gel provide a high resolution and excellent peak shape
- High loading capacity of crude proteins
- High density bonding for extreme performance proprietary fully end-capped silica
- Stable, featuring extended acidic and basic conditions
- Silica properties: ultra pure and totally spherical narrow distribution range and high density
- Fully end-capped silica
- Porous Size: 300Å narrow particle size distribution
- Surface Area 100 m²/gr.
- % of Carbon 7 %
- Packed with 5µm sized silica particles
- Available as C4, C8, and C18 columns
- Microbore Columns are available in: 0.21, 0.30 cm I.D. Analytical Columns in: 0.40 and 0.46cm I.D. Semi-Prep in: 0.70-1.0cm Prep Columns in: 2.1cm and larger diameter by request

Europa C18 Protein Preparative HPLC Columns



Packing	Funct.	µm	Length		Cat.Nbr.
			cm	Diameter cm	
Europa Protein 300	C18	5	5	2.12	TR-010217
Europa Protein 300	C18	5	10	2.12	TR-010218
Europa Protein 300	C18	5	15	2.12	TR-010219
Europa Protein 300	C18	5	25	2.12	TR-010220

Europa C18 Protein Analytical HPLC Columns



Packing	Funct.	µm	Length		Cat.Nbr.
			cm	Diameter cm	
Europa Protein 300	C18	5	3	0.46	TR-010158
Europa Protein 300	C18	5	4	0.46	TR-010159
Europa Protein 300	C18	5	5	0.46	TR-010160
Europa Protein 300	C18	5	10	0.46	TR-010161
Europa Protein 300	C18	5	15	0.46	TR-010162
Europa Protein 300	C18	5	20	0.46	TR-010163
Europa Protein 300	C18	5	25	0.46	TR-010164
Europa Protein 300	C18	5	3	0.40	TR-010172
Europa Protein 300	C18	5	4	0.40	TR-010173
Europa Protein 300	C18	5	5	0.40	TR-010174
Europa Protein 300	C18	5	10	0.40	TR-010175
Europa Protein 300	C18	5	15	0.40	TR-010176
Europa Protein 300	C18	5	20	0.40	TR-010177
Europa Protein 300	C18	5	25	0.40	TR-010178

Europa C18 Protein Microbore HPLC Columns



Columns are particularly designed for LC/MS applications. The high detection sensitivity of these columns allows the use of smaller quantities of samples and also decreases the required volume of solvents.

Packing	Funct.	µm	Length		Cat.Nbr.
			cm	Diameter cm	
Europa Protein 300	C18	5	3	0.21	TR-010184
Europa Protein 300	C18	5	5	0.21	TR-010185
Europa Protein 300	C18	5	10	0.21	TR-010186
Europa Protein 300	C18	5	15	0.21	TR-010187
Europa Protein 300	C18	5	20	0.21	TR-010188
Europa Protein 300	C18	5	3	0.30	TR-010195
Europa Protein 300	C18	5	5	0.30	TR-010196
Europa Protein 300	C18	5	10	0.30	TR-010197
Europa Protein 300	C18	5	15	0.30	TR-010198
Europa Protein 300	C18	5	20	0.30	TR-010199
Europa Protein 300	C18	5	25	0.30	TR-010200

Europa C18 Protein Semi-Preparative HPLC Columns



Packing	Funct.	µm	Length		Cat.Nbr.
			cm	Diameter cm	
Europa Protein 300	C18	5	10	0.70	TR-010211
Europa Protein 300	C18	5	5	0.70	TR-010212
Europa Protein 300	C18	5	25	0.70	TR-010213
Europa Protein 300	C18	5	10	1.00	TR-010214
Europa Protein 300	C18	5	15	1.00	TR-010215
Europa Protein 300	C18	5	25	1.00	TR-010216

Europa HPLC Column for Peptides and Proteins



Semi preparative and Preparative Europa HPLC Columns

Europa C8 Protein HPLC Columns

Europa C8 columns are recommended for compounds too strongly retained on C18 Phases.

Europa C8 Protein Analytical HPLC Columns



Packing	Funct. μm	Length		Diameter	Cat.Nbr.
		μm	cm		
Europa Protein 300	C8	5	3	0.46	TR-010151
Europa Protein 300	C8	5	4	0.46	TR-010152
Europa Protein 300	C8	5	5	0.46	TR-010153
Europa Protein 300	C8	5	10	0.46	TR-010154
Europa Protein 300	C8	5	15	0.46	TR-010155
Europa Protein 300	C8	5	20	0.46	TR-010156
Europa Protein 300	C8	5	25	0.46	TR-010157
Europa Protein 300	C8	5	3	0.40	TR-010165
Europa Protein 300	C8	5	4	0.40	TR-010166
Europa Protein 300	C8	5	5	0.40	TR-010167
Europa Protein 300	C8	5	10	0.40	TR-010168
Europa Protein 300	C8	5	15	0.40	TR-010169
Europa Protein 300	C8	5	20	0.40	TR-010170
Europa Protein 300	C8	5	25	0.40	TR-010171

Europa C8 Protein Microbore HPLC Columns



Columns are particularly designed for LC/MS applications. The high detection sensitivity of these columns allows the use of smaller quantities of samples and also decreases the required volume of solvents.

Europa C8 columns are recommended for compounds too strongly retained on C18 Phases.

Packing	Funct. μm	Length		Diameter	Cat.Nbr.
		μm	cm		
Europa Protein 300	C8	5	3	0.21	TR-010179
Europa Protein 300	C8	5	5	0.21	TR-010180
Europa Protein 300	C8	5	10	0.21	TR-010181
Europa Protein 300	C8	5	15	0.21	TR-010182
Europa Protein 300	C8	5	20	0.21	TR-010183
Europa Protein 300	C8	5	3	0.30	TR-010189

Packing	Funct. μm	Length		Diameter	Cat.Nbr.
		μm	cm		
Europa Protein 300	C8	5	5	0.30	TR-010190
Europa Protein 300	C8	5	10	0.30	TR-010191
Europa Protein 300	C8	5	15	0.30	TR-010192
Europa Protein 300	C8	5	20	0.30	TR-010193
Europa Protein 300	C8	5	25	0.30	TR-010194

Europa C8 Protein Semi-Preparative HPLC Columns



Packing	Funct. μm	Length		Diameter	Cat.Nbr.
		μm	cm		
Europa Protein 300	C8	5	10	0.70	TR-010201
Europa Protein 300	C8	5	15	0.70	TR-010202
Europa Protein 300	C8	5	25	0.70	TR-010203
Europa Protein 300	C8	5	10	1.00	TR-010204
Europa Protein 300	C8	5	15	1.00	TR-010205
Europa Protein 300	C8	5	25	1.0	TR-010206

Europa C8 Protein Preparative HPLC Columns



Packing	Funct. μm	Length		Diameter	Cat.Nbr.
		μm	cm		
Europa Protein 300	C8	5	5	2.12	TR-010207
Europa Protein 300	C8	5	10	2.12	TR-010208
Europa Protein 300	C8	5	15	2.12	TR-010209
Europa Protein 300	C8	5	25	2.12	TR-010210

For Guard Columns please refer to pages 193-196

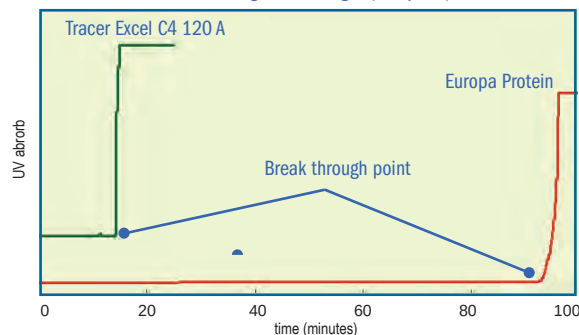


Europa HPLC Column for Peptides and Proteins

Europa C4 Protein HPLC Columns

Europa Protein C4 300 Å - Loading Capacity of BSA

Protein 300 exhibited the highest loading capacity for proteins



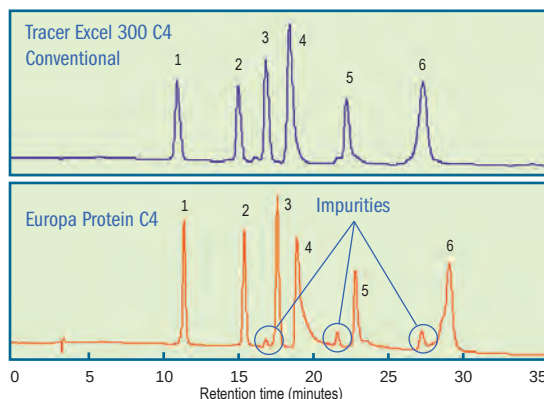
Column: 7 mm I.D. x 250 mm Length; Temperature: 35°C; Detector: UV 220 nm;
Flow Rate: 1.0 ml/min.

Feed: 10 mg/mL BSA in 0.1% TFAaq
Europa C4 columns are recommended for compounds too strongly retained on C 18 and C 8

Europa Protein C4 300 Å - Protein Separation Behaviors

- **Similar Hydrophobic Selectivity**
- **Higher Resolution**

Protein Standards	
1.	Ribonuclease A (M.W. 13,700)
2.	Cytochrome C (M.W. 12,400)
3.	Lysozyme (M.W. 14,300)
4.	BSA (M.W. 67,000)
5.	Myoglobin (M.W. 18,800)
6.	Ovalbumin (M.W. 45,300)



Column: 6 mm I.D. x 250 mm Length; Temperature: 35°C; Detector: UV 220 nm;
Mobile Phase: A) CH₃CN/H₂O/TFA = 20/80/0.1, B) CH₃CN/H₂O/TFA = 60/40/0.1,
Linear Gradient from A to B in 25 min and hold for 10 min; Flow Rate: 1.7 ml/min.

Europa C4 Protein Analytical HPLC Columns



Packing	Funct. µm	Length		Diameter	Cat.Nbr.
		cm	cm		
Europa Protein 300	C4	5	3	0.46	TR-010081
Europa Protein 300	C4	5	4	0.46	TR-010082
Europa Protein 300	C4	5	5	0.46	TR-010083
Europa Protein 300	C4	5	10	0.46	TR-010084
Europa Protein 300	C4	5	15	0.46	TR-010085
Europa Protein 300	C4	5	20	0.46	TR-010086
Europa Protein 300	C4	5	25	0.46	TR-010087

Length Diameter

Packing	Funct.	µm	cm	cm	Cat.Nbr.
Europa Protein 300	C4	5	3	0.40	TR-010088
Europa Protein 300	C4	5	4	0.40	TR-010089
Europa Protein 300	C4	5	5	0.40	TR-010090
Europa Protein 300	C4	5	10	0.40	TR-010091
Europa Protein 300	C4	5	15	0.40	TR-010092
Europa Protein 300	C4	5	20	0.40	TR-010093
Europa Protein 300	C4	5	25	0.40	TR-010094

Europa C4 Protein Microbore HPLC Columns



Columns are particularly designed for LC/MS applications.
The high detection sensitivity of these columns allows the use of smaller quantities of samples and also decreases the required volume of solvents.

Length Diameter

Packing	Funct.	µm	cm	cm	Cat.Nbr.
Europa Protein 300	C4	5	3	0.21	TR-010095
Europa Protein 300	C4	5	5	0.21	TR-010096
Europa Protein 300	C4	5	10	0.21	TR-010097
Europa Protein 300	C4	5	15	0.21	TR-010098
Europa Protein 300	C4	5	20	0.21	TR-010099
Europa Protein 300	C4	5	3	0.30	TR-010100
Europa Protein 300	C4	5	5	0.30	TR-010101
Europa Protein 300	C4	5	10	0.30	TR-010102
Europa Protein 300	C4	5	15	0.30	TR-010103
Europa Protein 300	C4	5	20	0.30	TR-010104
Europa Protein 300	C4	5	25	0.30	TR-010105

Europa C4 Protein Semi-Preparative HPLC Columns



Length Diameter

Packing	Funct.	µm	cm	cm	Cat.Nbr.
Europa Protein 300	C4	5	10	0.78	TR-010106
Europa Protein 300	C4	5	15	0.78	TR-010107
Europa Protein 300	C4	5	25	0.78	TR-010108
Europa Protein 300	C4	5	10	1.00	TR-010109
Europa Protein 300	C4	5	15	1.00	TR-010110
Europa Protein 300	C4	5	25	1.00	TR-010111

Europa C4 Protein Preparative HPLC Columns



Length Diameter

Packing	Funct.	µm	cm	cm	Cat.Nbr.
Europa Protein 300	C4	5	5	2.12	TR-010112
Europa Protein 300	C4	5	10	2.12	TR-010113
Europa Protein 300	C4	5	15	2.12	TR-010114
Europa Protein 300	C4	5	25	2.12	TR-010115



TRACER EXCEL™ is a range of totally new packings that employ the most advanced procedures of synthesis and chemical functionalization, resulting in some column packings that completely surpass other silica-based packings on the market.

To manufacture the silica particle, the basis of all TRACER EXCEL packings, we begin with materials of extreme purity and follow strictly controlled processes. In this way, we get a totally porous, spherically perfect particle, without surface irregularities and with an extremely low content of metals (Al, Fe, Ti and Zn).

The rigorous control of the process variables also allows us to obtain a material with a perfectly reproducible porosity and surface area, and with a practical absence of micropores. In other competitors' packings, these micropores cause chromatographic problems due to incomplete substitution of the support, while with TRACER EXCEL packings micropores are totally eliminated.

We are therefore able to offer you a complete line of HPLC packings with characteristics of reproducibility, purity, deactivation, fluido-dynamic behaviour and chemical and physical stability that are difficult to beat.

- Exceptional batch-to-batch reproducibility.
- Ultra-pure silica.
- Extremely low content of metals.
- Perfect sphericity.
- Meticulously controlled materials.
- Maximum pH range (between 1.5 and 11.0)
- 3, 5 and 10 μm particles
- Easily scaled-up, from microbore to preparative HPLC.
- Available with 300Å pore size for biochromatography.
- Exceptional long lifetime.
- Wide range of packings.
- Fully deactivated after functional bonding.

TRACER EXCEL ODS-A

TRACER EXCEL ODS-A is a totally endcapped packing, notable for its extreme level of deactivation. This minimizes undesirable interactions when chromatographing strongly acidic or basic analytes or chelating compounds.

Additionally TRACER EXCEL ODS-A columns show extraordinary resistance to extreme pH values, between 1.5 to 11.0.

Maximum Stability

The chemical and structural stability of TRACER EXCEL columns leads to long useful lifetimes, even under extreme conditions where columns of most major manufacturers would suffer rapid degradation.

Total deactivation

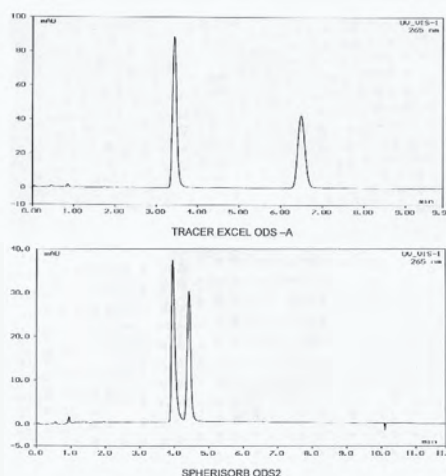
Free surface silanols that are left exposed following functional bonding of the silica particle are the chief cause of peak tailing and distortion that commonly appear with basic compounds.

If the silica particle also contains significant quantities of metals, these markedly increase the acidity of these surface silanols, keeping them ionized even at low pHs. These conditions can cause deleterious effects on eluting chromatographic peaks.

The Pyridine/Phenol test is an excellent marker of the presence of these surface silanols. Under ideal conditions, the pyridine peak should elute before the phenol peak and should also elute with total symmetry without tailing. Furthermore, a broader separation between the two peaks indicates superior deactivation.

The TRACER EXCEL ODS-A column complies with the pyridine/phenol test better than other columns from major manufacturers. This demonstrates the extraordinary deactivation achieved with TRACER EXCEL ODS-A columns. Another test that demonstrates the quality of TRACER EXCEL ODS-A columns is the acidic compounds test. This type of compound yields evidence of the presence of chelating centres or points of ionic interchange that may be present in the silica particle.

Pyridine/Phenol test



Conditions of test

Eluant : Acetonitrile/Water, 30/70 1ml/min
Lambda: 265nm

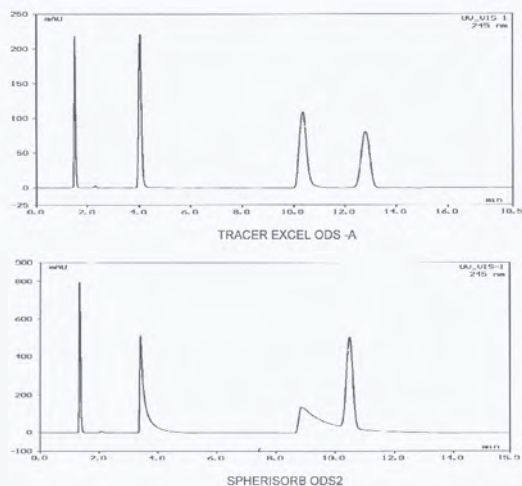
Composition:

Pyridine 2.1 $\mu\text{l/ml}$
Phenol: 14 mg/ml

TRACER EXCEL columns show perfectly symmetrical peaks in contrast to the significant tailing which appears when this test is done with other columns on the market. Symmetrical peaks are achieved even when separating basic compounds.

Once again, TRACER EXCEL columns show, thanks to their exceptional level of deactivation, excellence in obtaining perfectly symmetrical peaks where other columns on the market clearly fail (giving peaks with pronounced tails or even irreversible adsorption).

Acid Compounds Test



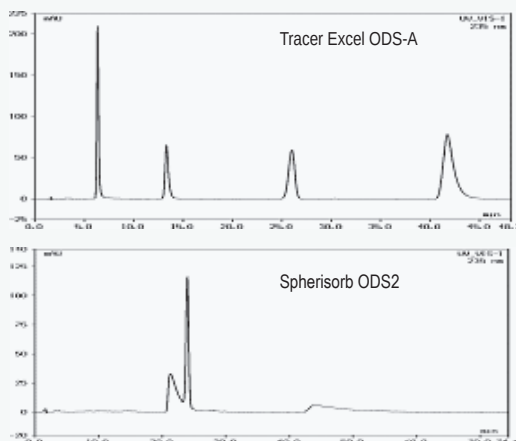
Conditions of test

Eluant : 20 mM KH₂PO₄pH3.2/CH₃CN 65:35
1 ml/min. Temp 40°C UV 245nm

Composition:

Uracil: 0.5mg/ml
Benzoic acid: 3.6 mg/ml
p-Ethylbenzoic acid: 0.9 mg/ml
Methylbenzene: 3.0 mg/ml

Basic Compounds Test



Conditions of test

Tracer Excel ODS-A
Eluant : 20 mM KH₂PO₄pH7/CH₂CN 35:65
1 ml/min. Temp 25°C UV 235nm

Composition:

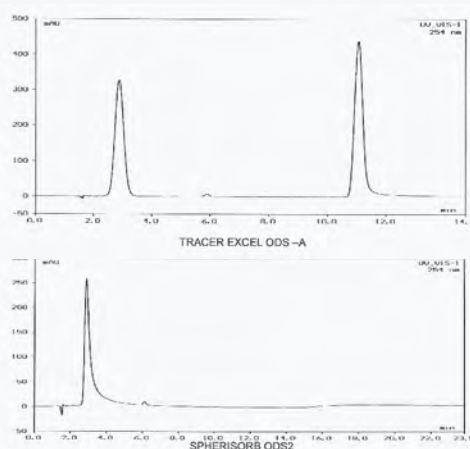
Propanolol: 0.08mg/ml
Diphenidramine : 1.28 mg/ml
Acetonaphthalene: 0.2 mg/ml
Amyltryptilene: 0.3 mg/ml

Purity of material

All of the advantages of TRACER EXCEL columns have as a base the quality of the silica particle. No bonding process can mask silica of inferior quality. Only silica particles absolutely free of metallic impurities, with a pore-size and pore-distribution absolutely controlled and synthesized through fully optimized processes, can give bonded packings of the highest grade.

The 8-quinolinol/acetylacetone test demonstrates the difference in chromatographic behavior between TRACER EXCEL ODS-A and a competitor's column with a high content of metallic impurities for the chelating compound 8-quinolinol.

Metalic Trace Test



Conditions of test

Tracer Excel ODS-A
Eluant : 10 mM KH₂PO₄pH6.8/Metanol 60:40
1 ml/min. Temp 30°C UV 254nm

Composition:

8-Quinolinol: 0.5mg/ml
Acetylacetone: 0.5mg/ml

Reproducibility

The high productivity which is now needed in analytical and governmental laboratories oblige everyone to use reliable HPLC equipment and reproducible columns.

TRACER EXCEL columns were developed with the final objective of achieving the very highest quality and reproducibility. Teknokroma's numerous and stringent process controls for every batch of packing fully guarantees high quality and exceptional reproducibility.

TRACER EXCEL ODS-B

- Compatible with 100% aqueous eluent.
- Especially suitable for the separation of hydrophilic compounds.
- Strong retention in aqueous eluents.
- Long useful life with aqueous eluents
- Selectivity complementary to TRACER EXCEL ODS-A
- High mechanical stability
- Maximum versatility.

Based on the same principles as the TRACER EXCEL ODS-A columns, the TRACER EXCEL ODS-B column presents a high selectivity for hydrophilic and polar compounds, which are poorly retained on conventional ODS columns.

A special modification in the process of functionalizing the pure silica particle prevents the collapsing effect of the C18 chains when working with mainly aqueous eluants. So you can work with excellent chromatographic performance even when the percentage of the aqueous phase is 100%.

