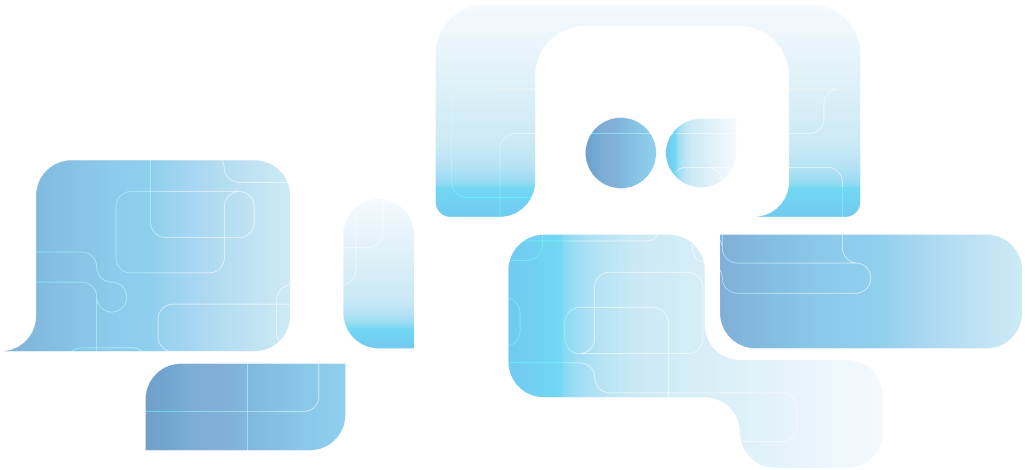
AFFINITY CHROMATOGRAPHY PRODUCT COLLECTION



The GVS Group

In over 45 years of history, GVS has evolved from a supplier of components for the healthcare sector to a global group that produces highly technological diversified filtration solutions.

Wide range of products and custom design expertise

GVS produces a wide range of filter materials, filters and off-the-shelf components in all its divisions, enabling its customers to reduce the design time for new product launches.
All the GVS divisions work in highly regulated environments and the Group therefore operates with extremely high-quality standards. Thanks to its research and development centres located all over the world, GVS is also able to offer an extremely efficient and personalized service to meet its customers'needs: from product conception and design to testing and mass production.

Dynamic and flexible structure

GVS has developed a streamlined, dynamic and technologically advanced structure that has made it possible to achieve constant and balanced growth. The Group currently employs a total of 4869 people who work in automated assembly departments, in lines for the production and processing of filter membranes and in class 10,000 and 100,000 cleanrooms.

Global growth

The GVS Group has always paid great attention to research, development and innovation of its products and processes and has shown a strong trend towards development in global markets since its foundation.
In addition to the corporate headquarters in Bologna, GVS currently has 19 plants in Italy, United Kingdom, Brazil, United States, China, Mexico, Romania e Puerto Rico, and 29 commercial offices located all over the world. GVS has always adopted a "glocal" approach: it operates locally in contact with its customers, but relies on the strength of a global network.

For more information, visit www.gvs.com

Chromatography

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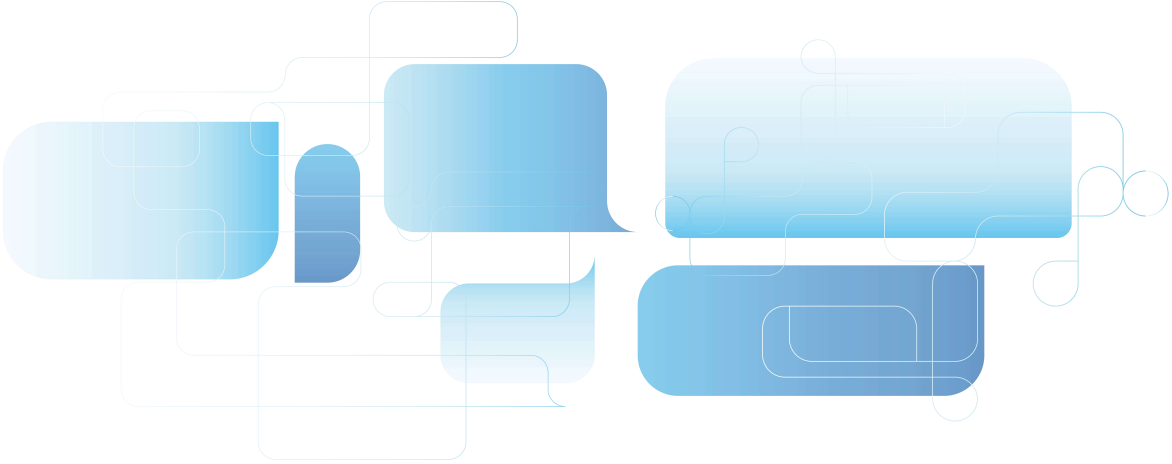