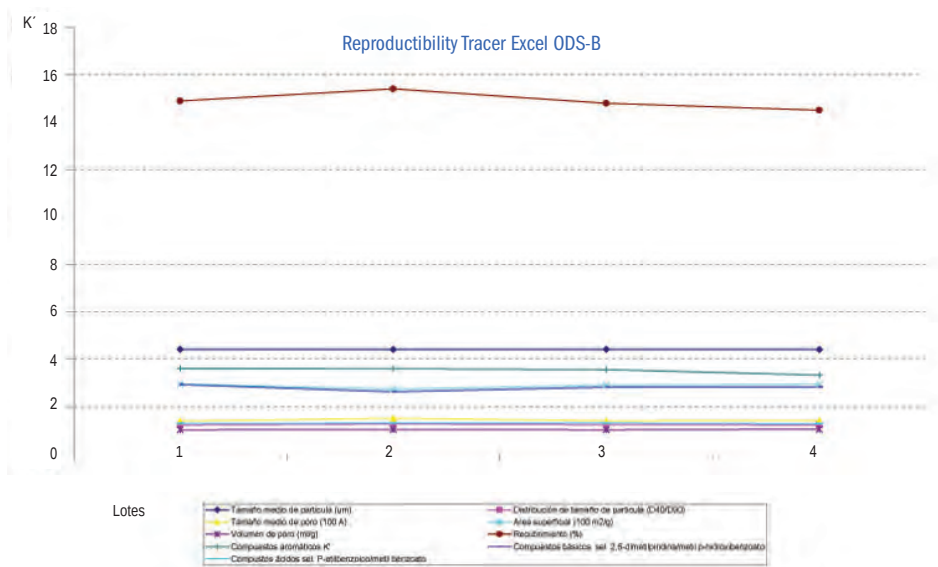
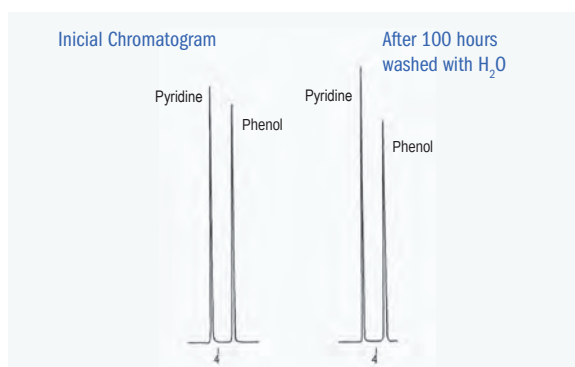
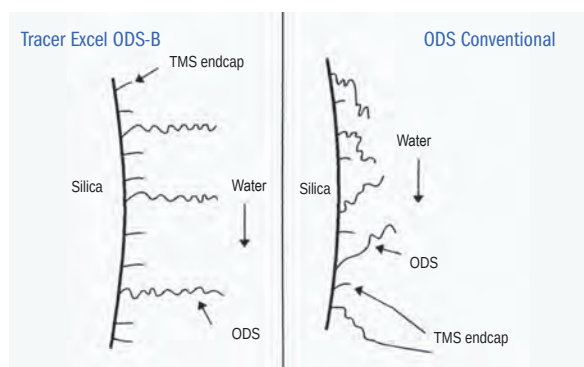
Generally, its field of application is the same as that of the TRACER EXCEL ODS-A, but its field of application is extended for samples which are especially difficult for conventional reversed phases, as is the case in separating oligosaccharides, amino acids, nucleotides and organic acids.

The special chromatographic conditions of TRACER EXCEL ODS-B also provide a specific selectivity for compounds which contain slightly polar groups in their structure.

This column is especially recommended for LC-MS in that, in many cases, the use of plugs or ionic blocking agents are avoided, which negatively affect detection when this technique is used.

As shown in the chromatogram, after more than 100 hours of operations with water no alteration is observed in retention times, selectivity or distortion in the peaks of pyridine and phenol - a clear indication that no collapse of the bonded phase functionality is adversely achieved with TRACER EXCEL ODS-B columns. Interestingly, the collapsing of bonded phase functionality with the majority of reversed phase columns on the market is typical under these conditions.

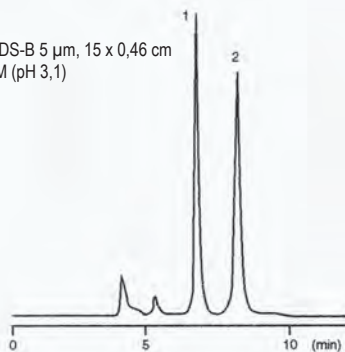
EFFECT OF AQUEOUS ELUTANTS ON THE ORGANIZATION OF HYDROCARBON CHAINS.



Antioxidants

Column: TRACER EXCEL ODS-B 5 μ m, 15 x 0,46 cm
Eluant: Phosphate Plug 0,1 M (pH 3,1)
Flow: 0,6 ml/min.
Detector: ECD

Sample: 1 Ascorbic Acid
2 GSH



Water Soluble Vitamins

Column: TRACER EXCEL ODS-B 5 μ m, 15 x 0,46 cm
Eluant: Phosphate Plug 20 mM (pH 7,0)CH₃CN 95/5 cm
Flow: 0.6 ml/min.
Detector: UV 210 nm

Sample: 1 Calcium Pantothenate
2 Pyridoxine hydrochloride (B₆)
3 Nicotinamide



Glycolid Acid and Latic Acid

Column: TRACER EXCEL ODS-B 5 μ m, 15 x 0.46 cm
Eluant: H₃PO₄ 0.1%
Flow: 0.6 ml/min.
Temperature: 40°C
Detector: UV 210 nm

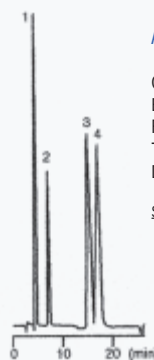
Sample: 1 Glycolic Acid
2 Lactic Acid



Alcohols

Column: TRACER EXCEL ODS-B 5 μ m, 15 x 0,46 cm
Eluant: H₂O
Flow: 0,6 ml/min.
Temperature: 40°C
Detector: RID

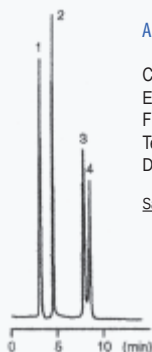
Sample: 1 Methanol
2 Ethanol
3 Iso-Propanol
4 n-propanol



Aminoacids

Column: TRACER EXCEL ODS-B 5 μ m, 15 x 0.46 cm
Eluant: H₂O
Flow: 0.6 ml/min.
Temperature: 40°C
Detector: RID

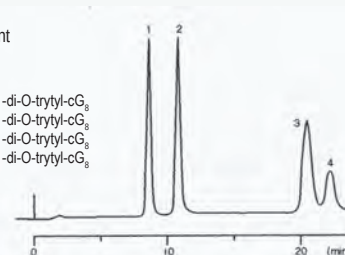
Sample: 1 Alanine
2 Valine
3 Isoleucine
4 Leucine



Cyclodextrin derivatives

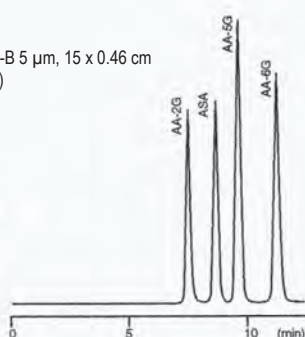
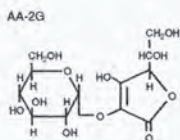
Column: TRACER EXCEL ODS-B 5 μ m, 15 x 0.46 cm
Eluant: MeOH/H₂O 70:30
Flow: 0.6 ml/min.
Temperature: ambient
Detector: UV240 nm

Sample: 1 6', 6'' -di-O-trytyl-cG₈
2 6', 6'' -di-O-trytyl-cG₆
3 6', 6'' -di-O-trytyl-cG₈
4 6', 6'' -di-O-trytyl-cG₆



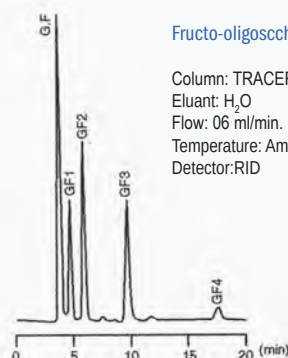
Ascorbic Acid and Glycosides

Column: TRACER EXCEL ODS-B 5 μ m, 15 x 0.46 cm
Eluant: Phosphate Plug (pH 3,8)
Flow: 04 ml/min.
Temperature: Ambient
Detector: UV240 nm



Fructo-oligosaccharides

Column: TRACER EXCEL ODS-B 5 μ m, 15 x 0,46 cm
Eluant: H₂O
Flow: 06 ml/min.
Temperature: Ambient
Detector: RID



Other Tracer Excel Packings



The extraordinary quality of TRACER EXCEL packings have been extended to a full range of operations, covering practically all the chromatographer's needs.

Si	Material of the ultrapure silica particle, the basis of all the TRACER EXCEL range.
C8	This packing made operative with octyl groups and totally endcapped is extremely versatile. Its use is recommended for highly hydrophobic samples, which are retained excessively on ODS type packings. Developed on the same ultrapure silica as ODS-A and ODS-B, it is extremely reproducible and reliable.
C4	The same ultra pure silica of all the TRACER EXCEL range made operative with butyl groups, giving a moderately hydrophobic packing. Its principle field of application is the separation of peptides and proteins by reverse phase. In this case, the same packing is used with a 300 Å porosity, more suitable for the large size of protein molecules. Another field where this packing can be highly recommended is when the sample contains compounds of a very different hydrophobic nature. This packing permits perfect separation of a sample with a single injection.
C1	The same ultrapure silica of the TRACER EXCEL range is given its special function with tri-methylchlorosilane to create a low hydrophobic reversed phase. Its field of application includes the separation of peptides and proteins by reversed phase. It can also be used as a packing for normal phase with highly polar compounds.
CN	The type CN packings are much appreciated as alternatives to ODS-type packings for their special selectivity, as well as for the possibility they offer for working in both chromatographic modes, normal and reverse phase. However, in comparison with the latter, they have always been characterised by a lesser reproducibility and a notably shorter useful life. Thanks to the extraordinary level of quality of the silica of the particle and the optimization reached by the actuating processes, the new packing TRACER EXCEL 120 CN has satisfactorily overcome these limitations, so giving the chromatographer a completely reliable alternative. As a normal phase it is an excellent alternative to unsubstituted silica, given that retention times are much more reproducible, equilibration times much more rapid, and it does not suffer the problems of de-activation of silica itself.
NH ₂	This packing, with chemically bonded groups of aminopropyl silane, can be used as a phase normal or reverse phase packing depending on the eluant used. It is recommended for separations of basic compounds under normal phase conditions. Additionally, the reactivity of the amino group makes it very suitable as a support for later modifications as for example in the synthesis of quiral phases. It is also very suitable for SFC applications
Ph	In the same way as the CN type packing, the packing substituted with dimethyl phenyl can be used in normal or reversed phase, being in this latter case a very useful alternative to ODS type packings since its aromatic groups give it a special selectivity when polar compounds are being chromatographed.
300 Angstrom	A complete range of packings with a pore diameter of 300 Angstrom units is available, ideal for undertaking separations of complex molecules of very high molecular weight, e.g. proteins and peptides.



General Properties of Tracer Excel Packings

	ODS-A	ODS-B	C8	C4	C1	CN	Ph	NH ₂	SI
Size of pore in A units	120	120	120	120	120	120	120	120	120
Size of particle	3, 4, 5 & 10 µm	3, 4, 5 & 10 µm	3, 5 and 10 µm	3, 5 and 10 µm	3, 5 and 10 µm	3, 5 and 10 µm	3, 5 and 10 µm	3, 5 and 10 µm	3, 5 and 10 µm
Volume of pores in ml/g	1.0 ml/g	1.0 ml/g	1.0 ml/g	1.0 ml/g	1.0 ml/g	1.0 ml/g	1.0 ml/g	1.0 ml/g	1.0 ml/g
Surface area	300 m ² /g	300 m ² /g	300 m ² /g	300 m ² /g	300 m ² /g	300 m ² /g	300 m ² /g	300 m ² /g	300 m ² /g
Purity of silica	Ultrapure	Ultrapure	Ultrapure	Ultrapure	Ultrapure	Ultrapure	Ultrapure	Ultrapure	Ultrapure
%C	17%	15%	10%	8%	5%	7%	9%	4%	
Type of phase	Monofunctional and totally endcapped	Monofunctional and totally endcapped	Monofunctional and totally endcapped	Monofunctional and totally endcapped	Monofunctional	Monofunctional and totally endcapped		Trifunctional	
Metallic impurities (Al, Fe, Ti, Zr)	Less than 10ppm of each one	Less than 10ppm of each one	Less than 10ppm of each one	Less than 10ppm of each one	Less than 10ppm of each one	Less than 10ppm of each one	Less than 10ppm of each one	Less than 10ppm of each one	Less than 10ppm of each one
USP	L1	L1	L7	L26	L13	L10	L11	L8	L3



Analytical columns 0.4 cm I.D.
TRACER EXCEL 120/5 µm

Function	µm	L e n g t h c m					
		4 cm	5 cm	10 cm	15 cm	20 cm	25 cm
ODS-A	5	TR-416336	TR-417000	TR-416337	TR-416338	TR-416339	TR-416340
ODS-B	5	TR-416341	TR-417002	TR-416342	TR-416343	TR-416344	TR-416345
Si	5	TR-416356	TR-417004	TR-416357	TR-416358	TR-416359	TR-416360
C8	5	TR-416361	TR-417006	TR-416362	TR-416363	TR-416364	TR-416365
C4	5	TR-416366	TR-417008	TR-416367	TR-416368	TR-416369	TR-416370
C1	5	TR-416371	TR-417010	TR-416372	TR-416373	TR-416374	TR-416375
NH2	5	TR-416376	TR-417012	TR-416377	TR-416378	TR-416379	TR-416380
CN	5	TR-416381	TR-417014	TR-416382	TR-416383	TR-416384	TR-416385
Ph	5	TR-416386	TR-417016	TR-416387	TR-416388	TR-416389	TR-416390

Ultrarapid columns 0.4 cm I.D.
TRACER EXCEL 120/3 µm

Function	µm	L e n g t h c m					
		4 cm	5 cm	10 cm	15 cm	20 cm	25 cm
ODS-A	3	TR-413460	TR-417018	TR-413461	TR-413462	TR-413463	TR-413464
ODS-B	3	TR-413465	TR-417020	TR-413466	TR-413467	TR-413468	TR-413469
Si	3	TR-413470	TR-417022	TR-413471	TR-413472	TR-413473	TR-413474
C8	3	TR-413475	TR-417024	TR-413476	TR-413477	TR-413478	TR-413479
C4	3	TR-413480	TR-417026	TR-413481	TR-413482	TR-413483	TR-413484
C1	3	TR-413485	TR-417028	TR-413486	TR-413487	TR-413488	TR-413489
NH2	3	TR-413490	TR-417030	TR-413491	TR-413492	TR-413493	TR-413494
CN	3	TR-413495	TR-417032	TR-413496	TR-413497	TR-413498	TR-413499
Ph	3	TR-413500	TR-417034	TR-413501	TR-413502	TR-413503	TR-413504

Analytical columns 0.46 cm I.D.
TRACER EXCEL 120/5 µm

Function	µm	L e n g t h c m					
		4 cm	5 cm	10 cm	15 cm	20 cm	25 cm
ODS-A	5	TR-016336	TR-025000	TR-016337	TR-016338	TR-016339	TR-016340
ODS-B	5	TR-016341	TR-025002	TR-016342	TR-016343	TR-016344	TR-016345
Si	5	TR-016356	TR-025004	TR-016357	TR-016358	TR-016359	TR-016360
C8	5	TR-016361	TR-025006	TR-016362	TR-016363	TR-016364	TR-016365
C4	5	TR-016366	TR-025008	TR-016367	TR-016368	TR-016369	TR-016370
C1	5	TR-016371	TR-025010	TR-016372	TR-016373	TR-016374	TR-016375
NH2	5	TR-016376	TR-025012	TR-016377	TR-016378	TR-016379	TR-016380
CN	5	TR-016381	TR-025014	TR-016382	TR-016383	TR-016384	TR-016385
Ph	5	TR-016386	TR-025016	TR-016387	TR-016388	TR-016389	TR-016390

Ultrarapid columns 0.46 cm I.D.
TRACER EXCEL 120/4 µm

Function	µm	L e n g t h c m					
		4 cm	5 cm	10 cm	15 cm	20 cm	25 cm
ODS-A	4	TR-025018	TR-025020	TR-025022	TR-025024	TR-025026	TR-025028
ODS-B	4	TR-016351	TR-025030	TR-016352	TR-016353	TR-016354	TR-016355

Ultrarapid columns 0.4 cm I.D.
TRACER EXCEL 120/4 µm

Function	µm	L e n g t h c m					
		4 cm	5 cm	10 cm	15 cm	20 cm	25 cm
ODS-A	4	TR-416346	TR-417036	TR-416347	TR-416348	TR-416349	TR-416350
ODS-B	4	TR-416351	TR-417038	TR-416352	TR-416353	TR-416354	TR-416355





Tracer Excel 120

Ultrarapid columns 0.46 cm I.D.

TRACER EXCEL 120/3 μm

Function	μm	L e n g t h c m					
		4 cm	5 cm	10 cm	15 cm	20 cm	25 cm
ODS-A	3	TR-013415	TR-025034	TR-013416	TR-013417	TR-013418	TR-013419
ODS-B	3	TR-013420	TR-025036	TR-013421	TR-013422	TR-013423	TR-013424
Si	3	TR-013425	TR-025038	TR-013426	TR-013427	TR-013428	TR-013429
C8	3	TR-013430	TR-025040	TR-013431	TR-013432	TR-013433	TR-013434
C4	3	TR-013435	TR-025042	TR-013436	TR-013437	TR-013438	TR-013439
C1	3	TR-013440	TR-025044	TR-013441	TR-013442	TR-013443	TR-013444
NH2	3	TR-013445	TR-025046	TR-013446	TR-013447	TR-013448	TR-013449
CN	3	TR-013450	TR-025048	TR-013451	TR-013452	TR-013453	TR-013454
Ph	3	TR-013455	TR-025050	TR-013456	TR-013457	TR-013458	TR-013459

Microbore columns 0.21 cm I.D.

TRACER EXCEL 120/5 μm

Function	μm	L e n g t h c m				
		5 cm	10 cm	15 cm	20 cm	25 cm
ODS-B	5	TR-025060	TR-021353	TR-025078	TR-021354	TR-025096
Si	5	TR-025062	TR-021395	TR-025080	TR-021364	TR-025098
C8	5	TR-025064	TR-021365	TR-025082	TR-021366	TR-025100
C4	5	TR-025066	TR-021367	TR-025084	TR-021368	TR-025102
C1	5	TR-025068	TR-021369	TR-025086	TR-021370	TR-025104
NH2	5	TR-025070	TR-021371	TR-025088	TR-021372	TR-025106
CN	5	TR-025072	TR-021373	TR-025090	TR-021374	TR-025108
Ph	5	TR-025074	TR-021375	TR-025092	TR-021376	TR-025110

Other configurations available on demand

Microbore columns 0.21 cm I.D.

TRACER EXCEL 120/3 μm

Function	μm	L e n g t h c m				
		5 cm	10 cm	15 cm	20 cm	25 cm
ODS-A	3	TR-025114	TR-021407	TR-025134	TR-021408	TR-025154
ODS-B	3	TR-025116	TR-021409	TR-025136	TR-021410	TR-025156
Si	3	TR-025118	TR-021411	TR-025138	TR-021412	TR-025158
C8	3	TR-025120	TR-021413	TR-025140	TR-021414	TR-025160
C4	3	TR-025122	TR-021415	TR-025142	TR-021416	TR-025162
C1	3	TR-025124	TR-021417	TR-025144	TR-021418	TR-025164
NH2	3	TR-025126	TR-021419	TR-025146	TR-021420	TR-025166
CN	3	TR-025128	TR-021421	TR-025148	TR-021422	TR-025168
Ph	3	TR-025130	TR-021423	TR-025150	TR-021424	TR-025170

Other configurations available on demand

Analytical columns 0.3 cm I.D.
TRACER EXCEL 120/5 µm

Function	µm	L e n g t h c m			
		5 cm	10 cm	15 cm	20 cm
ODS-A	5	TR-025200	TR-021355	TR-025220	TR-021356
ODS-B	5	TR-025202	TR-021357	TR-025222	TR-021358
Si	5	TR-025204	TR-021381	TR-025224	TR-021382
C8	5	TR-025206	TR-021383	TR-025226	TR-021384
C4	5	TR-025208	TR-021385	TR-025228	TR-021386
C1	5	TR-025210	TR-021387	TR-025230	TR-021388
NH2	5	TR-025212	TR-021389	TR-025232	TR-021390
CN	5	TR-025214	TR-021391	TR-025234	TR-021392
Ph	5	TR-025216	TR-021393	TR-025236	TR-021394

Other configurations available on demand

Microbore columns 0.3 cm I.D.
TRACER EXCEL 120/3 µm

Function	µm	L e n g t h c m			
		5 cm	10 cm	15 cm	20 cm
ODS-A	3	TR-025240	TR-021425	TR-025260	TR-021426
ODS-B	3	TR-025242	TR-021427	TR-025262	TR-021428
Si	3	TR-025244	TR-021429	TR-025264	TR-021430
C8	3	TR-025246	TR-021431	TR-025266	TR-021432
C4	3	TR-025248	TR-021433	TR-025268	TR-021434
C1	3	TR-025250	TR-021435	TR-025270	TR-021436
NH2	3	TR-025252	TR-021437	TR-025272	TR-021438
CN	3	TR-025254	TR-021439	TR-025274	TR-021440
Ph	3	TR-025256	TR-021441	TR-025276	TR-021442

Other configurations available on demand





Tracer Excel 120

Semi-preparative columns 0.78 cm I.D.

TRACER EXCEL 120/5 μm

Function	μm	L e n g t h c m			
		5 cm	10 cm	15 cm	25 cm
ODS-A	5	TR-025280	TR-025300	TR-016167	TR-016168
ODS-B	5	TR-025282	TR-025302	TR-016171	TR-016172
Si	5	TR-025284	TR-025304	TR-016175	TR-016176
C8	5	TR-025286	TR-025306	TR-016179	TR-016180
C4	5	TR-025288	TR-025308	TR-016183	TR-016184
C1	5	TR-025290	TR-025310	TR-016187	TR-016188
NH2	5	TR-025292	TR-025312	TR-016191	TR-016192
CN	5	TR-025294	TR-025314	TR-016195	TR-016196
Ph	5	TR-025296	TR-025316	TR-016199	TR-016200

Other configurations available on demand

Semi-preparative columns 1.0 cm I.D.

TRACER EXCEL 120/5 μm

Function	μm	L e n g t h c m			
		5 cm	10 cm	15 cm	25 cm
ODS-A	5	TR-025320	TR-025340	TR-016169	TR-016170
ODS-B	5	TR-025322	TR-025342	TR-016173	TR-016174
Si	5	TR-025324	TR-025344	TR-016177	TR-016178
C8	5	TR-025326	TR-025346	TR-016181	TR-016182
C4	5	TR-025328	TR-025348	TR-016185	TR-016186
C1	5	TR-025330	TR-025350	TR-016189	TR-016190
NH2	5	TR-025332	TR-025352	TR-016193	TR-016194
CN	5	TR-025334	TR-025354	TR-016197	TR-016198
Ph	5	TR-025336	TR-025356	TR-016201	TR-016202

Other configurations available on demand



Analytical columns 0.46 cm I.D.

TRACER EXCEL 300/5 µm

Function	µm	L e n g t h c m					
		4 cm	5 cm	10 cm	15 cm	20 cm	25 cm
ODS-A	5	TR-016400	TR-025360	TR-016401	TR-016402	TR-016403	TR-016404
C8	5	TR-016405	TR-025362	TR-016406	TR-016407	TR-016408	TR-016409
C4	5	TR-016410	TR-025364	TR-016411	TR-016412	TR-016413	TR-016414

Analytical columns 0.4 cm I.D.

TRACER EXCEL 300/5 µm

Function	µm	L e n g t h c m					
		4 cm	5 cm	10 cm	15 cm	20 cm	25 cm
ODS-A	5	TR-416400	TR-417040	TR-416401	TR-416402	TR-416403	TR-416404
C8	5	TR-416405	TR-417042	TR-416406	TR-416407	TR-416408	TR-416409
C4	5	TR-416410	TR-417044	TR-416411	TR-416412	TR-416413	TR-416414

Analytical columns 0.21 cm I.D.

TRACER EXCEL 300/5 µm

Function	µm	L e n g t h c m				
		5 cm	10 cm	15 cm	20 cm	25 cm
ODS-A	5	TR-025376	TR-012395	TR-025382	TR-012396	TR-025388
C8	5	TR-025378	TR-012397	TR-025384	TR-012398	TR-025390
C4	5	TR-025380	TR-012399	TR-025386	TR-012400	TR-025392

Analytical columns 0.3 cm I.D.

TRACER EXCEL 300/5 µm

Function	µm	L e n g t h c m				
		5 cm	10 cm	15 cm	20 cm	25 cm
ODS-A	5	TR-025396	TR-021401	TR-025402	TR-021402	TR-025408
C8	5	TR-025398	TR-021403	TR-025404	TR-021404	TR-025410
C4	5	TR-025400	TR-021405	TR-025406	TR-021406	TR-025412

For Guard Columns please refer to pages 193-196





Tracer Extrasil



The new range of Tracer Extrasil packings has been specially developed to replace one of the most popular packings on the market (WS).

All the physical and chromatographic parameters evaluated show a total equivalence between both materials, and what is more important, this has been certified by the excellent results obtained by the many users who upto now have tried this packing.

Economy

Tracer Extrasil represents the most economical choice of HPLC packings.

Reproducibility

An advanced manufacturing process and a strict control of each one of its steps ensures a maximum reproducibility and efficiency in every one of the columns.

Guarantee

The confidence we have in our product enables us to offer a complete guarantee on these columns, so that if for any reason whatever a client thinks that a TRACER EXTRASIL column does not operate in an identical manner to the equivalent WS packing, we will refund his money.

Characteristics of the material

As shown in the following table, the new packing TRACER EXTRASIL is perfectly equivalent to the reference material in all its physicochemical characteristics.

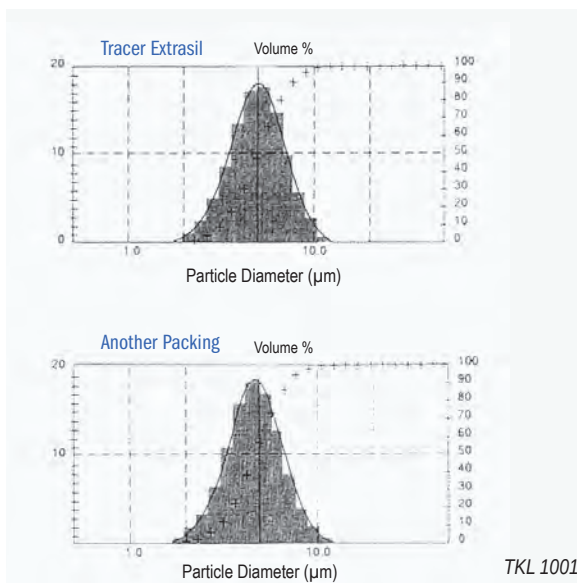
Characteristics

Tracer Extrasil 3,5 & 10 µm 80 Å 220 m ² /g	Particle Size Pore Size Surface area Carbon content	WS Packing 3,5 & 10 µm 80 Å 220 m ² /g
4%	C1	4%
6%	C6	6%
6%	C8	6%
7%	ODS-1	7%
12%	ODS-2	12%
3,5%	CN	3,5%
2%	NH2	2%
3,0%	Phenyl	3,0%
-	SAX	-
-	SCX	-

Distribution of particle size

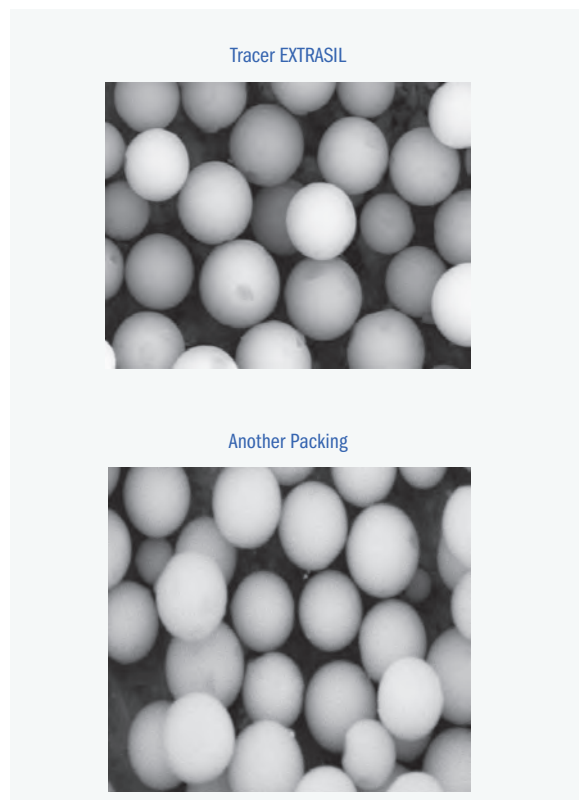
In the development of this new material there has been special care in optimization of the size of the particle, given that this control is essential to get the best efficiency and stability in the packing.

The comparison made with the WS packing shows once more the total equivalence of these two materials.



S.E.M. of the silica particle

The packing that results shows an almost perfect sphericity, as the images made by a scanning electron microscope show.

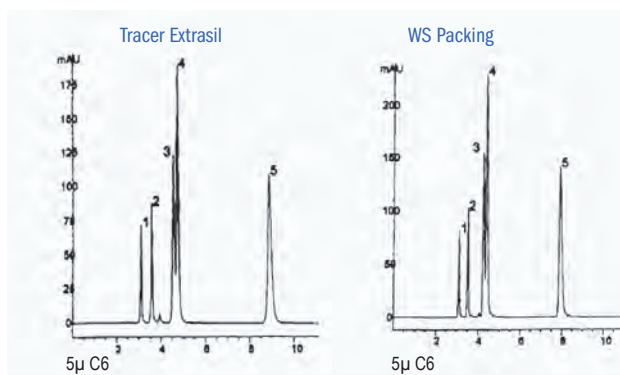


Applications

In addition to the complete agreement between the comparative data for both packings, the definitive proof comes from their comparison in a wide range of applications.

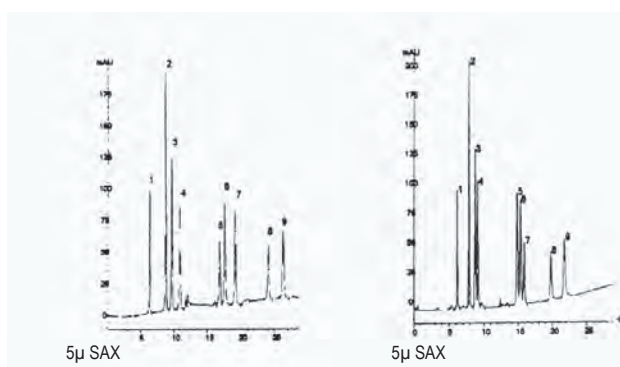
Catecholamines

Dimensions: 250 x 4.6 mm
 Mobil Phase: CH₂OH:25 mM KH₂PO₄ pH 2.0 (2:98)
 Flow Rate: 1.0mL/min
 Temperature: 40°C
 Detection: UV@ 270nm
 Sample: 1. Norepinephrine
 2. Betametasone
 3. Dopamine
 4. L-DOPA
 5. Serotonine



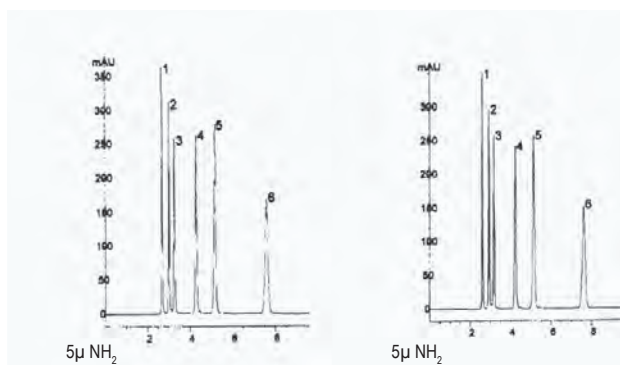
Nucleotides

Dimensions: 250 x 4.6 mm
 Mobil Phase: A: 0.04M KH₂PO₄ pH 5.5
 B: 0.5M KH₂PO₄TpH 5.5
 Flow Rate: 1.0mL/min
 Detection: UV@ 254nm
 Sample: 1. β-NAD
 2. IMP
 3. GMP
 4. AMP
 5. GDP
 6. ADP
 7. NADP
 8. ITP
 9. ATP



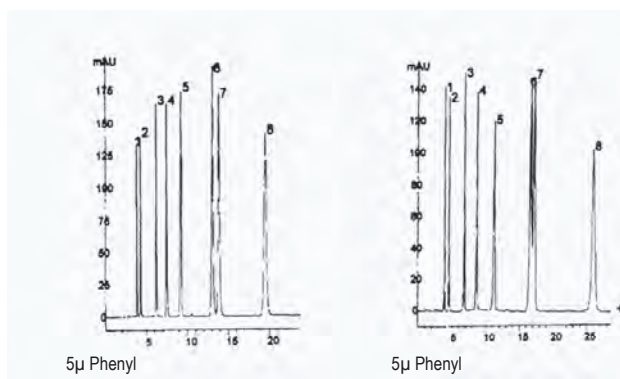
Corticosteroids

Dimensions: 250 x 4.6 mm
 Mobil Phase: CH₂Cl₂:CH₃OH (95:5)
 Flow Rate: 1.0mL/min
 Detection: UV@ 254nm
 Sample: 1. Deoxycorticosterone Acetate
 2. Desoxicorticosterone
 3. Hidrocortisone 21-Acetate
 4. Corticosterone
 5. Cortisone
 6. Hidrocortisone



Aromatic Ketones

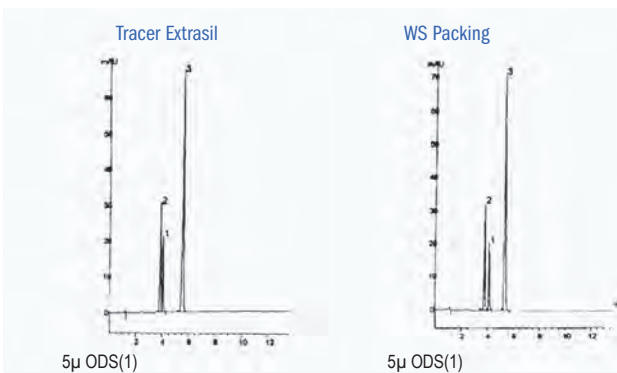
Dimensions: 250 x 4.6 mm
 Mobil Phase: CH₂ CN :CH₂ O (33:67)
 Flow Rate: 1.0mL/min
 Detection: UV@ 254nm
 Sample: 1. Benzamide
 2. Alcohol Bencilic
 3. Acetophenone
 4. Methyl Benzoat
 5. Phenetole
 6. Naphtalene
 7. Benzophenone
 8. Biphenile



SRM 869

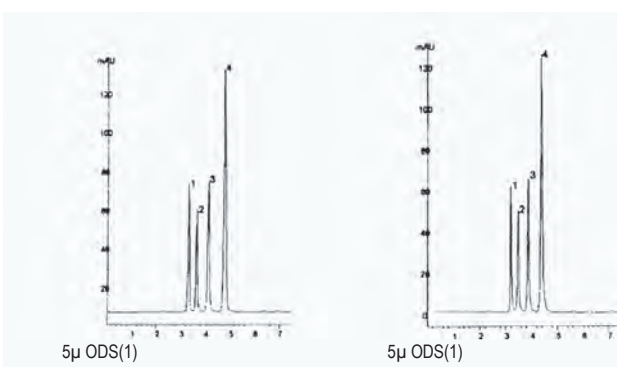
Dimensions: 250 x 4.6 mm
 Mobil Phase: H₂O:CH₃CN (15:85)
 Flow Rate: 2.0mL/min
 Temperature: 35°C
 Detection: UV@ 260nm
 Sample: 1. Benzo (a) pirene (BaP)
 2. Phenantro (3,4-C)
 2. Phenantrene (Ph Ph)
 3. Tetrabenzonaphtalene

Tracer Extrasil ODS 2 aTBN/BaP = 1,77
 Packing WS ODS-2 aTBN/BaP = 1,70



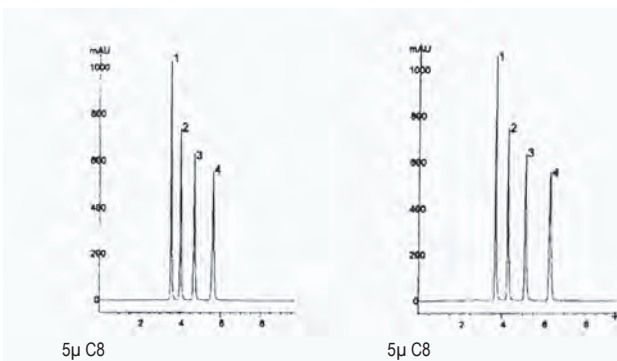
4-Hydroxybenzoates

Dimensions: 250 x 4.6 mm
 Mobil Phase: H₂O:CH₃CN (35:65)
 Flow Rate: 1.0mL/min
 Detection: UV@ 254nm
 Sample: 1. Methyl-4-hydroxybenzoate
 2. Ethyl-4-hydroxybenzoate
 3. Propyl-4-hydroxybenzoate
 4. Butyl-4-hydroxybenzoate



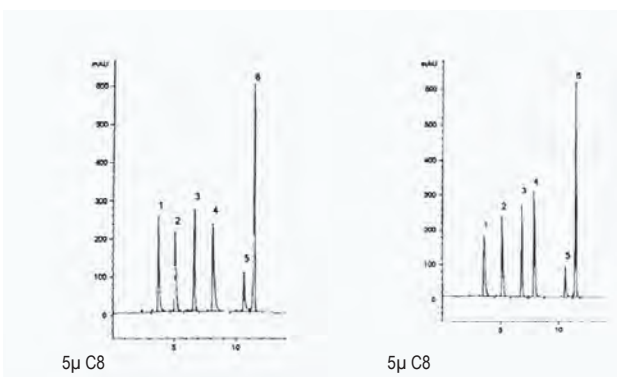
4-Hydroxybenzoates

Dimensions: 250 x 4.6 mm
 Mobil Phase: H₂O:CH₃CN (45:55)
 Flow Rate: 1.0mL/min
 Detection: UV@ 254nm
 Sample: 1. Methyl- 4-hydroxybenzoate
 2. Ethyl-4-hydroxybenzoate
 3. Propyl-4-hydroxybenzoate
 4. Butyl-4-hydroxybenzoate



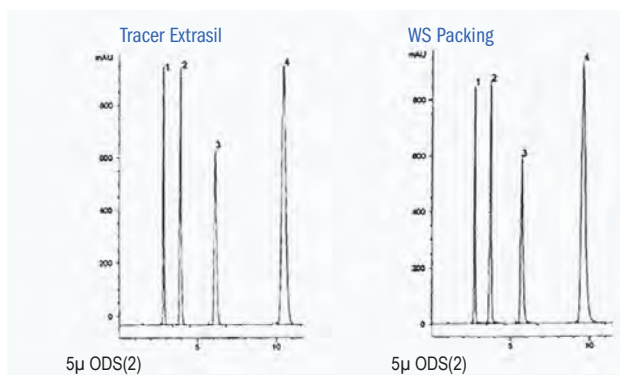
Hydrosoluble Vitamines

Dimensions: 150 x 4.6 mm
 Mobil Phase: A: 5mM 1-Penta sodic nesulfonate in 0.1% H₃PO₄
 B: 5mM 1-Sodic Pentanesulfonate in 0.1% H₃PO₄ in 80 % CH₃CN A:B (97.5:2.5) to A:B (70:30) in 20 min.
 Flow Rate: 1.0mL/min
 Detection: UV@ 254nm
 Sample: 1. Nicotinamine
 2. Pyridoxal
 3. Acide p-amynobenzaic
 4. Tyamine
 5. Folic Acid
 6. Riboflavine



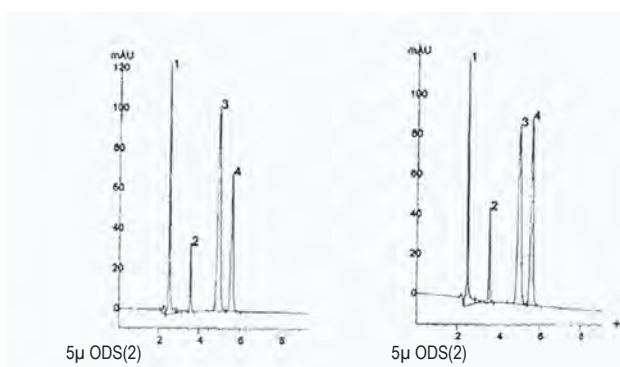
4-Hydroxybenzoat

Dimensions: 150 x 4.6 mm
 Mobil Phase: H₂O:CH₃CN (40:60)
 Flow Rate: 1.0 mL/min
 Temperature: 40°C
 Detection: UV@ 254nm
 Sample: 1. Methyl-4-hydroxybenzoat
 2. Ethyl-4-hydroxybenzoat
 3. Propyl-4-hydroxybenzoat
 4. Butyl-4-hydroxybenzoat



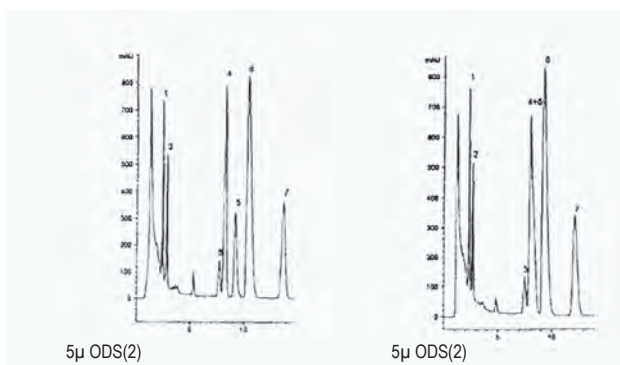
Polar Compounds

Dimensions: 250 x 4.6 mm
 Mobil Phase: 25mM KH₂PO₄, pH 2.5
 Flow Rate: 1.0 mL/min
 Temperature: 40°C
 Detection: UV@ 230nm
 Sample: 1. L-Cysteine
 2. L-ascorbic Acid
 3. Glutathione
 4. Uric Acid



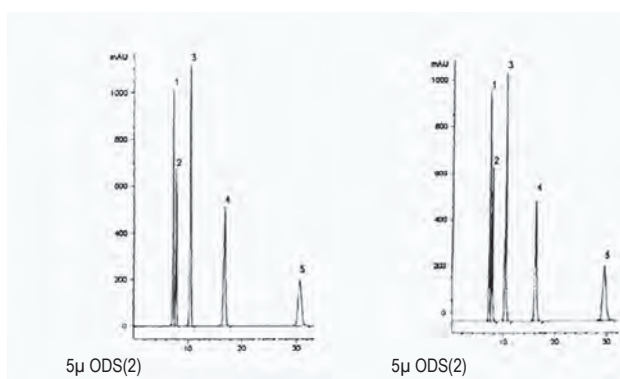
Liposoluble Vitamines

Dimensions: 150 x 4.6 mm
 Mobil Phase: CH₃CN:CH₃OH (75:25)
 Flow Rate: 1.3 mL/min
 Detection: UV@ 280nm
 Sample: 1. Vitamine A
 2. Vitamine A Acetate
 3. Vitamine D2
 4. Vitamine D3
 5. Vitamine E
 6. Vitamine E Acetate
 7. Vitamine K1



Pesticides/Herbicides

Dimensions: 150 x 4.6 mm
 Mobil Phase: H₂O:CH₃CN (70:30)
 Flow Rate: 1.0 mL/min
 Detection: UV@ 254nm
 Sample: 1. Baygon™
 2. Carbofuran
 3. Carbaryl
 4. Protham
 5. Captan