HPLC Column

Affinity HPLC Column Selection and Handling Precautions

The choice of column tubes

The materials of HPLC column tubes include SS316 (stainless steel), PTFE, and PMMA etc., determined by characteristics of mobile phase, pressure degree of column and sample. SS316 is used when mobile phase is organic solvents with pressure between 5 to 30 Mpa. When the mobile phase is 100% water or buffer solution with pressure less than 4 Mpa, PMMA or PTFE is chosen for less impact on activity of biological sample.

Inner diameter

A.1-2mm ID column, is specific used for micro LC(MLC), such as LC -Mass spectrometry. But for routine analysis, it's not easy to use. Although the solvent consumption is small, the requirement is too rigid. It need the instrument only have a very small dead volume. Besides, this kind of columns is short-life.

B.4-6mm (3.9, 4.0, 4.6, 5.0, 6.0mm) ID columns are analytical scale and suitable for routine analysis. 4.6mm ID columns are the most usual type. Best flow rate is 1ml/min which general instruments can match with. They have high column efficiency, stable performance, and longer life time.

C. 7.8-10.0mm ID columns are semi-preparative column Chromatographic conditions can be transplanted from analytical column. They can be equipped on normal LC instruments to collect small amount of high purity components to quality and research.

D. 20-100mm ID columns are preparative column, which can prepare a large number of pure components with commercial value. At present, although the price is higher, it is must equipped for the pharmaceutical industry.

The length of the column tube

Length of HPLC columns is between 50 and 500mm. For general analysis 150-250mm is most commonly used. Columns longer than 250mm though have high column efficiency, have much higher pressure. So it is not economic just for better efficiency to increase the column length.

The choice of packing

Particle size

particle size of commonly used packing is 3 - 10um. Small particle size can achieve high column efficiency, but column pressure is also high. Column pressure is an important factor that cannot be ignored. High column pressure may lead to packing collapse and reduce columns' life time. Especially when mobile phase is methanol with larger water content, hydrogen reaction formed between water and methanol makes the viscosity to increase. If high column efficiency is pursued, water-acetonitrile system is recommended.

For preparative column, main pursuit is preparation volume, and separation is secondary. Generally packing with larger size than 10 um is chosen with low cost and low column pressure.

For UHPLC which has higher column efficiency, better separation and shorter separation time, particle size is so small that the pressure is much higher than HPLC. We offer two specifications: 1.8μm and 2.2μm. UHPLC columns can withstand pressures up to 10000psi, and have good reproducibility.

The specifications of packings

Molecular weight smaller than 2000

Aqueous samples	Non-ionic	Reverse phase chromatography	C30,C18,C18-WP, C8
	Ionic	Reverse phase chromatography	C30,C18,C18-WP, C8
		Ion exchange chromatography	SAX,SCX, Transgenomic ICSep AN, ICSep CN
	Amino acids	Reverse phase chromatography	C18
		Aqueous samples	Transgenomic AMINOSep amino acid column
	Organic acids	Ion exclusion chromatography	Transgenomic ICSep organic acid column;Shodex SUGAR SH1821, KC-811
	Monosaccharides, disaccharides, oligosaccharides,	Reverse phase chromatography	NH2
		Ion exclusion chromatography	Shodex SUGAR SH1821
		Inverting chromatography	Transgenomic CARBOSep resin type sugar column
	Peptide	Reverse phase chromatography	C18
Oil-soluble	Non-polar	Reversed-phase chromatography	C18
		Normal phase chromatography	NH2, CN, SIL
	Polar	Normal phase chromatography	NH2, CN, SIL
Chiral sample		Chiral chromatography	Regis Whelk-O, RegisPack, RegisCell

Molecular weight smaller than 2000

Aqueous samples	Non-ionic	Reversed-phase chromatography	C18-BIO
	Proteins, polypeptides	Gel filtration chromatography (GFC)	Shodex KW-800, SB-800 HQ; Gel X series
		Ion-exchange chromatography	SAX, SCX; Sep series
		Reversed-phase chromatography	C18-BIO
		Affinity chromatography	Shodex AFpak,
	Nucleic acid	Ion-exchange chromatography	SAX, SCX; Sep series
	Polysaccharide	Gel filtration chromatography (GFC)	Shodex KW-800, SB-800 HQ; Gel X series
		Ion-exchange chromatography	SAX, SCX; Sep series
Oil-soluble Samples		Gel filtration chromatography (GFC)	Shodex SB-800 HQ; Gel-S Series
		Reversed-phase chromatography	C18-BIO

Precautions for use of columns

Column Equilibration

When preparing to introduce your desired mobile phase into a new column, be aware of the miscibility of the solvents being introduced to the column and the solvent inside the column. If they are not, it is necessary to pump one or more miscible intermediate solvents through the column to avoid high pressure. Equilibrate the column with a minimum of 10 column volumes of mobile phase to be used.

Reversed-phase columns equilibration method
Reversed-phase columns equilibrate in as little as 20 column volumes of mobile phase. If the new eluent being introduced contains buffer sales, it is recommended that the column is flushed with a highly aqueous eluent (such as 90:10 Water: MeCN) before introducing buffer, to avoid precipitation of salts on the column. For extra precaution, introduce new buffered eluents WITHOUT the buffer component for 5-10 column volumes, and then switch to the fully buffered eluent composition. Precipitation of buffer salts on the columns is essentially irreversible and destroys the column. When switching between solvents with vastly different polarities, it may be necessary to first purge the column with a mutually miscible solvent such as Isopropyl Alcohol or Dioxane at a reduced flow rate (approximately 50% of normal). Flushing with a minimum of 5 column volumes is recommended (e.g. 10mL for a 150 x 4.6mm I.D. column).

Normal phase column equilibration method
Normal-phase columns require longer equilibration times (at least 50 column volumes). To ensure good reproducibility and faster equilibration of normal-phase columns, a small, constant percentage of water can be added to the mobile phase.

Column maintenance

Eluent pH: At pH above 8, silica gels begin to dissolve; at acidic pH below 2.0 certain bonded phases (particularly CN) become hydrolyzed and gradual loss of bonded phase can occur. While many customers use the columns outside both sides of the pH spectrum with excellent results and good column lifetime, the best lifetimes are usually obtained at intermediate pH conditions.

Pressure: To maximize column life operate at pressures up to 20 MPa (~ 3000 psi) for standard HPLC phases (UHPLC columns can be used at higher pressures, as indicated on the test chromatogram).

Sample Dissolution: Samples should be dissolved in the eluent or solvent weaker than the eluent, which helps avoid sample precipitation at the column head and inconsistent retention values. Filter sample with 0.45µ membrane to remove particulate matter before injection.

Solvents: Use HPLC or spectroscopy grade solvents that have been filtered through a 0.45µ filter. Filter all buffer solutions before use. Avoid introduction of particulates onto the column at all costs.

Guard Columns: Use a guard column of matching chemistry and particle size between the injector and main column. Guard columns need to be replaced at regular intervals as determined by sample contamination. When system backpressure limit, it is usually an indication that the guard column should be replaced. A sudden appearance of split peaks is also indicative of a need to replace the guard column.

Clean of Columns

Clean of reverse phase silica bonded phase columns
20 column volumes should be used for each wash stage:

95:5 water: ACN(Removal of buffer) → 100% ACN → 50:50 water: ACN

Clean of normal phase silica bonded phase column
20 column volumes should be used for each wash stage:

THF → Chloroform → Methylene Chloride → Hexane

Common Troubleshooting

Problem	Possible cause	Solution
No peaks or very small peaks	Detector off	Check detector
	Broken connections to recorder	Check connections
	No sample/Wrong sample	Check sample. Be sure it is not deteriorated. Check for bubbles in the vials
	Wrong settings on recorder or detector	Check attenuation. Check gain
No Flow	Pump off	Start Pump
	Flow interrupted	"Check reservoirs. Check position of the inlet tubing. Check loop for obstruction or air. Check degasing of mobile phase. Check compatibility of the mobile phase components."
	Leak	Check fittings. Check pump for leaks and precipitates. Check pump seals.
	Air trapped in the system	Disconnect column and prime pump. Flush system with 100% methanol or isopropanol. Contact servicing if necessary.
Column end leaks	Loose fitting	Tighten or replace fitting
	White powder at loose fitting	Cut tubing and replace ferrule; disassemble fitting, rinse and reassemble.
Leak at detector	Detector-seal failure	Replace detector seal or gaskets.
Leak at injection valve	Worn or scratched valve rotor	Replace valve rotor
Leak at pump	Pump seal failure	Replace pump seal; check piston for scratches and, if necessary, replace
Changing Retention Times	Buffer retention times	Use buffer with concentration greater than 20 mM.
	Contamination buildup	Flush column occasionally with strong solvent
	Equilibration time insufficient for gradient	Pass at least 10 column volumes through the column for
	run or changes in isocratic mobile phase	gradient regeneration or after solvent changes
	First few injections - active sites	Condition column by injecting concentrated sample
	Inconsistent on-line mobile-phase mixing	Ensure gradient system is delivering a constant composition; compare with manually prepared mobile phase; partially premix mobile phase
	Selective evaporation of mobile-phase component	Cover solvent reservoirs; use less-vigorous helium purging; prepare fresh mobile phase
	Varying column temperature	Thermostat or insulate column; ensure laboratory temperature is constant.
	Active sites on column packing	Use mobil-phase modifier, competing base (basic compounds), or increase buffer strength; use higher coverage column packing.
	Column overloaded with sample	Decrease sample amount or use larger-diameter column.
	Increasing flow rate	Check and reset pump flow rate.
	Loss of bonded stationary phase or base silica	Use mobile-phase pH between pH 2 and pH 8
	Varying column temperature	Thermostat or insulate column; ensure laboratory temperature is constant
Increasing Retention Times	Decreasing flow rate	Check and reset pump flow rate; check for pump cavitation; check for leaking pump seals and other leaks in system
	Changing mobile-phase composition	Cover solvent reservoirs; ensure that gradient system is delivering correct composition.
	Loss of bonded stationary phase	Use mobile-phase pH between pH 2 and pH 8
Slow column equilibration time	Reversed phase ion pairing - long chain ion pairing reagents require longer equilibration time	Use ion-pairing reagent with shorter alkyl chain length
Void Time noise	Air bubbles in mobile phase	Degas or use back pressure restricor on detector
	Positive-negative - difference in refractive index of injection solvent and mobile phase	Normal with many samples; use mobile phase as sample solvent
Drifting baseline	Negative direction (gradient elution) - absorbance of mobile-phase A	Use non-UV absorbing mobile phase solvents; use HPLC grade mobile phase solvents; add UV absorbing compound to mobile phase B.
	Positive direction (gradient elution) - absorbance of mobile phase B	Use higher UV absorbance detector wavelength; use non-UV absorbing mobile phase solvents; use HPLC grade mobile phase solvents; add UV absorbing compound to modile phase A.
	Positive direction - contamination buildup and elution	Flush column with strong solvent; clean up sample; use HPLC grade solvents
	Wavy or undulating - temperature changes in room	Monitor and control changes in room temperature; insulate column or use column oven; cover refractive index detector and keep it out of air currents.
Baseline noise	Continous - detector lamp problem or dirty cell	Replace UV lamp(each should last 2000 h; clean and flush flow cell.
	Gradient or isocratic proportioning- lack of solvent mixing	Use proper mixing device; check proportioning precision by spiking one solvent with UV absorbing compound and mointor UV absorbance detector outputl.
	Gradient or isocratic proportioning - malfunctioning proportioning valvesl	Clean or replace proportioning precision valves; partially remix solventsl.
	Occasional sharp spikes - external electrical interference	Use voltage stabilizer for LC system; use independent electrical circuit.
	Periodic - pump pulses	Service or replace pulse damper; purge air from pump; clean or replace check valves.
	Random - contamination buildup	Flush column with strong solvent; clean up sample; use HPLC grade solvent
	Spikes - bubble in detector	Degas mobile phase; use back pressure restrictor at detector outlet.
	Spikes - column temperature higher than boiling point of solvent	Use lower column temperature.