Analytical columns Tracer EXTRASIL

Function		Dimensions									
Particle size (µm)		10 x 0.46 cm	10 x 0.4 cm	12.5 x 0.46 cm	12.5 x 0.4 cm	15 x 0.46 cm	15 x 0.4 cm	20 x 0.46 cm	20 x 0.4 cm	25 x 0.46 cm	25 x 0.4 cm
ODS1	5	TR-016050	TR-416050	TR-016051	TR-416051	TR-016052	TR-416052	TR-016053	TR-416053	TR-016054	TR-416054
ODS2	5	TR-016055	TR-416055	TR-016056	TR-416056	TR-016057	TR-416057	TR-016058	TR-416058	TR-016059	TR-416059
Si	5	TR-016060	TR-416060	TR-016061	TR-416061	TR-016062	TR-416062	TR-016063	TR-416063	TR-016064	TR-416064
C1	5	TR-016065	TR-416065	TR-016066	TR-416066	TR-016067	TR-416067	TR-016068	TR-416068	TR-016069	TR-416069
C6	5	TR-016070	TR-416070	TR-016071	TR-416071	TR-016072	TR-416072	TR-016073	TR-416073	TR-016074	TR-416074
C8	5	TR-016075	TR-416075	TR-016076	TR-416076	TR-016077	TR-416077	TR-016078	TR-416078	TR-016079	TR-416079
CN	5	TR-016080	TR-416080	TR-016081	TR-416081	TR-016082	TR-416082	TR-016083	TR-416083	TR-016084	TR-416084
NH2	5	TR-016085	TR-416085	TR-016086	TR-416086	TR-016087	TR-416087	TR-016088	TR-416088	TR-016089	TR-416089
Phenyl	5	TR-016090	TR-416090	TR-016091	TR-416091	TR-016092	TR-416092	TR-016093	TR-416093	TR-016094	TR-416094
SAX	5	TR-016095	TR-416095	TR-016096	TR-416096	TR-016097	TR-416097	TR-016098	TR-416098	TR-016099	TR-416099
SCX	5	TR-016100	TR-416100	TR-016101	TR-416101	TR-016102	TR-416102	TR-016103	TR-416103	TR-016104	TR-416104
ODS1	10	TR-016105	TR-416105	TR-016106	TR-416106	TR-016107	TR-416107	TR-016108	TR-416108	TR-016109	TR-416109
ODS2	10	TR-016110	TR-416110	TR-016111	TR-416111	TR-016112	TR-416112	TR-016113	TR-416113	TR-016114	TR-416114
Si	10	TR-016115	TR-416115	TR-016116	TR-416116	TR-016117	TR-416117	TR-016118	TR-416118	TR-016119	TR-416119
C1	10	TR-016156	TR-416156	TR-016157	TR-416157	TR-016158	TR-416158	TR-016159	TR-416159	TR-016160	TR-416160
C6	10	TR-016120	TR-416120	TR-016121	TR-416121	TR-016122	TR-416122	TR-016123	TR-416123	TR-016124	TR-416124
C8	10	TR-016125	TR-416125	TR-016126	TR-416126	TR-016127	TR-416127	TR-016128	TR-416128	TR-016129	TR-416129
CN	10	TR-016130	TR-416130	TR-016131	TR-416131	TR-016132	TR-416132	TR-016133	TR-416133	TR-016134	TR-416134
NH2	10	TR-016135	TR-416135	TR-016136	TR-416136	TR-016137	TR-416137	TR-016138	TR-416138	TR-016139	TR-416139
SAX	10	TR-016151	TR-416151	TR-016152	TR-416152	TR-016153	TR-416153	TR-016154	TR-416154	TR-016155	TR-416155

Ultrarapid columns Tracer EXTRASIL

Function		Dimensions					
Particle size	(µm)	4 x 0.46 cm	4 x 0.4 cm	5 x 0.46 cm	5 x 0.4 cm	10 x 0.46 cm	10 x 0.4 cm
ODS 1	3	TR-013200	TR-413200	TR-025420	TR-417050	TR-013201	TR-413201
ODS 2	3	TR-013205	TR-413205	TR-025422	TR-417052	TR-013206	TR-413206
Si	3	TR-013210	TR-413210	TR-025424	TR-417054	TR-013211	TR-413211
C1	3	TR-013215	TR-413215	TR-025426	TR-417056	TR-013216	TR-413216
C6	3	TR-013220	TR-413220	TR-025428	TR-417058	TR-013221	TR-413221
C8	3	TR-013226	TR-413226	TR-025430	TR-417060	TR-013227	TR-413227
CN	3	TR-013231	TR-413231	TR-025432	TR-417062	TR-013232	TR-413232
NH2	3	TR-013236	TR-413236	TR-025434	TR-417064	TR-013237	TR-413237
Phenyl	3	TR-013241	TR-413241	TR-025436	TR-417066	TR-013242	TR-413242

Function		Dimensions					
Particle size	(µm)	15 x 0.46 cm	15 x 0.4 cm	20 x 0.46 cm	20 x 0.4 cm	25 x 0.46 cm	25 x 0.4 cm
ODS 1	3	TR-013202	TR-413202	TR-013203	TR-413203	TR-013204	TR-413204
ODS 2	3	TR-013207	TR-413207	TR-013208	TR-413208	TR-013209	TR-413209
Si	3	TR-013212	TR-413212	TR-013213	TR-413213	TR-013214	TR-413214
C1	3	TR-013217	TR-413217	TR-013218	TR-413218	TR-013219	TR-413219
C6	3	TR-013222	TR-413222	TR-013223	TR-413223	TR-013224	TR-413224
C8	3	TR-013228	TR-413228	TR-013229	TR-413229	TR-013230	TR-413230
CN	3	TR-013233	TR-413233	TR-013234	TR-413234	TR-013235	TR-413235
NH2	3	TR-013238	TR-413238	TR-013239	TR-413239	TR-013240	TR-413240
Phenyl	3	TR-013243	TR-413243	TR-013244	TR-413244	TR-013245	TR-413245

Microbore columns Tracer EXTRASIL

Function	Dimensions			
Particle size(μm)	10 x 0.21 cm	20 x 0.21 cm	10 x 0.3 cm	20 x 0.3 cm
ODS1	5 TR-021200	TR-021201	TR-021236	TR-021237
ODS2	5 TR-021202	TR-021203	TR-021238	TR-021239
Si	5 TR-021204	TR-021205	TR-021240	TR-021241
C1	5 TR-021206	TR-021212	TR-021242	TR-021243
C6	5 TR-021207	TR-021208	TR-021244	TR-021245
C8	5 TR-021209	TR-021210	TR-021246	TR-021247
CN	5 TR-021211	TR-021213	TR-021248	TR-021249
NH2	5 TR-021214	TR-021215	TR-021250	TR-021251
Phenyl	5 TR-021216	TR-021217	TR-021252	TR-021253
SAX	5 TR-021218	TR-021219	TR-021254	TR-021255
SCX	5 TR-021220	TR-021221	TR-021256	TR-021257

TEKNOKROMA CAN SUPPLY OTHER COMBINATIONS
OF DIAMETER AND LENGTH ON APPLICATION

For Guard Columns please refer to pages 193-196

Semi-Preparative columns Tracer EXTRASIL

Function	Dimensions			
Particle size(μm)	15 x 0.7 cm	25 x 0.7 cm	15 x 1.0 cm	25 x 1.0 cm
ODS1	5 TR-014501	TR-014502	TR-014503	TR-014504
ODS2	5 TR-014505	TR-014506	TR-014507	TR-014508
Si	5 TR-014509	TR-014510	TR-014511	TR-014512
C1	5 TR-014513	TR-014514	TR-014515	TR-014516
C6	5 TR-014517	TR-014518	TR-014519	TR-014520
C8	5 TR-014521	TR-014522	TR-014523	TR-014524
CN	5 TR-014525	TR-014526	TR-014527	TR-014528
NH2	5 TR-014529	TR-014530	TR-014531	TR-014532
Phenyl	5 TR-014533	TR-014534	TR-014535	TR-014536
SAX	5 TR-014537	TR-014538	TR-014539	TR-014540
SCX	5 TR-014541	TR-014542	TR-014543	TR-014544
ODS1	10 TR-014545	TR-014546	TR-014547	TR-014548
ODS2	10 TR-014549	TR-014550	TR-014551	TR-014552
Si	10 TR-014553	TR-014554	TR-014555	TR-014556
C6	10 TR-014557	TR-014558	TR-014559	TR-014560
CN	10 TR-014565	TR-014566	TR-014567	TR-014568
NH2	10 TR-014569	TR-014570	TR-014571	TR-014572
Phenyl	10 TR-014573	TR-014574	TR-014575	TR-014576
SAX	10 TR-014577	TR-014578	TR-014579	TR-014580
SCX	10 TR-014581	TR-014582	TR-014583	TR-014584





Hyperpack ODS



Due to its characteristics of pore size, surface area, percentage of covering (%C), and the kind of silica it is build of, it is the suitable alternative to Hypersil ODS packings. Its chromatographic behavior exactly reproduces the one of this popular packing, being able to transfer the chromatographic methods without any kind of adjustment.

5 Microns Packing

Analytical columns 0.46 cm i.d. HYPERPACK

Packing	Funct.	μm	Length		Diameter	Cat.Nbr.
			cm	cm		
Hyperpack	ODS	5	3	0.46		TR-011000
Hyperpack	ODS	5	4	0.46		TR-011001
Hyperpack	ODS	5	5	0.46		TR-011002
Hyperpack	ODS	5	10	0.46		TR-011003
Hyperpack	ODS	5	15	0.46		TR-011004
Hyperpack	ODS	5	20	0.46		TR-011005
Hyperpack	ODS	5	25	0.46		TR-011006
Hyperpack	C8	5	3	0.46		TR-011021
Hyperpack	C8	5	4	0.46		TR-011022
Hyperpack	C8	5	5	0.46		TR-011023
Hyperpack	C8	5	10	0.46		TR-011024
Hyperpack	C8	5	15	0.46		TR-011025
Hyperpack	C8	5	20	0.46		TR-011026
Hyperpack	C8	5	25	0.46		TR-011027

5 Microns Packing

Analytical columns 0.4 cm i.d. HYPERPACK

Packing	Funct.	μm	Length		Diameter	Cat.Nbr.
			cm	cm		
Hyperpack	ODS	5	3	0.4		TR-411000
Hyperpack	ODS	5	4	0.4		TR-411001
Hyperpack	ODS	5	5	0.4		TR-411002
Hyperpack	ODS	5	10	0.4		TR-411003
Hyperpack	ODS	5	15	0.4		TR-411004
Hyperpack	ODS	5	20	0.4		TR-411005
Hyperpack	ODS	5	25	0.4		TR-411006
Hyperpack	C8	5	3	0.4		TR-410081
Hyperpack	C8	5	4	0.4		TR-410082
Hyperpack	C8	5	5	0.4		TR-410083
Hyperpack	C8	5	10	0.4		TR-410084
Hyperpack	C8	5	15	0.4		TR-410085
Hyperpack	C8	5	20	0.4		TR-410086
Hyperpack	C8	5	25	0.4		TR-410087

5 Microns Packing

Microbore columns 0.21 cm i.d. HYPERPACK

Packing	Funct.	μm	Length		Diameter	Cat.Nbr.
			cm	cm		
Hyperpack	ODS	5	3	0.21		TR-010272
Hyperpack	ODS	5	5	0.21		TR-010273
Hyperpack	ODS	5	10	0.21		TR-010274
Hyperpack	ODS	5	15	0.21		TR-010275
Hyperpack	ODS	5	20	0.21		TR-010276
Hyperpack	ODS	5	25	0.21		TR-010277
Hyperpack	C8	5	3	0.21		TR-011028
Hyperpack	C8	5	5	0.21		TR-011029
Hyperpack	C8	5	10	0.21		TR-011030
Hyperpack	C8	5	15	0.21		TR-011031
Hyperpack	C8	5	20	0.21		TR-011032
Hyperpack	C8	5	25	0.21		TR-011033

5 Microns Packing

Microbore columns 0.3 cm i.d. HYPERPACK

Packing	Funct.	μm	Length		Diameter	Cat.Nbr.
			cm	cm		
Hyperpack	ODS	5	3	0.3		TR-010278
Hyperpack	ODS	5	5	0.3		TR-010279
Hyperpack	ODS	5	10	0.3		TR-010280
Hyperpack	ODS	5	15	0.3		TR-010281
Hyperpack	ODS	5	20	0.3		TR-010282
Hyperpack	ODS	5	25	0.3		TR-010283
Hyperpack	C8	5	3	0.3		TR-011160
Hyperpack	C8	5	5	0.3		TR-011034
Hyperpack	C8	5	10	0.3		TR-011035
Hyperpack	C8	5	15	0.3		TR-011036
Hyperpack	C8	5	20	0.3		TR-011037
Hyperpack	C8	5	25	0.3		TR-011038

5 Microns Packing

Semi-preparative columns HYPERPACK

Packing	Funct.	μm	Length		Diameter	Cat.Nbr.
			cm	cm		
Hyperpack	ODS	5	10	0.78		TR-010284
Hyperpack	ODS	5	15	0.78		TR-010285
Hyperpack	ODS	5	25	0.78		TR-010286
Hyperpack	ODS	5	10	1.00		TR-010287
Hyperpack	ODS	5	15	1.00		TR-010288

Packing	Funct.	μm	Length	Diameter	Cat.Nbr.
			cm	cm	
Hyperpack	ODS	5	25	1.00	TR-010289
Hyperpack	ODS	5	5	2.12	TR-010290
Hyperpack	ODS	5	10	2.12	TR-010291
Hyperpack	ODS	5	15	2.12	TR-010292
Hyperpack	ODS	5	25	2.12	TR-010293
Hyperpack	C8	5	10	0.78	TR-011039
Hyperpack	C8	5	15	0.78	TR-011040
Hyperpack	C8	5	25	0.78	TR-011041
Hyperpack	C8	5	10	1.00	TR-011042
Hyperpack	C8	5	15	1.00	TR-011043
Hyperpack	C8	5	25	1.00	TR-011044
Hyperpack	C8	5	5	2.12	TR-011045
Hyperpack	C8	5	10	2.12	TR-011046
Hyperpack	C8	5	15	2.12	TR-011047
Hyperpack	C8	5	25	2.12	TR-011048

3 Microns Packing

Ultrarapid columns 0.46 cm i.d. HYPERPACK

Packing	Funct.	μm	Length	Diameter	Cat.Nbr.
			cm	cm	
Hyperpack	ODS	3	3	0.46	TR-010298
Hyperpack	ODS	3	4	0.46	TR-010299
Hyperpack	ODS	3	5	0.46	TR-010300
Hyperpack	ODS	3	10	0.46	TR-010301
Hyperpack	ODS	3	15	0.46	TR-010302
Hyperpack	ODS	3	20	0.46	TR-010303
Hyperpack	ODS	3	25	0.46	TR-010304
Hyperpack	C8	3	3	0.46	TR-011053
Hyperpack	C8	3	4	0.46	TR-011054
Hyperpack	C8	3	5	0.46	TR-011055
Hyperpack	C8	3	10	0.46	TR-011056
Hyperpack	C8	3	15	0.46	TR-011057
Hyperpack	C8	3	20	0.46	TR-011058
Hyperpack	C8	3	25	0.46	TR-011059

3 Microns Packing

Analytical columns 0.4 cm i.d. HYPERPACK

Packing	Funct.	μm	Length	Diameter	Cat.Nbr.
			cm	cm	
Hyperpack	ODS	3	3	0.4	TR-410298
Hyperpack	ODS	3	4	0.4	TR-410299
Hyperpack	ODS	3	5	0.4	TR-410300
Hyperpack	ODS	3	10	0.4	TR-410301
Hyperpack	ODS	3	15	0.4	TR-410302
Hyperpack	ODS	3	20	0.4	TR-410303
Hyperpack	ODS	3	25	0.4	TR-410304
Hyperpack	C8	3	4	0.4	TR-011060
Hyperpack	C8	3	5	0.4	TR-011061
Hyperpack	C8	3	10	0.4	TR-011062
Hyperpack	C8	3	15	0.4	TR-011063

Hyperpack	C8	3	20	0.4	TR-011064
Hyperpack	C8	3	25	0.4	TR-011065

3 Microns Packing

Microbore columns 0.21 cm i.d. HYPERPACK

Packing	Funct.	μm	Length	Diameter	Cat.Nbr.
			cm	cm	
Hyperpack	ODS	3	3	0.21	TR-010305
Hyperpack	ODS	3	5	0.21	TR-010306
Hyperpack	ODS	3	10	0.21	TR-010307
Hyperpack	ODS	3	15	0.21	TR-010308
Hyperpack	ODS	3	20	0.21	TR-010309
Hyperpack	ODS	3	25	0.21	TR-010310
Hyperpack	C8	3	3	0.21	TR-011066
Hyperpack	C8	3	5	0.21	TR-011067
Hyperpack	C8	3	10	0.21	TR-011068
Hyperpack	C8	3	15	0.21	TR-011069
Hyperpack	C8	3	20	0.21	TR-011070
Hyperpack	C8	3	25	0.21	TR-011071

3 Microns Packing

Microbore columns 0.3 cm i.d. HYPERPACK

Packing	Funct.	μm	Length	Diameter	Cat.Nbr.
			cm	cm	
Hyperpack	ODS	3	3	0.3	TR-010311
Hyperpack	ODS	3	5	0.3	TR-010312
Hyperpack	ODS	3	10	0.3	TR-010313
Hyperpack	ODS	3	15	0.3	TR-010314
Hyperpack	ODS	3	20	0.3	TR-010315
Hyperpack	ODS	3	25	0.3	TR-010316
Hyperpack	ODS	3	3	0.3	TR-011072
Hyperpack	ODS	3	5	0.3	TR-011073
Hyperpack	ODS	3	10	0.3	TR-011074
Hyperpack	ODS	3	15	0.3	TR-011075
Hyperpack	ODS	3	20	0.3	TR-011076
Hyperpack	ODS	3	25	0.3	TR-011077



Hyperpack Basic



It reproduces with total fidelity the chromatographic behavior of the columns Hypersil BDS C18.

Available in 3 and 5µm and in all length and diameter configurations.

5 Microns Packing

Analytical columns 0.46 cm i.d. HYPERPACK BASIC

Packing	Funct.	Length		Diameter	
		µm	cm	cm	Cat.Nbr.
Hyperpack BASIC	ODS	5	3	0.46	TR-011007
Hyperpack BASIC	ODS	5	4	0.46	TR-011008
Hyperpack BASIC	ODS	5	5	0.46	TR-011009
Hyperpack BASIC	ODS	5	10	0.46	TR-011010
Hyperpack BASIC	ODS	5	15	0.46	TR-011011
Hyperpack BASIC	ODS	5	20	0.46	TR-011012
Hyperpack BASIC	ODS	5	25	0.46	TR-011013
Hyperpack BASIC	C8	5	3	0.46	TR-011108
Hyperpack BASIC	C8	5	4	0.46	TR-011109
Hyperpack BASIC	C8	5	5	0.46	TR-011110
Hyperpack BASIC	C8	5	10	0.46	TR-011111
Hyperpack BASIC	C8	5	15	0.46	TR-011112
Hyperpack BASIC	C8	5	20	0.46	TR-011113
Hyperpack BASIC	C8	5	25	0.46	TR-011114

5 Microns Packing

Analytical columns 0.4 cm i.d. HYPERPACK BASIC

Packing	Funct.	Length		Diameter	
		µm	cm	cm	Cat.Nbr
Hyperpack BASIC	ODS	5	3	0.4	TR-411007
Hyperpack BASIC	ODS	5	4	0.4	TR-411008
Hyperpack BASIC	ODS	5	5	0.4	TR-411009
Hyperpack BASIC	ODS	5	10	0.4	TR-411010
Hyperpack BASIC	ODS	5	15	0.4	TR-411011
Hyperpack BASIC	ODS	5	20	0.4	TR-411012
Hyperpack BASIC	ODS	5	25	0.4	TR-411013

Packing	Funct.	Length		Diameter	
		µm	cm	cm	Cat.Nbr
Hyperpack BASIC	C8	5	3	0.4	TR-411108
Hyperpack BASIC	C8	5	4	0.4	TR-411109
Hyperpack BASIC	C8	5	5	0.4	TR-411110
Hyperpack BASIC	C8	5	10	0.4	TR-411111
Hyperpack BASIC	C8	5	15	0.4	TR-411112
Hyperpack BASIC	C8	5	20	0.4	TR-411113
Hyperpack BASIC	C8	5	25	0.4	TR-411114

5 Microns Packing

Microbore columns 0.21 cm i.d. HYPERPACK BASIC

Packing	Funct.	Length		Diameter	
		µm	cm	cm	Cat.Nbr.
Hyperpack BASIC	ODS	5	3	0.21	TR-010317
Hyperpack BASIC	ODS	5	5	0.21	TR-010318
Hyperpack BASIC	ODS	5	10	0.21	TR-010319
Hyperpack BASIC	ODS	5	15	0.21	TR-010320
Hyperpack BASIC	ODS	5	20	0.21	TR-010321
Hyperpack BASIC	ODS	5	25	0.21	TR-010322
Hyperpack BASIC	C8	5	3	0.21	TR-011115
Hyperpack BASIC	C8	5	5	0.21	TR-011116
Hyperpack BASIC	C8	5	10	0.21	TR-011117
Hyperpack BASIC	C8	5	15	0.21	TR-011118
Hyperpack BASIC	C8	5	20	0.21	TR-011119
Hyperpack BASIC	C8	5	25	0.21	TR-011120

5 Microns Packing

Microbore columns 0.3 cm i.d. HYPERPACK BASIC

Packing	Funct.	Length		Diameter	
		µm	cm	cm	Cat.Nbr.
Hyperpack BASIC	ODS	5	3	0.3	TR-010323
Hyperpack BASIC	ODS	5	5	0.3	TR-010324
Hyperpack BASIC	ODS	5	10	0.3	TR-010325
Hyperpack BASIC	ODS	5	15	0.3	TR-010326
Hyperpack BASIC	ODS	5	20	0.3	TR-010327
Hyperpack BASIC	ODS	5	25	0.3	TR-010328
Hyperpack BASIC	C8	5	3	0.3	TR-011121
Hyperpack BASIC	C8	5	5	0.3	TR-011122
Hyperpack BASIC	C8	5	10	0.3	TR-011123
Hyperpack BASIC	C8	5	15	0.3	TR-011124
Hyperpack BASIC	C8	5	20	0.3	TR-011125
Hyperpack BASIC	C8	5	25	0.3	TR-011126

5 Microns Packing

Semi Preparative columns HYPERPACK BASIC

Packing	Funct.	Length		Diameter	
		µm	cm	cm	Cat.Nbr.
Hyperpack BASIC	ODS	5	10	0.78	TR-010329
Hyperpack BASIC	ODS	5	15	0.78	TR-010330
Hyperpack BASIC	ODS	5	25	0.78	TR-010331
Hyperpack BASIC	ODS	5	10	1.00	TR-010332

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm	cm	
Hyperpack BASIC	ODS	5	15	1.00		TR-010333
Hyperpack BASIC	ODS	5	25	1.00		TR-010334
Hyperpack BASIC	ODS	5	5	2.12		TR-010335
Hyperpack BASIC	ODS	5	10	2.12		TR-010336
Hyperpack BASIC	ODS	5	15	2.12		TR-010337
Hyperpack BASIC	ODS	5	25	2.12		TR-010338
Hyperpack BASIC	C8	5	10	0.78		TR-011127
Hyperpack BASIC	C8	5	15	0.78		TR-011128
Hyperpack BASIC	C8	5	25	0.78		TR-011129
Hyperpack BASIC	C8	5	10	1.00		TR-011130
Hyperpack BASIC	C8	5	15	1.00		TR-011131
Hyperpack BASIC	C8	5	25	1.00		TR-011132
Hyperpack BASIC	C8	5	5	2.12		TR-011133
Hyperpack BASIC	C8	5	10	2.12		TR-011134
Hyperpack BASIC	C8	5	15	2.12		TR-011135
Hyperpack BASIC	C8	5	25	2.12		TR-011136

5 Microns Packing

Cartridge System 0.4 cm i.d. HYPERPACK BASIC

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm	cm	
Hyperpack BASIC	ODS	5	7,5	0.4		TR-010339
Hyperpack BASIC	ODS	5	10	0.4		TR-010340
Hyperpack BASIC	ODS	5	15	0.4		TR-010341
Hyperpack BASIC	ODS	5	25	0.4		TR-010342
Hyperpack BASIC	C8	5	7,5	0.4		TR-011137
Hyperpack BASIC	C8	5	10	0.4		TR-011138
Hyperpack BASIC	C8	5	15	0.4		TR-011139
Hyperpack BASIC	C8	5	25	0.4		TR-011140

3 Microns Packing

Analytical Columns 0.46 cm i.d. HYPERPACK BASIC

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm	cm	
Hyperpack BASIC	ODS	3	3	0.46		TR-011014
Hyperpack BASIC	ODS	3	4	0.46		TR-011015
Hyperpack BASIC	ODS	3	5	0.46		TR-011016
Hyperpack BASIC	ODS	3	10	0.46		TR-011017
Hyperpack BASIC	ODS	3	15	0.46		TR-011018
Hyperpack BASIC	ODS	3	20	0.46		TR-011019
Hyperpack BASIC	ODS	3	25	0.46		TR-011020
Hyperpack BASIC	C8	3	3	0.46		TR-011141
Hyperpack BASIC	C8	3	4	0.46		TR-011142
Hyperpack BASIC	C8	3	5	0.46		TR-011143
Hyperpack BASIC	C8	3	10	0.46		TR-011144
Hyperpack BASIC	C8	3	15	0.46		TR-011145
Hyperpack BASIC	C8	3	20	0.46		TR-011146
Hyperpack BASIC	C8	3	25	0.46		TR-011147

3 Microns Packing

Ultrarapid Columns 0.4 cm i.d. HYPERPACK BASIC

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm	cm	
Hyperpack BASIC	ODS	3	3	0.4		TR-411014
Hyperpack BASIC	ODS	3	4	0.4		TR-411015
Hyperpack BASIC	ODS	3	5	0.4		TR-411016
Hyperpack BASIC	ODS	3	10	0.4		TR-411017
Hyperpack BASIC	ODS	3	15	0.4		TR-411018
Hyperpack BASIC	ODS	3	20	0.4		TR-411019
Hyperpack BASIC	ODS	3	25	0.4		TR-411020
Hyperpack BASIC	C8	3	3	0.4		TR-411141
Hyperpack BASIC	C8	3	4	0.4		TR-411142
Hyperpack BASIC	C8	3	5	0.4		TR-411143
Hyperpack BASIC	C8	3	10	0.4		TR-411144
Hyperpack BASIC	C8	3	15	0.4		TR-411145
Hyperpack BASIC	C8	3	20	0.4		TR-411146
Hyperpack BASIC	C8	3	25	0.4		TR-411147

3 Microns Packing

Microbore Columns 0.21 cm i.d. HYPERPACK BASIC

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm	cm	
Hyperpack BASIC	ODS	3	3	0.21		TR-010343
Hyperpack BASIC	ODS	3	5	0.21		TR-010344
Hyperpack BASIC	ODS	3	10	0.21		TR-010345
Hyperpack BASIC	ODS	3	15	0.21		TR-010346
Hyperpack BASIC	ODS	3	20	0.21		TR-010347
Hyperpack BASIC	ODS	3	25	0.21		TR-010348
Hyperpack BASIC	C8	3	3	0.21		TR-011148
Hyperpack BASIC	C8	3	5	0.21		TR-011149
Hyperpack BASIC	C8	3	10	0.21		TR-011150
Hyperpack BASIC	C8	3	15	0.21		TR-011151
Hyperpack BASIC	C8	3	20	0.21		TR-011152
Hyperpack BASIC	C8	3	25	0.21		TR-011153

3 Microns Packing

Microbore Columns 0.3 cm i.d. HYPERPACK BASIC

Packing	Funct.	Length		Diameter		Cat.Nbr.
		µm	cm	cm	cm	
Hyperpack BASIC	ODS	3	3	0.3		TR-010349
Hyperpack BASIC	ODS	3	5	0.3		TR-010350
Hyperpack BASIC	ODS	3	10	0.3		TR-010351
Hyperpack BASIC	ODS	3	15	0.3		TR-010352
Hyperpack BASIC	ODS	3	20	0.3		TR-010353
Hyperpack BASIC	ODS	3	25	0.3		TR-010354
Hyperpack BASIC	C8	3	3	0.3		TR-011154
Hyperpack BASIC	C8	3	5	0.3		TR-011155
Hyperpack BASIC	C8	3	10	0.3		TR-011156
Hyperpack BASIC	C8	3	15	0.3		TR-011157
Hyperpack BASIC	C8	3	20	0.3		TR-011158
Hyperpack BASIC	C8	3	25	0.3		TR-011159



This traditional irregular packing is packed following completely optimized methods, ensuring maximum efficiency, stability and reproducibility in all the columns.

With this irregular packing, the efficiencies normally obtained are of 30-40000 N/m for the 5 µm packings, and 50-70,000 N/m for the 5 µm.

Analytical columns LICHROSORB

Function			Dimensions								
Particle size(µm)	10 x 0.46 cm	10 x 0.4 cm	12.5 x 0.46 cm	12.5 x 0.4 cm	15 x 0.46 cm	15 x 0.4 cm	20 x 0.46 cm	20 x 0.4 cm	25 x 0.46 cm	25 x 0.4 cm	
RP-8	5	TR-011441	TR-411441	TR-011443	TR-411443	TR-011445	TR-411445	TR-011447	TR-411447	TR-011449	TR-411449
RP-18	5	TR-011431	TR-411431	TR-011433	TR-411433	TR-011435	TR-411435	TR-011437	TR-411437	TR-011439	TR-411439
RP-Select B	5	TR-016046	TR-416046	TR-016047	TR-416047	TR-011969	TR-411969	TR-016048	TR-416048	TR-011970	TR-411970
CN	5	TR-011471	TR-411471	TR-011473	TR-411473	TR-011475	TR-411475	TR-011477	TR-411477	TR-011479	TR-411479
RP-8	10	TR-011501	TR-411501	TR-011503	TR-411503	TR-011505	TR-411505	TR-011507	TR-411507	TR-011509	TR-411509
RP-18	10	TR-011491	TR-411491	TR-011493	TR-411493	TR-011495	TR-411495	TR-011497	TR-411497	TR-011499	TR-411499
Diol	10	TR-011511	TR-411511	TR-011513	TR-411513	TR-011515	TR-411515	TR-011517	TR-411517	TR-011519	TR-411519
CN	10	TR-011531	TR-411531	TR-011533	TR-411533	TR-011535	TR-411535	TR-011537	TR-411537	TR-011539	TR-411539

Semi-preparative Tracer columns LICHROSORB

Function		Dimensions			
Particle size(µm)	15 x 0.7 cm	25 x 0.7 cm	15 x 1.0 cm	25 x 1.0 cm	
RP-18	7	TR-014429	TR-014431	TR-014433	TR-014436

For Guard Columns please refer to pages 193-196





Lichrospher's spherical packing of 5 and 10 μm particle size, giving all the advantages that are common to all the spherical packings: high permeability, high efficiency and excellent column stability.

Analytical columns LICHROSPHER

Function		Dimensions									
Particle size(μm)		10 x 0.46 cm	10 x 0.4 cm	12.5 x 0.46 cm	12.5 x 0.4 cm	15 x 0.46 cm	15 x 0.4 cm	20 x 0.46 cm	20 x 0.4 cm	25 x 0.46 cm	25 x 0.4 cm
Si 100	5	TR-011541	TR-411541	TR-011543	TR-411543	TR-011545	TR-411545	TR-011547	TR-411547	TR-011549	TR-411549
100 RP-18	5	TR-011551	TR-411551	TR-011553	TR-411553	TR-011555	TR-411555	TR-011557	TR-411557	TR-011559	TR-411559
100 RP-18 ec	5	TR-011561	TR-411561	TR-011563	TR-411563	TR-011565	TR-411565	TR-011567	TR-411567	TR-011569	TR-411569
100 RP-8	5	TR-011571	TR-411571	TR-011573	TR-411573	TR-011575	TR-411575	TR-011577	TR-411577	TR-011579	TR-411579
100 RP-8 ec	5	TR-011581	TR-411581	TR-011583	TR-411583	TR-011585	TR-411585	TR-011587	TR-411587	TR-011589	TR-411589
100 NH ₂	5	TR-011591	TR-411591	TR-011593	TR-411593	TR-011595	TR-411595	TR-011597	TR-411597	TR-011599	TR-411599
100 CN	5	TR-011601	TR-411601	TR-011603	TR-411603	TR-011605	TR-411605	TR-011607	TR-411607	TR-011609	TR-411609
100 Diol	5	TR-011611	TR-411611	TR-011613	TR-411613	TR-011615	TR-411615	TR-011617	TR-411617	TR-011619	TR-411619
60 RP-Select B	5	TR-016813	TR-416813	TR-016814	TR-416814	TR-016815	TR-416815	TR-016816	TR-416816	TR-016817	TR-416817
Si 100	10	TR-011621	TR-411621	TR-011623	TR-411623	TR-011625	TR-411625	TR-011627	TR-411627	TR-011629	TR-411629
100 RP-18	10	TR-011631	TR-411631	TR-011633	TR-411633	TR-011635	TR-411635	TR-011637	TR-411637	TR-011639	TR-411639
100 RP-18 ec	10	TR-011641	TR-411641	TR-011643	TR-411643	TR-011645	TR-411645	TR-011647	TR-411647	TR-011649	TR-411649
100 RP-8	10	TR-011651	TR-411651	TR-011653	TR-411653	TR-011655	TR-411655	TR-011657	TR-411657	TR-011659	TR-411659
100 RP-8 ec	10	TR-011661	TR-411661	TR-011663	TR-411663	TR-011665	TR-411665	TR-011667	TR-411667	TR-011669	TR-411669
100 CN	10	TR-011681	TR-411681	TR-011683	TR-411683	TR-011685	TR-411685	TR-011687	TR-411687	TR-011689	TR-411689
60 RP-Select B	10	TR-016808	TR-416808	TR-016809	TR-416809	TR-016810	TR-416810	TR-016811	TR-416811	TR-016812	TR-416812

Semi-preparative Tracer columns LICHROSPHER

Function	Dimensions			
Particle size(μm)	15 x 0.7 cm	25 x 0.7 cm	15 x 1.0 cm	25 x 1.0 cm
RP-18	10 TR-014437	TR-014439	TR-014441	TR-014443
RP-18 EC	10 TR-014445	TR-014447	TR-014449	TR-014451

Microbore Tracer columns LICHROSPHER

Function	Dimensions			
Particle size(μm)	15 x 0.7 cm	25 x 0.7 cm	15 x 0.3 cm	25 x 0.3 cm
RP-18	5 TR-021069	TR-021071	TR-021293	TR-021294
RP-18 EC	5 TR-021073	TR-021075	TR-021295	TR-021296

A totally porous spherical packing, with a particle size of 4 μm , giving a compromise alternative between the packings of 3 and 5 μm .

Analytical columns SUPERSPHER

Function		Dimensions									
Particle size(μm)		10 x 0.46 cm	10 x 0.4 cm	12.5 x 0.46 cm	12.5 x 0.4 cm	15 x 0.46 cm	15 x 0.4 cm	20 x 0.46 cm	20 x 0.4 cm	25 x 0.46 cm	25 x 0.4 cm
Si 60	4	TR-011701	TR-411701	TR-011703	TR-411703	TR-011705	TR-411705	TR-011707	TR-411707	TR-011709	TR-411709
60 RP-8	4	TR-011711	TR-411711	TR-011713	TR-411713	TR-011715	TR-411715	TR-011717	TR-411717	TR-011719	TR-411719
100 RP-18	4	TR-011721	TR-411721	TR-011723	TR-411723	TR-011725	TR-411725	TR-011727	TR-411727	TR-011729	TR-411729
100 RP-18 ec	4	TR-011741	TR-411741	TR-011743	TR-411743	TR-011745	TR-411745	TR-011747	TR-411747	TR-011749	TR-411749

For Guard Columns please refer to pages



Tracer Carbohydrates



Tracer Carbohydrates

Tracer Carbohydrates column is based on a Polymeric Coating Chemically Bonded Silica Base packing, that includes in its structure primary amino groups.

This polymeric coating protects surface silica packing against attacks coming from aqueous/organic mobile phases used in the separation of sugars.

Keeping the selectivity of a conventional NH₂ column, Tracer Carbohydrates have a longer lifetime. This column can be also washed with eluents lightly basic to eliminate acidic impurities irreversibly linked with the packing that degrade very quickly any standard NH₂ columns.

- Higher Stability
- Better resolution in disaccharides analysis

Carbohydrates Columns

Designed for Carbohydrates Analisis

Reference Description		Particle Size Dimensions	
		µm	cm
TR-016804	Tracer Carbohydrates	5 µm	15 x 0.46 cm
TR-016805	Tracer Carbohydrates	5 µm	25 x 0.46 cm
TR-416804	Tracer Carbohydrates	5 µm	15 x 0.40 cm
TR-416805	Tracer Carbohydrates	5 µm	25 x 0.40 cm

Sugars Separation

Column: TR-016805, Tracer Carbohydrates,
4.6 x 250 mm

Eluent: 75/25 acetonitrile/water

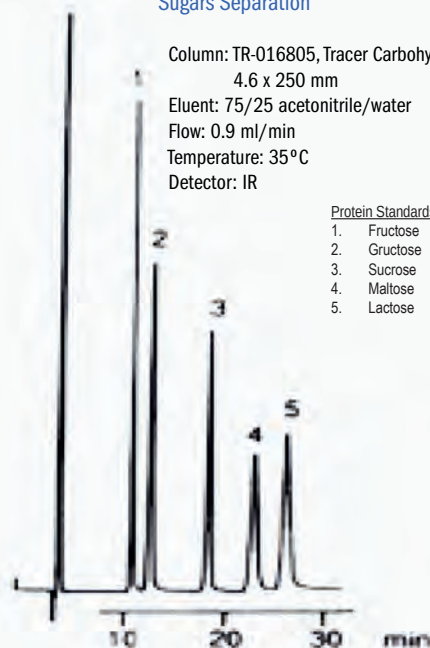
Flow: 0.9 ml/min

Temperature: 35°C

Detector: IR

Protein Standards

1. Fructose
2. Glucose
3. Sucrose
4. Maltose
5. Lactose



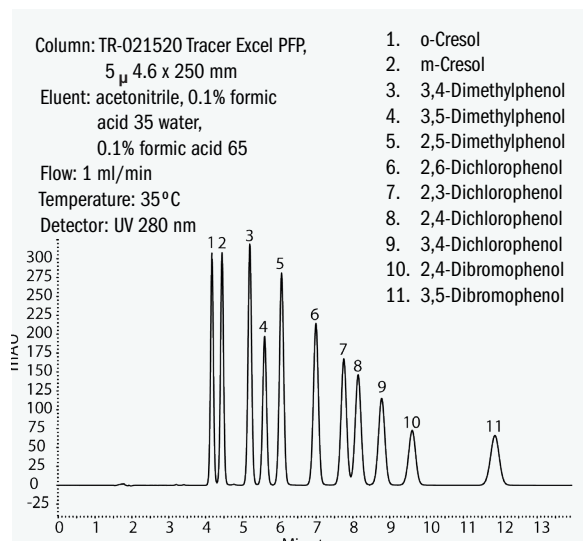


Tracer Excel PFP

Excel PFP is a endcapped stationary phase with unique selectivity that can be useful for separating halogen-containing compounds, polar analytes, and compounds that contain minor structural differences. Excel PFP can be used at high temperatures (50°C) over a pH range of 2-8.

- Ideal for HPLC and UHPLC
- Different selectivity from C18 or C8 with polar interaction and π - π interaction that plays a major role in the separation
- Superior chemical durability
- Identical selectivity over different particle sizes
- USP L43
- Particle: 5 μ m
- Pore Size: 120 Å
- Carbon Load: 11%
- End-Cap: yes
- Surface Area: 300 m²/g
- pH Range: 2.5 to 8
- Maximum Temperature: 80 °C

Excel PFP have a retention and selectivity of charged bases, electronegative compounds, and amine-containing compounds. Unlike a conventional cyano column. This versatile column is also compatible with highly aqueous mobile phases.



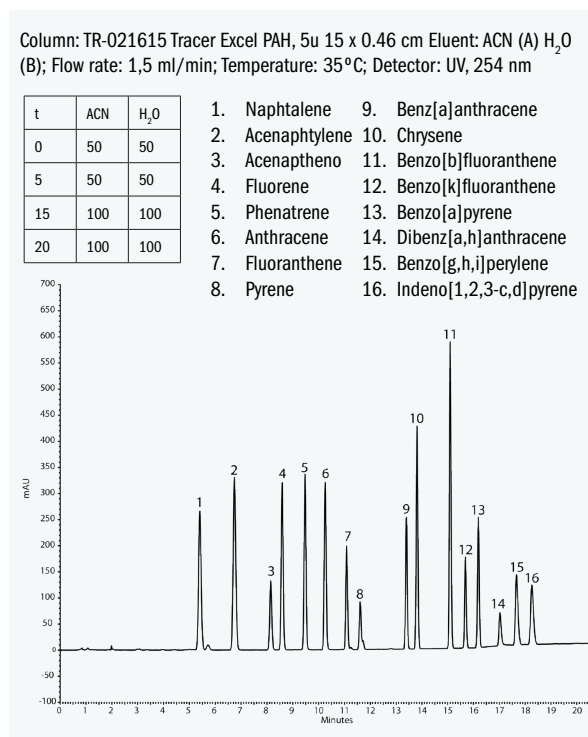
Packing	Funct.	μ m	Length		Diameter	Cat.Nbr.
			cm	cm		
Tracer Excel PFP	PFP	5	15	0.46		TR-021515
Tracer Excel PFP	PFP	5	25	0.46		TR-021520

Tracer Excel PAH

Ultra High pure silica particle, Excel PAH is a polymeric C18 bonded phase that creates a three-dimensional network stationary phase with an optimal selectivity for PAHs separations.

Excel PAH provides a base-line resolution of 16 PAHs priority pollutants in EPA Method 610.

- USP: L1 polymeric C18 Bonding
- Particle size: 5 μ m
- Pore size: 300 Å
- Surface Area: 100 m²/g
- Carbon Load: 28%
- PH Range: 2-8



Packing	Funct.	μ m	Length		Diameter	Cat.Nbr.
			cm	cm		
Tracer Excel PAH	PAH	5	15	0.46		TR-021615
Tracer Excel PAH	PAH	5	25	0.46		TR-021620



Fingertight Fittings

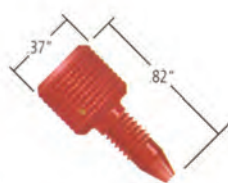
High Pressure Fingertight Fittings

One Piece or Two?

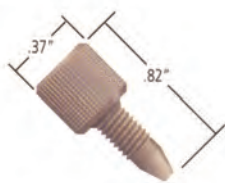
A one-piece fitting is more convenient and less cumbersome, since the ferrule cannot stick in a receiving port and the fitting is more easily found if dropped. With two-Piece Fingertight, you only replace the ferrule instead of the entire unit, making these Fingertights more economical than the one-piece version.

One Piece Fingertight Fittings

All of our One-Piece Fingertight Fittings are designed to be used with 1/16" OD tubing, except the M-645 (1/32") and P-100 (1/8").



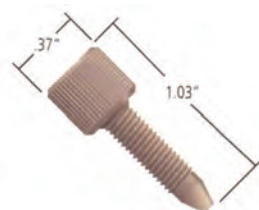
UP-F-100
10-32 Kel-F™ Fitting
Max Pressure 276 bar



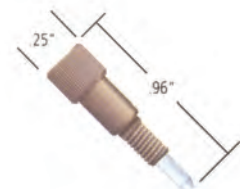
UP-F-120
10-32 PEEK™ Fitting
Max Pressure 414 bar



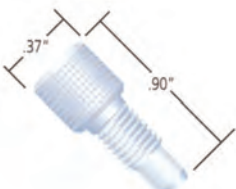
UP-F-127
10-32 PEEK™ Fitting
Max Pressure 414 bar



UP-F-130
10-32 PEEK™ Fitting
Max Pressure 414 bar



UP-M-645
6-40 PEEK/Kel-F™ Fitting
for 1/32" OD tubing
Max Pressure 121-224 bar



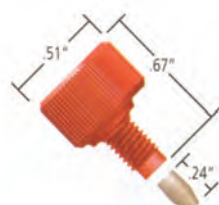
UP-P-100
1/4-28 Kel-F™ Fitting
for 1/8" OD tubing
Max Pressure 69 bar

One-Piece Fingertight Fittings^{1,2}

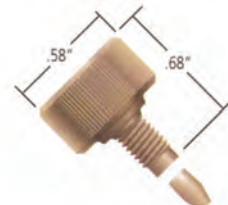
Cat.No.	Description	Qty.
UP-F-100x	Kel-F, Red, 10-32 for 1/16" OD tubing	10-pk
UP-F-120x	PEEK, Natural, 10-32 1/16" OD tubing	10-pk
UP-F-127x	PEEK, Natural, 10-32 Short 1/16" OD tubing	10-pk
UP-F-130x	PEEK, Natural, 10-32 Long 1/16" OD tubing	10-pk
UP-M-645x	PEEK/Kel-F, Natural, 6-40, for 1/32" OD tubing	10-pk
UP-P-100	Kel-F, Natural, 1/4-28, for 1/8" OD tubing	ea.

Two-Piece Fingertight Fittings

Our original Two-Piece Fingertight Fittings were designed exclusively for 1/16" OD tubing. We now offer optional ferrules for connecting 1/32" OD and 190 µm OD tubing with any Fingertight nut on last page. Our M-215 Conductive Perfluorelastomer Ferrule is designed for mass spectrometer electrospray applications.



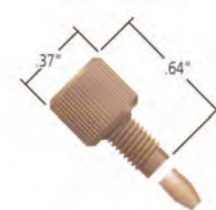
UP-F-200
10-32 Delrin™ Winged Nut
with F-142 PEEK™ Ferrule



UP-F-300
10-32 PEEK™ Double Winged Nut
with F-142 PEEK™ Ferrule



UP-F-330
10-32 PEEK™ Nut
with F-142 PEEK™ Ferrule



UP-F-331
10-32 PEEK™ Nut
with F-142 PEEK™ Ferrule



UP-F-140
10-32 Stainless Steel Nut
with F-142 PEEK™ Ferrule



UP-F-150
10-32 Stainless Steel Nut
with F-142 PEEK™ Ferrule

To order please follow these guidelines:

1/16" OD tubing

Select the desired nut, which comes complete with the appropriate ferrule. Or order the optional UP-F-142N Ferrule, along with the desired nut by replacing the "x" at the end of its product number with "-01". For instance, if you want an UP-F-113 Ferrule Nut, order UP-F-200-01, not UP-F-200x.

Please note: "-0.1" denotes a single nut without the ferrule.

1/32" OD tubing

Select the UP-F-113 Ferrule. Order the desired nut by replacing the "x" at the end of its product number with "-0.1", as described above.

190 µm OD tubing

Select the UP-F-148 Ferrule. Order the desired nut by replacing the "x" at the end of its product number with "-0.1", as described above.

Fingertight Fittings - Stainless Steel Tubing



360-510 µm OD tubing

For electrospray applications, chose the UP-M-215 Conductive Ferrule. Order the desired nut by replacing the "x" at the end of its product number with "-0.1", as described at previous page.

Two-Piece Polymer Fingertight Fittings

Cat.No.	Description	Qty.
UP-F-200x	Delrin Nuts, Red, with UP-F-142 Ferrules, 10-32	10-pk
UP-F-300x	PEEK Nuts, Natural, with UP-F-142 Ferrules, 10-32	10-pk
UP-F-330x	Long PEEK Nuts, Natural, with UP-F-142 Ferrules, 10-32	10-pk
UP-F-331x	Short PEEK Nuts, Natural, with UP-F-142 Ferrules, 10-32	10-pk

Two-Piece Stainless Steel Fingertight Fittings

UP-F-140x	Stainless Steel Nuts, with UP-F-142 Ferrules, 10-32	10-pk
UP-F-150x	Long Stainless Steel Nuts, with UP-F-142 Ferrules, 10-32	10-pk



UP-F-113
Optional PEEK
Ferrule
for 1/32" OD tubing



UP-F-142N
Optional Tefzel™
Ferrule
for 1/16" OD tubing



UP-F-148
Optional Kel-F™
Ferrule
for 190µm OD tubing



UP-M-215
Optional
Perfluoroelastomer
Ferrule
for 360-510µm OD
tubing (conductive)

Replacement Ferrules

Cat.No.	Description	Qty.
For 1/16" OD Tubing		
UP-F-142x	PEEK Ferrules, Natural	10-pk
UP-F-142Nx	Tefzel Ferrules, Natural	10-pk
For 1/32" OD Tubing		
UP-F-113	PEEK Ferrules, Natural	ea.
For 360-510 µm OD Tubing		
UP-F-151	Kel-F Ferrule, Natural	ea.
UP-M-215	Conductive Perfluoroelastomer Ferrules, Black	ea.
For 190 µm OD Tubing		
UP-F-148	Kel-F Ferrule, Natural	ea.

Stainless Steel Tubing

- Precut 316 Stainless Steel*
- The Cleanest, Best Finish available
- Color-Coded Banding for easy identification



Stainless Steel, .005" (125µm) ID x 1/16" OD (Red Colour Band)

Reference	Length
UP-U-152	5 cm
UP-U-153	10 cm
UP-U-154	20 cm
UP-U-155	30 cm
UP-U-156	0.5 m
UP-U-157	1 m**
UP-U-158	1.5 m**
UP-U-160	7.5 m**

Stainless Steel, .010" (.25mm) ID x 1/16" OD (Blue Colour Band)

Reference	Length
UP-U-111	5 cm
UP-U-112	10 cm
UP-U-113	20 cm
UP-U-114	30 cm
UP-U-132	0.5 m
UP-U-133	1 m**
UP-U-106	1.5 m**
UP-U-162	7.5 m**

Stainless Steel, .007" (175µm) ID x 1/16" OD (Black Colour Band)

Reference	Length
UP-U-126	5 cm
UP-U-127	10 cm
UP-U-128	20 cm
UP-U-129	30 cm
UP-U-130	0.5 m
UP-U-131	1 m**
UP-U-108	1.5 m**
UP-U-161	7.5 m**

Stainless Steel, .020" (.50mm) ID x 1/16" OD (Yellow Colour Band)

Reference	Length
UP-U-101	5 cm
UP-U-102	10 cm
UP-U-103	20 cm
UP-U-104	30 cm
UP-U-134	0.5 m
UP-U-135	1 m**
UP-U-105	1.5 m**
UP-U-163	7.5 m**

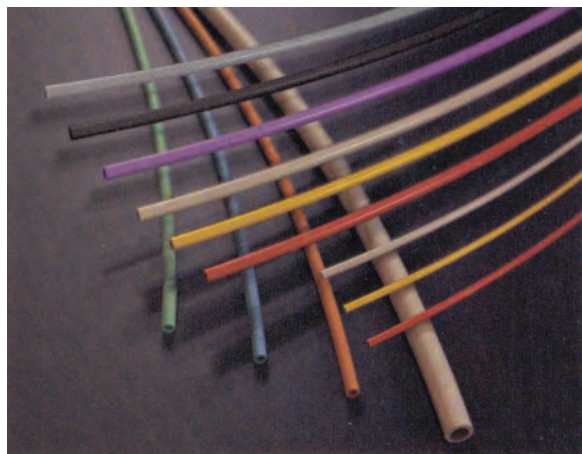
** All Stainless Steel tubing of longer than 1m is coiled.



PEEK™ tubing

PEEK™ Tubing

- 1/16", 1/8" and 1.8mm ODs Available
- Biocompatible, Inert and Easily Cut
- Great for High Pressure Applications



PEEK (polyetheretherketone) polymer tubing is biocompatible, chemically inert to most solvents, and can be used to replace stainless steel tubing in most liquid analytical systems. Unlike stainless steel and titanium tubing, PEEK tubing is flexible and can be easily cut to desired lengths. PEEK tubing can be used with stainless steel or polymer fittings.

The benefits of PEEK polymer tubing include a high pressure rating (up to 7,000 psi in most cases) and a high temperature rating (maximum continuous use temperature of 100°C). Additionally, PEEK tubing has a very smooth internal surface, which causes less turbulence than similar sized metal tubing. Turbulence can cause remixing of separated sample bands and dilution of bands by the mobile phase. Of all our polymer tubing materials, PEEK is the least permeable to gas.

PEEK tubing 1/16" OD X 5'

Reference	Description	Colour	psi	bar
UP-1560	.0025" (65 µm) ID	Natural	7,000 psi	(483 bar)*
UP-1561	.004" (100 µm) ID	Black	7,000 psi	(483 bar)*
UP-1535	.005" (125 µm) ID	Red	7,000 psi	(483 bar)*
UP-1562	.006" (150 µm) ID	Purple	7,000 psi	(483 bar)*
UP-1536	.007" (175 µm) ID	Yellow	7,000 psi	(483 bar)*
UP-1531	.010" (.25 mm) ID	Natural	7,000 psi	(483 bar)*
UP-1531B	.010" (.25 mm) ID	Blue	7,000 psi	(483 bar)*
UP-1565	.015" (.40 mm) ID	Gray	7,000 psi	(483 bar)*
UP-1532	.020" (.50 mm) ID	Orange	7,000 psi	(483 bar)*
UP-1533	.030" (.75 mm) ID	Green	7,000 psi	(483 bar)*
UP-1538	.040" (1.00 mm) ID	Natural	5,000 psi	(345 bar)*
UP-1537	.055" (1.40 mm) ID	Natural	500 psi	(345 bar)*

PEEK tubing 1/8" OD X 5'

Reference	Description	Colour	psi	bar
UP-1534	.062" (1.60 mm) ID	Natural	4,000 psi	(276 bar)*
UP-1544	.080" (2.00 mm) ID	Natural	3,000 psi	(207 bar)*

PEEK tubing 1.8 mm OD X 5'

Reference	Description	Colour	psi	bar
UP-1545	.010" (.25 mm) ID	Natural	7,000 psi	(483 bar)*
UP-1546	.020" (.50 mm) ID	Natural	7,000 psi	(483 bar)*
UP-1547	.030" (.75 mm) ID	Natural	7,000 psi	(483 bar)*
UP-1540	.042" (1.05 mm) ID	Natural	5,000 psi	(345 bar)*
UP-1539	.055" (1.40 mm) ID	Natural	500 psi	(34 bar)*

Polymer Tubing Cutters

for 1/16", 1/8", 3/16", 1/4" and 5/16 OD tubing



Polymer tubing cutters

Reference Description

UP-A-327	Standard Polymer Tubing Cutter* for 1/16" and 1/8" OD tubing
UP-A-329	Large Bore Polymer Tubing Cutter* for 3/16" - 5/16" OD tubing
UP-A-328	Replacement Blades for A-327 and A-329 - 5 pk.

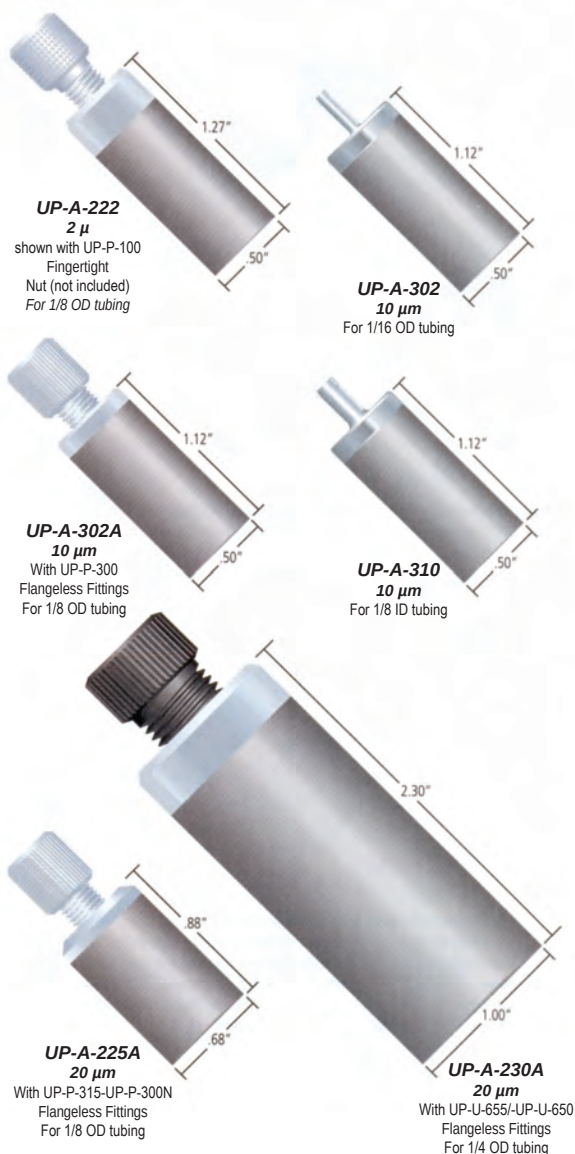
General Use Inlet Solvent Filters

- Large Surface Areas
- Disposable
- 2 μ m, 10 μ m and 20 μ m Filters Available
- General use and Prep Filters for Higher Flow Applications

It is good practice to filter your solvents to prevent pump damage. These 316 stainless steel filters provide that protection. Their large surface areas also mean longer life without pump cavitation.

Because filters should be changed periodically, we make it easy to replace them, without tools. For those filters using a plastic nut, thread the nut into the filter and finger tighten. Our other filters have stems, allowing easy insertion directly into your inlet tubing.

Please Note: The internal design of the UP-A-309 and the UP-A-230A Filters allows solvent to be drawn to within 1/8" (3.2mm) of the bottom of your solvent bottle, with Bottom-of-the-Bottle™ designs similar to the stainless steel and UHMWPE filters.



General Use Inlet Filters

For Analytical HPLC

Reference	Description
UP-A-220	10 μ m Inlet Solvent Filter, for 1/8" OD tubing ¹
UP-A-221	UP-A-220, 5-pack, for 1/8" OD tubing ¹
UP-A-222	2 μ m Inlet Solvent Filter, for 1/8" OD tubing ¹
UP-A-223	UP-A-222, 5-pack, for 1/8" OD tubing ¹
UP-A-228	2 μ m Inlet Solvent Filter with stem, for 1/8" ID tubing
UP-A-302	10 μ m Inlet Solvent Filter with stem, for 1/16" ID tubing
UP-A-302A	10 μ m Inlet Solvent Filter with Flangeless Fittings, for 1/8" OD tubing ²
UP-A-309	10 μ m Inlet Solvent Filter with stem, for 1/16" ID tubing

For Waters™ Analytical HPLC Systems

UP-A-231A	20 μ m Inlet Solvent Filter for 3/16" OD tubing ³
UP-A-310	10 μ m Inlet Solvent Filter with stem, for 1/8" tubing

For Preparative HPLC Systems

UP-A-225	20 μ m Inlet Solvent Filter with stem, for 1/16" ID tubing
UP-A-225A	20 μ m Inlet Solvent Filter with Flangeless Fittings, for 1/8" OD tubing ⁴
UP-A-226A	10 μ m Inlet Solvent Filter, for 5/16" OD tubing ⁵
UP-A-227A	10 μ m Inlet Solvent Filter, for 1/4" OD tubing ⁶
UP-A-230A	20 μ m Inlet Solvent Filter, for 1/4" OD tubing ⁶
UP-A-231A	20 μ m Inlet Solvent Filter, for 3/16" OD tubing ⁶
UP-A-311	10 μ m Inlet Solvent Filter with stem, for 1/16" ID tubing
UP-A-311A	10 μ m Inlet Solvent Filter with Flangeless Fittings, for 1/8" OD tubing ²

¹ Requires a UP-P-100 Fitting (not included). Order the UP-A-210 Kit above, or purchase the UP-P100 alone.

² Includes a UP-P-315 Tefzel™ (ETFE) Nut and a UP-P-300 ETFE Ferrule.

³ Includes a UP-P-132 PEEK™ Nut and a UP-P-133 ETFE Ferrule.

⁴ Includes a UP-P-315 ETFE Nut and a UP-P-300N ETFE Ferrule.

⁵ Includes a UP-U-622 PEEK Nut and a UP-U-660 ETFE Ferrule.

⁶ Includes a UP-U-655 PEEK Nut and a UP-U-650 ETFE Ferrule.

Maximum Suggested Flow Rates

Flow Rates are determined by porosity surface area

Reference	Porosity	Max. Flow Rate
UP-A-222	2 μ m	10 mL/min.
UP-A-220	10 μ m	40 mL/min.
UP-A-302	10 μ m	40 mL/min.
UP-A-302A	10 μ m	40 mL/min.
UP-A-309	10 μ m	40 mL/min.
UP-A-310	10 μ m	40 mL/min.
UP-A-225	20 μ m	100 mL/min.
UP-A-225A	20 μ m	100 mL/min.
UP-A-226A	10 μ m	100 mL/min.
UP-A-227A	10 μ m	100 mL/min.
UP-A-230A	20 μ m	100 mL/min.
UP-A-231A	20 μ m	100 mL/min.
UP-A-311	10 μ m	100 mL/min.
UP-A-311A	10 μ m	100 mL/min.



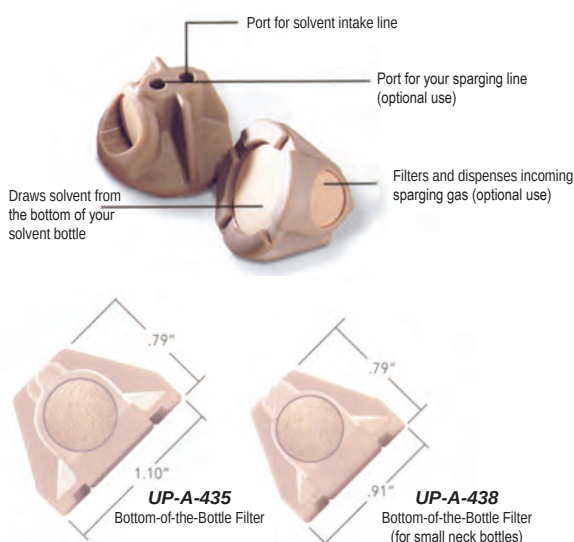
Bottle Caps - PEEK Bottom-of-the-Bottle Solvent Filters

PEEK Bottom-of-the-Bottle Solvent Filters

- Our Most Recommended Filtering Unit!
- 100% PEEK Polymer Construction
- Easy Operation - No fittings required!

These Upchurch Scientific biocompatible filters are made from 100% PEEK polymer. Each has two PEEK frits. The bottom frit (2µm or 10µm) will draw solvents from within 0.28" (2mm) of the bottom of the solvent bottle. The 2µm frit on the side may be used for a 1/8" OD helium sparging line.

To use, simply press fit your appropriately sized Teflon® tubing firmly into the top holes. That's It!



UHMWPE Bottom-of-the-Bottle Solvent Filters

Reference Description

UP-A-445	10µm UHMWPE Filter Assembly for 1/16" OD tubing ¹
UP-A-446	10µm UHMWPE Filter Assembly for 1/8" OD tubing ²
UP-A-427	10µm UHMWPE Replacement Solvent Filter Cups, 5pk

PEEK Bottom-of-the-Bottle Solvent Filters

Reference Description

UP-A-435	2µm PEEK Filter for 1/8" OD tubing
UP-A-436	2µm PEEK Filter for 3/16" OD tubing ³
UP-A-437	2µm PEEK Filter for 1/8" OD tubing for small-neck (GL-38) bottles
UP-A-438	10µm PEEK Filter for 1/8" OD tubing for small-neck (GL-38) bottles
UP-A-440	10µm PEEK Filter for 1/8" OD tubing
UP-A-441	10µm PEEK Filter for 3/16" OD tubing ³
UP-A-450	2µm PEEK Filter for 1/16" OD tubing
UP-A-451	10µm PEEK Filter for 1/16" OD tubing
UP-A-452	2µm PEEK Filter for 1/16" OD tubing for small-neck (GL-38) bottles
UP-A-453	10µm PEEK Filter for 1/16" OD tubing for small-neck (GL-38) bottles

¹ Includes a UP-P-200 Tefzel™ Ferrule and a UP-P-245 Teflon™ PFA Nut

² Includes a UP-P-300 Tefzel™ Ferrule and a UP-P-345 Teflon™ PFA Nut

³ Typically for Waters® systems.

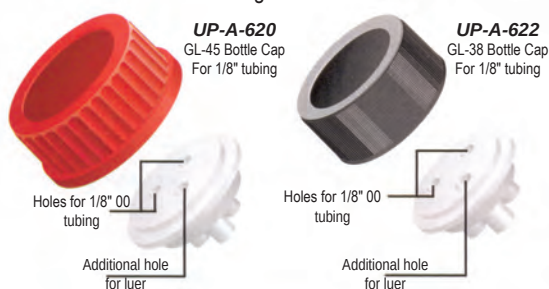
Bottle Caps

- Inexpensive
- Extremely Simple - No Threaded Ports or Fittings!

If you are looking for a bottle cap that is quick and easy, but still allows many options, we have just what you need!

These injection-molded caps are manufactured of inert Tefzel™ and polypropylene. They fit standard GL-45 or smaller-neck GL-38 bottles.

Three holes are provided in each insert. With two of the holes you simply push your tubing straight through. The third hole, with a luer taper, can be used for a number of Options. Any male luer will fit snugly in this hole, or you can use our UP-A-626 or UP-A-627 Plug. The exceptions are the UP-A-610 and UP-A-610B Bottle Caps. Please see the note to the right.



Bottle Caps for UP-GL-45, 1L Bottles

Reference Description

UP-A-610	for 3/16" OD tubing, red
UP-A-610B	for 3/16" OD tubing, blue
UP-A-620	for 1/8" OD tubing, red
UP-A-620B	for 1/8" OD tubing, blue
UP-A-630	for 1/16" OD tubing, red
UP-A-630B	for 1/16" OD tubing, blue

Bottle Caps for UP-GL-38, 4L Bottles

Reference Description

UP-A-622	for 1/8" OD tubing, black or white ¹
UP-A-632	for 1/16" OD tubing, black or white ¹



Bottle Cap Plugs and Adapter

Reference Description

UP-A-626	Bottle Cap Plug for luer hole, UHMWPE
UP-A-627	Filter Bottle Cap Plug for luer hole, UHMWPE with 20 µm stainless steel Irit
UP-A-628	Bottle Cap Plug for 1/16" or 1/8" hole, UHMWPE
UP-A-629	Filter Bottle Cap Plug for 1/16" or 1/8" hole, UHMWPE with 20 µm stainless steel Irit
UP-P-600	Bottle Cap Adapter for 1/8" hole ² , PEEK to connect 1/32" OD tubing

¹ Designed for use with The UP-A-622 and UP-A-632 Bottle Cap rings now come in black or white, depending on availability

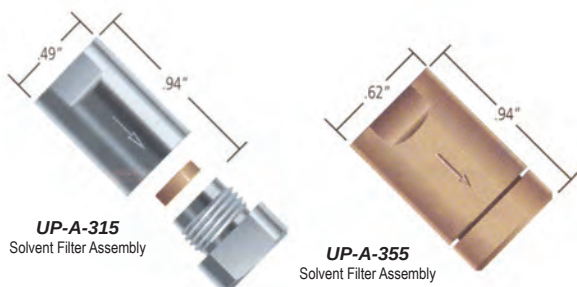
Increase the Life of your Column

A precolumn filter placed between the sample injection valve and the HPLC column protects the column from particles originating in the sample and from pump/valve seal wear. Why use a precolumn filter when there is a frit at the head of the column itself? Because changing the column frit risks ruining the column by disturbing the column packing. A precolumn filter provides relatively inexpensive insurance against column damage, and changing its frit is easy.

Precolumn Filters

- 0.5 μm or 2 μm Frits Available
- Great Column Protection
- Stainless Steel and Biocompatible PEEK™ Polymer Versions Available

These Precolumn Filters have .020" diameter thru-holes and 8° distribution cones for minimal band spreading and mixing. They are available in stainless steel (UP-A-315/UP-A-316), pressure rated to 9,000 psi (620 bar) and biocompatible PEEK polymer versions (UP-A-355/UP-A-356), pressure rated to 5,000 psi (345 bar). Choose either the 0.5 μm or 2 μm version to filter particulates from your flow path.



Precolumn Filters

Reference	Description	Swept Volume*
UP-A-315	2 μm Solvent Filter Assembly, with UP-A-101 Frit	1.4 μL
UP-A-316	0.5 μm Solvent Filter Assembly, with UP-A-102 Frit	1.3 μL
UP-A-355	2 μm Solvent Filter Assembly, with UP-A-700 ID PEEK Frit, Biocompatible	1.4 μL
UP-A-356	0.5 μm Solvent Filter Assembly, with UP-A-701 ID PEEK Frit, Biocompatible	1.3 μL
UP-A-101x	2 μm Replacement Frits, Stainless Steel, 10-pk	0.74 μL
UP-A-102x	0.5 μm Replacement Frits, Stainless Steel, 10-pk	0.61 μL
UP-A-700	2 μm Replacement Frit, PEEK Polymer	0.74 μL
UP-A-701	0.5 μm Replacement Frit, PEEK Polymer	0.61 μL

Ultra-Low Volume Precolumn Filter

- Our Lowest Swept Volume Precolumn Filter for 1/16" OD Tubing

With a .010" diameter thru-hole, our UP-A-318 Filter has one of the lowest swept volumes (0.61 μL *) of any HPLC filter available, ensuring maximum protection with no band broadening. Pressure rated to 9,000 psi (620 bar).

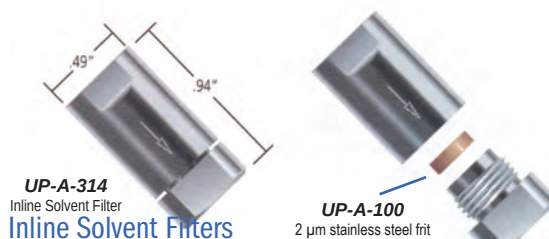


Ultra-Low Volume Precolumn Filters

Reference	Description	Swept Volume*
UP-A-318	0.5 μm Solvent Filter Assembly, with UP-A-102 Frit	0.84 μL
UP-A-102x	0.5 μm Replacement Frits, Stainless Steel, 10-pk	0.61 μL

Inline Solvent Filter

- Excellent for General Purpose In line Use
- Placed between the pump and sample injection valve, our Inline Solvent Filter traps particles released through normal piston seal wear. Without an inline filter, these particles can be flushed through your system's tubing to the sample injection valve, resulting in valve damage and further system contamination. This filter is pressure rated to 8,500 psi (586 bar) and uses a 2 μm stainless steel frit with a PEEK ring. An 8° distribution cone spreads the flow of the mobile phase over the entire surface of the frit, while the .050" diameter thru-hole allows proper solvent flow.



Reference	Description	Swept Volume*
UP-A-314	2.0 μm Solvent Filter Assembly, with UP-A-100 Frit	4.0 μL
UP-A-100x	2.0 μm Replacement Frits, Stainless Steel, 10-pk	1.4 μL

* Swept volumes include/reflect theoretical frit volume values.



Deuterium Lamps for a Detector

Agilent Deuterium Lamps



Cat.No	Model	Description	Ref. Agilent
TR-G1103-60001	Agilent 1100, 1200 Tungsten Lamp	Visible Light Bulb	G1103-60001
TR-LD-AGI-101	Agilent 1050 C 1050 DAD 1090, 1040	D2 Lamp	79883-60002
TR-LD-AGI-104LL	Agilent 1100 VWD	Longlife D2 Lamp	2140-0585
TR-LD-AGI-105	Agilent 1100 DAD 8453	D2 Lamp	2140-0590
TR-LD-AGI-105LL	Agilent 1100, 1200 G1315/G1365 A & B Series DAD	Longlife D2 Lamp	5182-1530
TR-LD-AGI-106	Agilent 8452	D2 Lamp	08452-60104
TR-LD-AGI-107LL	Agilent 1100, 1200 G1315/G1365 C & D Series DAD	Longlife D2 Lamp	2140-0585
TR-LD-AGI-108LL	Agilent 1290 G4212 A/B DAD (8-Pin)	Longlife D2 Lamp	5190-0917

Waters Deuterium Lamps



Cat.No	Model	Description	Ref. Waters
TR-LD-WAT-102LL	Waters 486	D2 Lamp	WAT080678
TR-LD-WAT-104LL	Waters 996, 2996 PDA	Longlife D2 Lamp	WAT052586
TR-LD-WAT-105LL	Waters 2487 DAD Alliance	Longlife D2 Lamp	WAS081142
TR-LD-WAT-108LL	Waters Acquity 2998 HB	Longlife D2 Lamp	201000281
TR-LX-WAT-150MO	Waters 470 474 2475	Xe Lamp	WAT052665

Shimadzu Deuterium Lamps



Cat.No	Model	Description	Ref. Shimadzu
TR-LD-SHI-100	Shimadzu LC4A LC6A SPD2A SPD6A SPD6AV SP4	D2 lamp	062-65056-03
TR-LD-SHI-101LL	Shimadzu SPD10A, 10A3, 10AV, 10AVP, 20A, 20AV	Longlife D2 Lamp	228-34016-02
TR-LD-SHI-102SLL	Shimadzu UV series Spectrophotometer, BioSpec-mini	Longlife D2 Lamp	200-75503-01
TR-LD-SHI-103LL	Shimadzu LC2010	Longlife D2 Lamp	228-37401
TR-LD-SHI-104LL	Shimadzu SPD-M10A, M10AV	D2 Lamp	670-14604-00
TR-LD-SHI-105	Shimadzu Prominence 2030, Nexera 2040	D2 Lamp	228-55626-01
TR-LX-SHI-150MO	Shimadzu RF1501.5301 5000	Xe Lamp	200-81500
TR-LX-SHI-150S	Shim. RF540 RF535 RF551 RF500 RF10A RF10AXL	Xe Lamp	228-45147
TR-LX-SHI-75XE	Shimadzu RF530 RF510	Xe Lamp	N/A
TR-LX-SHI-150SK	Shimadzu RF5000U (w/Ozone)	Xe Lamp	UXL155
TR-LX-SHI-101	Shimadzu SPD-10AV, AVP, AVVP, 20AV	Tungsten Lamp	670-14602-00
TR-LX-SHI-104	Shimadzu M10AVP/M20A	Tungsten Lamp	228-34410-91
TR-LX-SHI-062-65005AT	Shimadzu Spectrophotometer	Tungsten Lamp	062-65005AT

Varian Deuterium Lamps



Cat.No	Model	Description	Ref. Varian
TR-LD-VAR-100LL	Varian 2050 2550 5500	D2 Lamp	03-915503-99
TR-LD-VAR-103LL	Varian UV50/100/200 9050 Prostar 310, Vista 5000, 5500	Longlife D2 Lamp	0391615691
TR-LD-VAR-104	Varian Prostar 330 DAD	D2 Lamp	393570502
TR-LD-VAR-105LL	Varian Prostar 325 335	Longlife D2 Lamp	110715400
TR-LD-VAR-106	Varian Prostar 340 345	D2 Lamp	R000088515
TR-LX-VAR-152H	Varian Prostar 363	Xe Lamp	392613103

Deuterium Lamps for a Detector



Merck Hitachi Deuterium Lamps



Cat.No	Model	Description	Ref. Hitachi
TR-LD-MEH-100S	Hitachi L & U Series Nosed	D2 Lamp	HITA 890-2430
TR-LD-MEH-101	Hitachi 100-10, 124, 100-40, 100-50, 100-60	D2 Lamp	982-1035
TR-LX-MEH-152H	Hitachi Fluorescence Detector	Xe Lamp	5000330
TR-LD-MEH-103	Hitachi U-1800, 2810, 1900, 2900, 2910, 3900,3900H	D2 Lamp	2J1-1500
TR-LT-MEH-100	Hitachi U Series	Vis. Lamp	855-1200
TR-LT-MEH-101	Hitachi L2400, 2420, 2450, 2455	Tungsten Lamp	890-2527

Dionex Deuterium Lamps



Cat.No	Model	Description	Ref. Dionex
TR-LD-DIO-101	Dionex DSA-1 VDM-1	D2 Lamp	N/A
TR-LD-DIO-102LL	Dionex PDA-100, PDA-3000, AD-25	Longlife D2 Lamp	939016T
TR-LD-DIO-104	Ultimate Dionex UVD 3000 Nano LC	D2 Lamp	6074.2070
TR-LD-DIO-105LL	Dionex Ultimate DAD,MWD 3000/RS VWD3000/3400	D2 Lamp	6074.1110
TR-LX-DIO-150S	Dionex Fluoresence Detector	Xe Lamp	5057-1000
TR-LT-DIO-105	Dionex 3000 VWD DAD	Tungsten Lamp	6074.2000

Gilson Deuterium Lamps



Cat.No	Model	Description	Ref. Gilson
TR-LD-GIL-101	Gilson115/116/117/118/119/151/152/155/156	D2 Lamp	100326
TR-LD-GIL-105LL	Gilson 170 D.A.D.	Longlife D2 Lamp	18011003
TR-LX-GIL-150MO	Gilson 122	Xe Lamp	N/A

TSP Deuterium Lamps



Cat.No	Model	Description	Ref. TSP
TR-LD-TSP-102S	TSP UV100/1000/2000/3000, Focus, CE Series	D2 Lamp	9551-0023
TR-LD-TSP-106	TSP UV6000DAD,UV6000LP, Accela PDA, Surveyor	D2 Lamp	108052
TR-LD-TSP-103	TSP SA6510,SP770,SP970,SP8480XR,SP8773XR	D2 Lamp	N/A
TR-LD-TSP-104	TSP Thermosolaar M Series	D2 Lamp	942342020004
TR-LD-TSP-107	TSP ICE3300 AAS, S Series, SOLAAR S4	D2 Lamp	942342030004
TR-LT-TSP-106	TSP UV6000	Tungsten Lamp	60257-60006

ABI Deuterium Lamps



Cat.No	Model	Description	Ref. ABI
TR-LD-ABI-100	ABI 757 759 783A 785A 1000S FS980 120A 130A	D2 Lamp	N2920149



Deuterium Lamps for a Detector

Perkin Elmer Deuterium Lamps

Cat.No	Model	Description	Ref. Perkin Elmer
TR-LD-PER-100	Perkin Elmer Series 200	D2 Lamp	N2920149
TR-LD-PER-102	Perkin Elmer Series 200 DAD	D2 Lamp	N2922046
TR-LD-PER-103	PE LC235,1335,LC55,65,75,85,95,135 Lambda 1.3 Integral	D2 Lamp	N2351285
TR-LD-PER-160	PE Lambda 2 to 45 800 900 Bio, 55X series	D2 Lamp	B016-0917
TR-LT-PER-160	PE Lambda 2 to 45 800 900 Bio, 55X series	W Lamp	B011-4620
TR-LX-PER-150MO	PE 203 204 650 MPF2A MPF3 MPF4	Xe Lamp	3501646

Jasco Deuterium Lamps

Cat.No	Model	Description	Ref. Jasco
TR-LD-JAS-101SLL	Jasco UV970 975 (B & C)1570,1575,2075,3075, MD	D2 Lamp	5330-0091
TR-LD-JAS-102LL	Jasco V-530, 550, 560 570,600,700 & 7800	D2 Lamp	5330-0094B
TR-LT-JAS-102	Jasco V-530, 550, 560 570,600,700	Tungsten Lamp	5530-0099
TR-LX-JAS-150MO	Jasco 820 821	Xe Lamp	5330-0052
TR-LX-JAS-274	Jasco 920 921 1520 2020	Xe Lamp	6715-H310H

Kontron Deuterium Lamps

Cat.No	Model	Description	Ref. Kontron
TR-LD-KON-102LL	Kontron 535DAD, 332/335/430/432/433/770	Longlife D2 Lamp	91-91494
TR-LD-KON-103LL	Kontron 540DAD 540+ 545V	Longlife D2 Lamp	54-02007
TR-LD-KON-104	Kontron Uvikon 922, 923, 943, 930, 932, 933, 940	D2 Lamp	90-007825T
TR-LX-KON-150MO	Kontron SFM25	Xe Lamp	N/A
TR-LD-KON-108	Kontron 720LC	D2 Lamp	54-02003

Biorad Deuterium Lamps

Cat.No	Model	Description	Ref. Biorad
TR-LD-BIO-101	Biorad 206, 300, 1790, BioDimensions,	D2 Lamp	930-6106
TR-LD-BIO-103LL	Biorad 1503	D2 Lamp	N/A

Beckman Deuterium Lamps

Cat.No	Model	Description	Ref. Beckman
TR-LD-BEC-102	Beckman DU600 620 630 640 650 6000 7000 7500	D2 Lamp	514366
TR-LD-BEC-103	Beckman 166	D2 Lamp (prealigned)	239372
TR-LD-BEC-105	Beckman 168	D2 Lamp (prealigned)	538711
TR-LD-BEC-110	Beckman P/ACE MDQ	D2 Lamp	144667
TR-LT-BEC-100	Beckman 166, DU6/70/600/800	Tungsten Lamp	945672

Philips and Unicam Deuterium Lamps

Cat.No	Model	Description	Ref. Philips/Unicam
TR-LD-PHU-100	Unicam 4225	D2 Lamp	9551-0023
TR-LD-PHU-101	Unicam UV & Helios series	D2 Lamp	9423U/9004B
TR-LD-PHU-105	Unicam 929 939 959 AA Spectrometers	D2 Lamp	942339346251
TR-LT-PHU-102	Unicam 5625 6575 8600 8700 8800 Series	Tungsten Lamp	942318503021
TR-LT-PHU-103	Unicam Helios Aquamate, Biomate 5, a,b,g,d	Tungsten Lamp	9423UV90004E

LKB-Pharmacia Deuterium Lamps

Cat.No	Model	Description	Ref. LKB
TR-LD-LKB-100	LKB Pharmacia 2141 4050 4054 Ultraspec	D2 Lamp	N/A
TR-LD-LKB-101	LKB Productor 2140	D2 Lamp	8010-3135

ECOM Deuterium Lamps

Cat.No	Model	Description	Ref. LKB
TR-LD-ECO-100	Ecom LCD 2083 & 2084 Series	D2 Lamp	22590000
TR-LD-ECO-101	Ecom Flash Series Opal, Sapphire, Topaz & LCD 2073A D2 Lamp	D2 Lamp	22590001

Interchim Deuterium Lamps

Cat.No	Model	Description	Ref. LKB
TR-LD-INT-100	I.Puriflash215 430 450 800 4100 4250-40 4250-250 PF1SP2	D2 Lamp	PFS970

PG Instruments Deuterium Lamps

Cat.No	Model	Description	Ref. LKB
TR-LD-PGI-100	PG Inst. T70 T80 T92 990 AAS	Longlife D2 Lamp	N/A

Deuterium Lamps for a Detector



Cecil Deuterium Lamps

Cat.No	Model	Description	Ref. Cecil
TR-LD-CEC-111	Cecil Series 2 1000 to 9000 CE	D2 Lamp	2202-0142
TR-LT-CEC-111	Cecil Series 2 1000 to 9000 CE	Tungsten Lamp	2303-0140

Knauer Deuterium Lamps

Cat.No	Model	Description	Ref. Knauer
TR-LD-KNA-101	Knauer Wellchrom K2000 K2500 K2501 K2600 K2700	Longlife D2 Lamp	A4071
TR-LD-KNA-102	Knauer 8700, 9700, 2151	Longlife D2 Lamp	N/A
TR-LD-KNA-103LL	Knauer Smartline PDA 2800 2850 K-2800	Longlife D2 Lamp	A4447
TR-A5193	Knauer S2250/A5190, S2520	Longlife D2 Lamp	A5193
TR-A4073	Knauer K2501	Tungsten Lamp	A4073
TR-228-51511-95	Knauer 59200 59201	Xe D2 Lamp	A59210

LDC Deuterium Lamps

Cat.No	Model	Description	Ref. LDC
TR-LD-LDC-100	LDC 3000 & 4000 Series Spectromonitor I II III D	D2 Lamp	108035
TR-LD-LDC-102	LDC 5000 D.A.D.	D2 Lamp	N/A
TR-LX-LDC-150MO	LDC FM4100	Xe Lamp	

ACS Deuterium Lamps

Cat.No	Model	Description	Ref. ACS
TR-LD-ACS-100	ACS LC 750 11E 12	D2 Lamp	N/A

Analytic Jena Deuterium Lamps

Cat.No	Model	Description	Ref. ACS
TR-LD-ANJ-100	A.Jena Spekol 1100, 1200 Spekord S100/200/50	D2 Lamp	820-60021-0
TR-LD-ANJ-101	A.Jena Spekol 1300/ 1500/200	D2 Lamp	820-60238-0

Biotage Deuterium Lamps

Cat.No	Model	Description	Ref. ACS
TR-LD-BTG-100	Biotage Isolera SP1/4 VWL	D2 Lamp	09830

GE AKTA Deuterium Lamps

Cat.No	Model	Description	Ref. ACS
TR-LH-GE-101	GE AKTA UPC-900	Mercury Lamp	28-4042-25
TR-LH-GE-102	GE AKTA UV-900 (Monochromator cpl)	Xe Lamp	19-1029-35
TR-LH-GE-103	GE AKTA UV-900 (Refurb Exchange)	Xe Lamp	19-1029-35

Gynkotek Deuterium Lamps

Cat.No	Model	Description	Ref. ACS
TR-LD-GYN-100LL	Gynkotek (Dionex) UVD 320 340U 340S 160 170S 170U D2 Lamp		5053.1204

Hach Deuterium Lamps

Cat.No	Model	Description	Ref. ACS
TR-LD-HAC-100	Hach Lange DR5000, DR6000	D2 Lamp	A23792

Jenway Deuterium Lamps

Cat.No	Model	Description	Ref. ACS
TR-I/605016	Jenway 6051	Tungsten Lamp	I/605016
TR-012146	Jenway 6270, 6280 & 6285	Xe Lamp	012146
TR-012075	Jenway 6300,6310,6320D,6500,6505,6700,7310	Tungsten Lamp	012075
TR-012094	Jenway 6305 & 6315	Xe Lamp	012094
TR-640508	Jenway 6400 6500 & 6505	Longlife D2 Lamp	640508
TR-6705/LA	Jenway 6705 & 6715	Xe Lamp	6705/LA
TR-685024	Jenway 6800 & 6850	Tungsten Lamp	685024
TR-12050	Jenway 7200	Tungsten Lamp	12050
TR-7205/SER/LAMP	Jenway 7205 & Geneva Bio	Xe Lamp	7205/SER/LAMP
TR-I/730545	Jenway 7305 7315 7415/nano, Geneva plus & nano	Xe Lamp	I/730545
TR-740018	Jenway 7410 & 7600	Tungsten Lamp	740018

Young Lin Deuterium Lamps

Cat.No	Model	Description	Ref. ACS
TR-LD-YNG-101	Young Lin 820	Longlife D2 Lamp	N/A



HPLC Safety Caps

Dangers and hazards in many laboratories



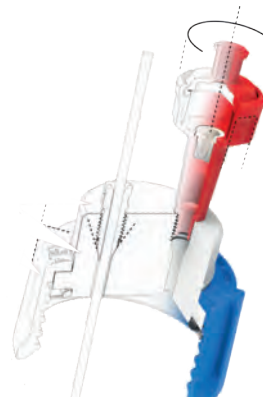
Safety for HPLC users

Vapours and gases of dangerous liquids can cause damage to your health and to your environment. Bottles and containers with unsafe contents always have to be sealed reliably to avoid health hazards and environment pollution.

Many directives are already regulated by law - in addition, you should always take care of your health and integrity yourself.

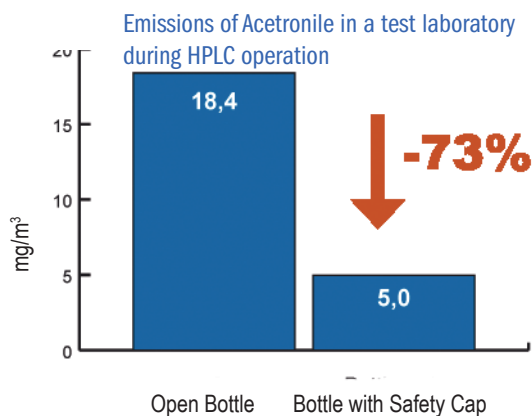
Troubleshooting by SCAT Safety Caps

- **No escape of hazardous vapours**
Integrated air valve and exhaust filters keep your containers sealed safely.
- **No pollution**
Containers always remain shut, even during extraction or filling of liquids.
- **No shift of tubing**
Tubes remain fixed - no air intake into sensitive equipment like chromatography systems
- **Easy container exchange**
Safety Caps are freely turnable without twisting tubes.
- **No air intake**
No interruption of chromatography processes.



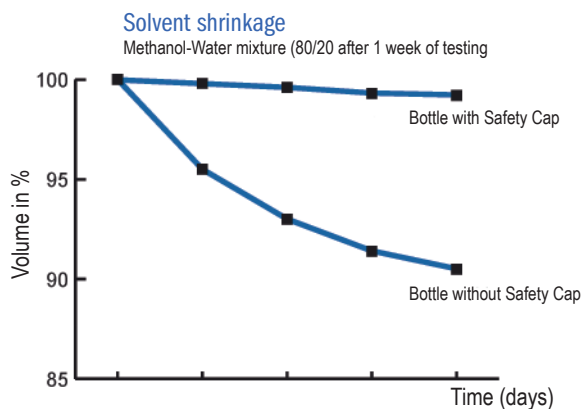
Reduce pollution

Ecological and sanitary damage can be reduced intensely by SCAT Safety Caps. Officially accredited testing laboratories verify a reduction of toxic concentrations in the air amounting to 73%.



Avoid shrinkage

Spend less money on chemicals - SCAT Safety Caps avoid decrease of expensive solvents which otherwise evaporate into extraction hoods or into the environmental air.



SafetyCaps 2.0

The next Level!

THE System for Solvent Safety

NEW: Luer Lock Adapter
Useful for many applications

NEW: Air valve
for analytical and
preparative applications



NEW: PFA Fittings
Improved design for
easy tubing connection
Excellent chemical resistance
Flammability classification
V-0 (UL-94)

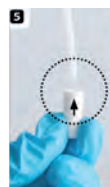
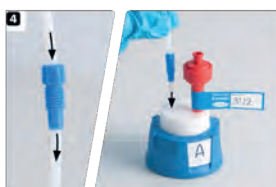
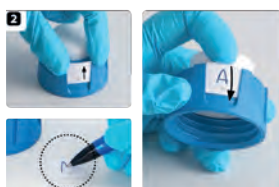
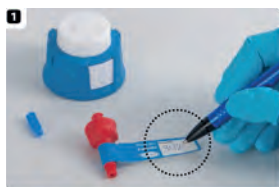
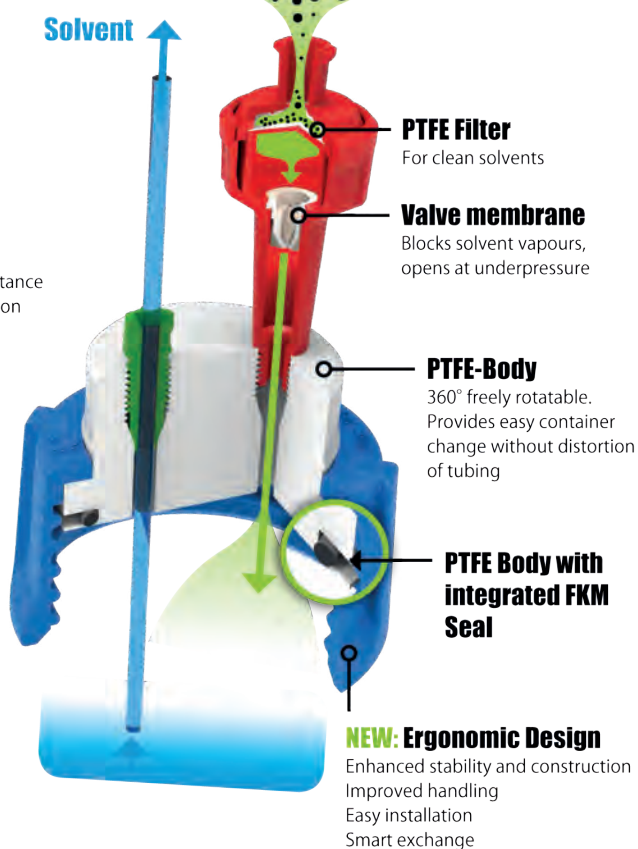
**NEW: Medical
Grade PTFE**
Excellent resistance
Food safe
FDA conform
Flammability
classification V-0
(UL-94)

NEW: Insertion Label
Mark your bottles with individual
descriptions



NEW: PPS Screw Cap

Autoclavable / sterilisable up to 200 °C
Flammability classification V-0 (UL-94)





HPLC Safety Caps



TR-S1-00720

1 Blind plug
included
(to lock
unused
connections)



TR-S1-00721

4 Blind plugs
included
(to lock
unused
connections)



Starter Kits

Cat.No	Description
TR-S1-00720	Starter Kit Supply S1 content: SafetyCapI 3 u GL45 1 connector 3,2mm OD Safetycap II 1 unit GL45 2 connectors 3,2 mm OD Blind plug for tubing connection 1/4"
TR-S1-00721	Starter Kit Supply S2 content: SafetyCapI 3 u GL45 1 connector 3,2mm OD Safetycap II 1 unit GL45 2 connectors 3,2 mm OD Blind plug for tubing connection 1/4"
TR-S1-00255	HPLC Safety Set Content: 4 x Safety Cap III TR-S1-00714; 1x safetywaste Cap TR-S1-00728 4 connectors 1 x Filter Exhaust with indicatoir TR-S1-00724 2x Tube connector 6-8 mm TR-S1-00587 1 x tube connector 9.5-10 Angled TR-S1-00580

Safety Caps GL 45 - Safe Fluid Supply

Safe venting for pressure equalization during the solvent supply by integrated air valve. Protection against dangerous solvent vapours.

Available connectors for tubing:

- 1.6mm (1/16") OD
- 2.3mm OD
- 3.2mm (1/8") OD

Cat.No	Description
TR-S1-00712	Safety Cap I, (V2.0) GL 45 1 port for 3.2mm (1/8") OD tubing
TR-S1-00713	Safety Cap II, (V2.0) GL 45 2 ports for 3.2mm (1/8") OD tubing 1x Blind plug
TR-S1-00714	Safety Cap III, (V2.0) GL 45 3 ports for 3.2mm (1/8") OD Tubing 2 x Blind Plug
TR-S1-00715	Safety Cap IV, (V2.0) GL 45 4 ports for 3.2mm (1/8") OD Tubing 2 x Blind Plug
TR-S1-00716	Safety Cap V, (V2.0) GL 45 5 ports for 3.2mm (1/8") OD Tubing 2 x Blind Plug
TR-S1-00715	Safety Cap VI, (V2.0) GL 45 6 ports for 3.2mm (1/8") OD Tubing 2 x Blind Plug
TR-S1-00717	Air valve for SafetyCaps service life 6 months (Box of 1)
TR-S1-00718	Air valve for SafetyCaps service life 6 months (Box of 10)

PFA fittings for capillaries

Cat.No	Description
TR-S1-00157	5x Fitting for 3.2 mm OD Blue
TR-S1-00156	5x Fitting for 3.2 mm OD Red
TR-S1-00159	5x Fitting for 3.2 mm OD Yellow
TR-S1-00151	5x Fitting for 1.6 mm OD Green
TR-S1-00154	5x Fitting for 2.3 mm OD Violet
TR-S1-00082	10 x Blind plug

Thread adapters for SafetyCaps

Cat.No	Description
TR-S1-00233	Adapter GL 38 (f) to GL 45 (m)
TR-S1-00235	Adapter GL 40 (f) to GL 45 (m)



TR-S1-00255



Bottles (Clear Glass) - GL 45 Thread

Round bottles with scale (ml) and screw cap.

Also available with protective covering!

Cat.No	Volume	Cat.No. with protective Covering
TR-S1-00321	250 ml	TR-S1-00322
TR-S1-00325	500 ml	TR-S1-00326
TR-S1-00315	1000 ml	TR-S1-00313
TR-S1-00319	2000 ml	TR-S1-00318
TR-S1-00328	5000 ml	TR-S1-00329

Bottles (Brown Glass) - GL 45 Thread

Round bottles (brown glass) with scale (ml) and screw cap.

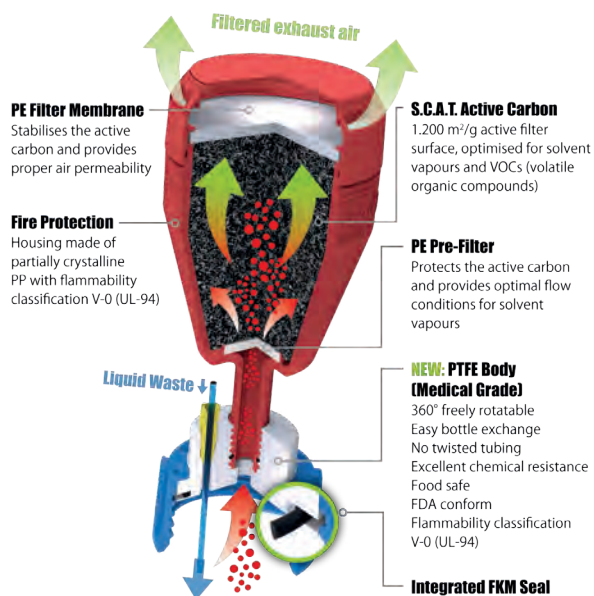
Cat.No	Volume
TR-S1-00320	250 ml
TR-S1-00324	500 ml
TR-S1-00314	1000 ml

Square Bottles (Clear Glass) - GL 45 Thread

Four-cornered bottles for space saving placement. Each bottle with scale (ml) and screw cap.

Cat.No	Volume
TR-S1-00323	250 ml
TR-S1-00327	500 ml
TR-S1-00316	1000 ml

Safe Liquid Waste Collection



TR-S1-00722



TR-S1-00723



TR-S1-00724



TR-S1-00725





HPLC Safety Waste Caps



SafetyWaste Caps

our exhaust filter system absorbs 99% of all volatile substances evaporating from solvent disposal containers.

Available connectors for tubing:

- 1.6mm (1/16") OD
- 2.3mm OD
- 3.2mm (1/8") OD

Cat.No	Description
TR-S1-00726	SafetyWaste Cap, GL 45 3 port for 3.2mm (1/8") OD tubing
TR-S1-00727	SafetyWaste Cap, GL 45 2 ports for 3.2mm (1/8") OD tubing 1 port for 6-8 mm
TR-S1-00728	SafetyWaste Cap, GL 45 4 ports for 3.2mm (1/8") OD tubing 1 port for 6-8 mm
TR-S1-00487	SafetyWaste Cap, S 60/61 3 port for 3.2mm (1/8") OD tubing
TR-S1-00486	SafetyWaste Cap, S 60/61 2 ports for 3.2mm (1/8") OD tubing 1 port for 6-8 mm
TR-S1-00544	SafetyWaste Cap, S 90/91 4 ports for 3.2mm (1/8") OD tubing 1 port for 6-8 mm
TR-S1-00722	Exhaust Filter, size M with splash protection and label
TR-S1-00723	2x Exhaust Filter, size M with splash protection and label
TR-S1-00724	Exhaust Filter, size M with splash protection and change indicator
TR-S1-00725	2x Exhaust Filter, size M with splash protection and change indicator

Cat.No	Description
TR-S1-00149	Exhaust Filter, size S with splash protection and label
TR-S1-00070	4x Exhaust Filter, size S with splash protection and label



SafetyWaste Caps with Safety Funnel

For safe disposal of solvent and sample leftovers. simply open the safety funnel by pressing the locking mechanism.

Cat.No	Description
TR-S1-00460	SafetyWaste Cap, S 50 2 port for 3.2mm (1/8") OD tubing with funnel
TR-S1-00483	SafetyWaste Cap, S 55 2 port for 3.2mm (1/8") OD tubing with funnel
TR-S1-00504	SafetyWaste Cap, S 60/61 2 port for 3.2mm (1/8") OD tubing with funnel
TR-S1-00500	SafetyWasteCap S60/61, safety funnel with shut-off, 2 port 2,3/3,2 mm OD

Sample Injection Rheodyne™ Valves



Complet range of HPLC sample injectors, from nanoscale to preparative applications.

Rheodyne Injecion Valves for Microscale Applications

Model 8125

Manufactured in stainless steel and designed for 1.0 and 2.0 mm microbore columns. This sample injector can also be used for analytical columns between 3.0 and 5.0 mm ID. Maximum recommended injection volume is 200 µl.

Cat.No	Description
RH-8125	Microscale sample injector, dual mode, stainless steel



Cat.No	Description	Stator Material
RH-7725	Dual Mode Analytical Injector	Stainless Steel
RH-7725i	Dual Mode Analytical Injector with switch	Stainless Steel
RH-9725	Dual Mode Analytical Injector	PEEK
RH-9725i	Dual Mode Analytical Injector wiyh switch	PEEK



Rheodyne Injecion Valves for Analytical Applications

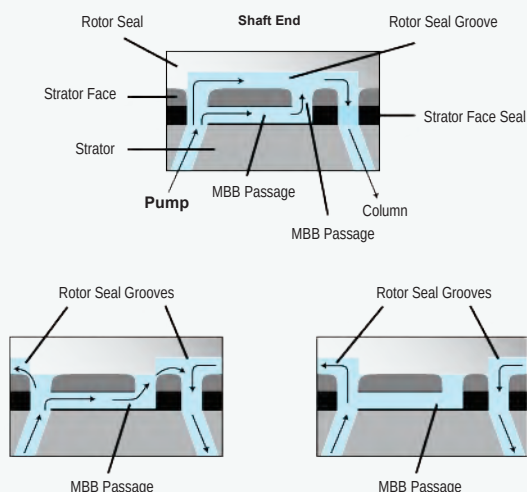
Models 7725, 7725i, 9725 and 9725i

All these well recognized valves are manufactured in 316 stainless steel. Some specialized features include :

- The Rheodyne patented Make-Before-Break (MBB™) architecture allows continuous flow between LOAD and INJECT positions wich greatly reduces transient pressure shocks that disrupt your system.
- Wide 30° portangles offer easier access to fittings using the Rheodyne wrench (P/N RH-6810).
- Front-end pressure screw makes easy to adjust and maintain pressure.
- A built-in position sensor switch ("i" versions) provides a "start" signal to the instrument
- Small diameter internal flow paths assure minimal dispersion.

Patented Rheodyne MBB Design:

Flow paths of Model 7725 and 9725 with patented Rheodyne MBB design





Sample Injection Rheodyne™ Valves

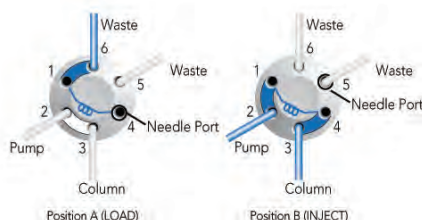
Rheodyne Injection Valves for Preparative Applications

Models 3725-038, 3725i-038, 3725 and 3725i



These valves have been designed for high injection volumes and flow rates up to 100 ml/min. 1/8" or 1/16" tubing can be attached using the right fitting adapter. MBB™ patented Rheodyne architecture allows continuous and stable flow when switching from LOAD to INJECT.

Cat.No	Description
RH-3725-038	Preparative Scale Injector, Dual Mode, Stainless Steel
RH-3725i-038	Preparative Scale Injector with switch, Dual Mode, Stainless Steel
RH-3725	Preparative Scale Injector, Dual Mode, PEEK
RH-3725i	Preparative Scale Injector with switch, Dual Mode, PEEK



Rheodyne Rotor Seals and Stators



- Genuine Rheodyne Parts
- For Popular Rheodyne Valves

A rotor seal is a polymeric disc that makes a high pressure seal against the stator in a valve. The seal wears with use and is one of the few valve parts that may need to be replaced routinely. Stators need replacement only if the threaded ports are damaged or the sealing surface is scored.

Vespel™ blend Rotor Seals have an operating pH range of 0-10. Tefzel™ are usable at a pH range from 0 to 14. Some stators can also be manufactured in stainless steel.

Rotors Vespel

Cat.No	Valve	Material
RH-7010-039	7010,7000,7040	Vespel
RH-7030-003	7030	Vespel
RH-7060-070	7060,7066	Vespel
RH-7125-047	7125,7725	Vespel
RH-7410-038	7410	Vespel
RH-7413-013	7413	Vespel
RH-8125-038	8125	Vespel

Rotors Tefzel

Cat.No	Valve	Material
RH-7010-071	7010,7010-087,7000,7040	Tefzel
RH-7030-015	7030	Tefzel
RH-7060-074	7060,7066,9060	Tefzel
RH-7125-079	7125,7125-081,7725	Tefzel
RH-7410-075	7410	Tefzel
RH-8125-097	8125	Tefzel
RH-9010-051	9010	Tefzel
RH-9125-082	9125,9725	Tefzel

Rotors Peek

Cat.No	Valve	Material
RH-3030-005	3030,3030-038	Peek
RH-3060-001	3060,3060-038	Peek
RH-3710-008	3000,3000-038,3710,3710-038	Peek
RH-3725-018	3725,3725-038	Peek
RH-7610-011	7610-400,7610-600	Peek

Stators

Cat.No	Valve
RH-3060-009	3060
RH-3725-006	3725,3710-038,3000-038
RH-3725-085	3725-038,3710-038,3000-038,3030-038
RH-7010-040	7010,7125,7000,7030,7040
RH-7010-066	7125-081,7010-087
RH-7060-039	7060,7066
RH-7410-041	7410,7413
RH-7610-048	7610-600
RH-7725-010	7725
RH-8125-098	8125
RH-9060-016	9060
RH-9125-043	9125,9010,9030,9725

Sample Injection Rheodyne™ Valves



Rheodyne RheBuild™ Kits

Included in each individualized RheBuild Kit are genuine Rheodyne parts, tools and instructions to maintain the precision and performance of your Rheodyne valve. Rheodyne kits eliminate individual part ordering at a very convenient price.



RheBuild Kit	Model
RH-3725-999	3725, 3725i, 3725-038, 3735i-038
RH-7010-996	Conversion Kit with strator for 7010 model
RH-7010-997	7010 strator included
RH-7010-999	7010 and 7010 models
RH-7125-999	7125,7126
RH-7410-999	7410
RH-7520-999	7520,7526
RH-7725-999	7725,7725i
RH-8125-999	8125,8126
RH-9010-999	9010
RH-9125-999	9125,9126
RH-9725-999	9725,9725i

Sampling Loops for Rheodyne Injection Valves

Available in stainless steel and PEEK. Please note that stainless steel loops are not interchangeable between valve types 7125, 7010 and 7725.



Stainless Steel Sampling Loops for 7125 and 7010 Valves (Not to be used in 7725 Valves)

Cat.No.	Volume	Tubing
RH-7020	5 µL Loop	0,18 mm (0,007")ID x 1/16" OD
RH-7021	10 µL Loop	0,30 mm (0,012")ID x 1/16" OD
RH-7022	20 µL Loop	0,51 mm (0,020")ID x 1/16" OD
RH-7023	50 µL Loop	0,51 mm (0,020")ID x 1/16" OD
RH-7024	100 µL Loop	0,51 mm (0,020")ID x 1/16" OD
RH-7025	200 µL Loop	0,76 mm (0,030")ID x 1/16" OD
RH-7026	500 µL Loop	0,76 mm (0,030")ID x 1/16" OD
RH-7027	1000 µL Loop	0,76 mm (0,030")ID x 1/16" OD
RH-7028	2000 µL Loop	1 mm (0,040")ID x 1/16" OD
RH-7029	5000 µL Loop	1 mm (0,040")ID x 1/16" OD
RH-1876	10000 µL Loop	2 mm (0,080")ID x 1/8" OD
RH-1877	20000 µL Loop	2 mm (0,080")ID x 1/8" OD

Stainless Steel Sampling Loops for 3725-038 and 3725i-038 valves

Cat.No.	Volume	Tubing
RH-3065-018	2000 µL Loop	2 mm (0,080")ID x 1/8" OD
RH-3065-019	5000 µL Loop	2 mm (0,080")ID x 1/8" OD
RH-3065-023	10000 µL Loop	2 mm (0,080")ID x 1/8" OD
RH-3065-025	20000 µL Loop	2 mm (0,080")ID x 1/8" OD

Stainless Steel Sampling Loops for 7725 and 7725i (Not to be used in 7125 valves)

Cat.No.	Volume	Tubing
RH-7755-020	5 µL Loop	0,18 mm (0,007")ID x 1/16" OD
RH-7755-021	10 µL Loop	0,30 mm (0,012")ID x 1/16" OD
RH-7755-022	20 µL Loop	0,30 mm (0,012")ID x 1/16" OD
RH-7755-023	50 µL Loop	0,51 mm (0,020")ID x 1/16" OD
RH-7755-024	100 µL Loop	0,51 mm (0,020")ID x 1/16" OD
RH-7755-025	200 µL Loop	0,76 mm (0,030")ID x 1/16" OD
RH-7755-026	500 µL Loop	0,76 mm (0,030")ID x 1/16" OD
RH-7755-027	1000 µL Loop	0,76 mm (0,030")ID x 1/16" OD
RH-7755-028	2000 µL Loop	1 mm (0,040")ID x 1/16" OD
RH-7755-029	5000 µL Loop	1 mm (0,040")ID x 1/16" OD
RH-1876	10000 µL Loop	2 mm (0,080")ID x 1/8" OD
RH-1877	20000 µL Loop	2 mm (0,080")ID x 1/8" OD

Stainless Steel Sampling Loops for 8125 and 7010 Valves (Please use RH-7755-029 for vol. >50 µl)

Cat.No.	Volume	Tubing
RH-8020	5 µL Loop	0,2 mm (0,008")ID x 1/16" OD
RH-8021	10 µL Loop	0,2 mm (0,008")ID x 1/16" OD
RH-8022	20 µL Loop	0,25 mm (0,010")ID x 0,020" OD
RH-8023	50 µL Loop	0,3 mm (0,012")ID x 1/16" OD



Sample Injection Rheodyne™ Valves

PEEK Sampling Loops for 3725 and 3725i Valves



Cat.No.	Volume	Tubing
RH-3055-018	2000 µL Loop	1,6 mm(0,062")ID x 1/8" OD
RH-3055-019	5000 µL Loop	1,6 mm(0,062")ID x 1/8" OD
RH-3055-023	10000 µL Loop	2 mm(0,080")ID x 1/8" OD
RH-3055-025	20000 µL Loop	2 mm(0,080")ID x 1/8" OD

PEEK Sampling Loops for 9725 and 9010

Cat.No.	Volume	Tubing
RH-7755-015	2 µL Loop	Internal Loop
RH-9055-020	5 µL Loop	0,18 mm(0,007")ID x 1/16" OD
RH-9055-021	10 µL Loop	0,25 mm(0,010")ID x 1/16" OD
RH-9055-022	20 µL Loop	0,25 mm(0,010")ID x 1/16" OD
RH-9055-023	50 µL Loop	0,51 mm(0,020")ID x 1/16" OD
RH-9055-024	100 µL Loop	0,51 mm(0,020")ID x 1/16" OD
RH-9055-025	200 µL Loop	0,51 mm(0,020")ID x 1/16" OD
RH-9055-026	500 µL Loop	0,76 mm(0,030")ID x 1/16" OD
RH-9055-027	1000 µL Loop	0,76 mm(0,030")ID x 1/16" OD
RH-9055-028	2000 µL Loop	0,76 mm(0,030")ID x 1/16" OD
RH-9055-029	5000 µL Loop	0,76 mm(0,030")ID x 1/16" OD
RH-9055-033	10000 µL Loop	0,76 mm(0,030")ID x 1/16" OD

PEEK Sampling Loops for 7725 and 7725i

Cat.No.	Volume	Tubing
RH-7755-015	2 µL Loop	Internal Loop

RHEFLEX Fittings

Cat.No.	Description
RH-6000-083	Nut and Ferrule for 1/8" Loop, 5u.
RH-6000-210	Ferrules for 1/8" loops, 10u.
RH-6000-211	Nuts and ferrules for 1/16" Loops, 10u.
UP-P-331	Super Flangeless Nut for RH-1876 and RH-1877 1/8" Loops, 1u.
UP-P-350X	Super Flangeless Ferrule for RH-1876 and RH-1877 Loops, 10u.
UP-P-654	PEEK adapter for RH-1876 and RH-1877 1/8" Loops, 1u.

RHEFLEX Fittings for PEEK Loops

Cat.No.	Description
RH-6000-251	PEEK Ferrules for 1/16" Loops, 10u
RH-6000-254	PEEK Nuts and ferrules for 1/16" Loops, 10u
RH-6000-078	PEEK Nuts and Ferrules for 1/8" Loops, 1u
RH-6000-079	PEEK Ferrules for 1/8" Loops, 5u

Rheodyne Accessories

Accessories for the Injection Port

Cat.No.	Description
RH-7012	Stainless Steel Loop Filler Point
RH-9012	PEEK Loop Filler Point
RH-9013	PEEK Needle Port
RH-7125-054	Needle Port Cleaner
RH-9125-076	Suction Needle Adapter (for Model 9725)

Mounting Brackets

Rheodyne mounting brackets and panels of different shapes and sizes organize and provide a sturdy support for Rheodyne valves. The Ring Stand Mounting Bracket now allows the valves to mount onto common laboratory equipment.

Cat.No.	Description
RH-7160	Mounting Panel
RH-7160-010	Valve Angle Bracket
RH-7160-029	Ring Stand Mounting Bracket



Other Accessories

Cat.No.	Description
RH-7161-020	Position Sensor Switch for 7125
RH-7161-016	Pos. Sensor Switch for 7010, 7410, 7000, 7030, and 7040
RH-7165	Pos. Sensor Switch for 7250
RH-6810	Rheodyne Wrench





CHROMATOGRAPHY PRODUCTS



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Notes

Professionally Friendly

The *Fresh Breeze* of Chromatography