Common Troubleshooting

Problem	Possible cause	Solution
Decreasing Pressure	Insufficient flow from pump	Loosen cap on mobile phase reservior
	Leak in hydralic lines from pump to column	Tighten or replace fittings; tighten rotor in injection valve
	Leaking pump check valve or seals	Replace or clean check valves; replace pump seals.
	Pump cavitation	Degas solvent; check for obstruction in line from solvent reservoir to pump; replace inlet-line frit
Fluctuating pressurre	Bubble in pump	Degas solvent; purge solvent with helium
	Leaking pump check valve or seals	Replace or clean check valves; replace pump seals
High Back Pressure	Column blocked wth irreversibly adorbed sample	Improve sample cleanup; use guard column; reverse-flush column with strong solvent to dissolve blockage
	"Column particle size too small (for example 3 micrometers)"	Use larger particle size (for example 5 micrometer)
	Microbial growth on column	"Use at least 10% organic modifier in mobile phase; use fresh buffer daily; add 0.02% sodium azide to aqueous mobile phase; store column in at least 25% organic solvent without buffer"
	Mobile phase viscosity too high	Use lower viscosity solvents or higher temperature
	Plugged frit in in-line filter or guard column	Replace frit or guard column
	Plugged inlet frit	Replace endfitting or frit assembly
	Polymetric columns - solvent change causes swelling of packing	Use correct solvent with column; change to proper solvent compositionl consult manufacturer's solvent-compatibility chartl use a column with a higher percentage of cross-linking
	Salt precipitation (especially in reversed-phase chromatography with high concentration of organic solvent in mobile phase) concentration of organic solvent in mobile phase)	Ensure mobile phase compatibility with buffer concentration; decrease ionic strength and water-organic solvent ratio; premix mobile phase
	When injector disconnected from column - blockage in injector	Clean injector or replace rotor
Increasing Pressure	Blocked flow lines	Systematically disconnect components from detector end to column end to find blockage; replace or clean blocked component
	Particulate buildup at head of column	"Filter sample; use .5 micrometer in-line filter; disconnect and backflush column; replace inlet frit"
	Water-organic solvent systems - buffer precipitation	"Ensure mobile phase compatibility with buffer concentration; decrease ionic strength or water organic solvent ratio"
Broad peaks	Analytes eluted early due to sample overload	Dilute sample 1:10 and reinject
	Detector-cell volume too large	Use smallest possible cell volume consistent with sensitivity needs; use detector with no heat exchanger in system
	Injection volume too large	Decrease solvent strength of injection solvent to focus solute; inject smaller volume
	Large extra column volume	Use low- or zero-dead-volume endfittings and connectors; use smallest possible diameter of connecting tubing (<0.10 in. i.d.); connect tubing with matched fittings
	Mobile-phase solvent viscosity too high	Increase column temperature; change to lower viscosity solvent
	Peak dispersion in injector valve	Decrease injector sample loop size; introduce air bubble in front and back of sample in loop
	Poor column efficiency	Use smaller-particle-diameter packing, lower-viscosity mobile phase, higher column temperature, or lower flow rate
	Retention time too long	Use gradient elution or stronger isocratic mobile phase
	Sampling rate of data system too low	Increase sampling frequency.
	Slow detector time constant	Adjust time constant to match peak width
	Some peaks broad - late elution of analytes retained from previous injection	Flush column with strong solvent at end of run; end gradient at higher solvent concentration
Ghost peaks	Contamination	Flush column to remove contaminatint; use HPLC-grade solven
	Elution of analytes retained from previous injection	Flush column with strong solvent at end of run; end gradient at higher solvent concentration
	Ion-pair chromatography - upset equilibrium	Prepare sample in mobile phase; reduce injection volume
	Oxidation of trifluoroacetic acid in peptide mapping	Prepare trifluoroacetic acid solutions fresh daily; use antioxidant
	Reversed-phase chromatography - contaminated water	Check suitability of water by running different amounts through column and measure peak height of interferences as function of enrichment time; clean water by running it through old reversed-phase column; use HPLC-grade water.
	Unknown interferences in sample	Use sample cleanup or prefractionation before injection.
Negative peaks	Refractive index detection - refractive index of solute less than that of mobile phase	Reverse polarity to make peak positive
	UV-absorbance detection - absorbance of solute less than that of mobile phase	Use mobile phase with lower UV absorbance; if recycling solvent, stop recycling when recycled solvent affects detection

Problem	Possible cause	Solution
Peak Doubling	Blocked Frit	Replace or clean frit; install 0.5-um porosity in-line filter between pump and injector to eliminate mobile-phase contaminants or between injector and column to eliminate sample contaminants
	Coelution of interfering compound	Use sample cleanup or prefractionation; adjust selectivity by changing mobile or stationary phase
	"Coelution of interfering compound from previous injection"	Flush column with strong solvent at end of ran; end gradient at higher solvent concentration
	Column overloaded	Use higher-capacity stationary phase; increase column diameter; decrease sample amount
	Column void or channeling	Replace column, or, if possible, open top endfitting and clean and fill void with glass beads or same column packing; repack column
	Injection solvent too strong	Use weaker injection solvent or stronger mobile phase
	Sample volume too large	Use injection volume equal to one-sixth of column volume when sample prepared in mobile phase for injection
	Unswept injector flow path	Replace injector rotor
Peak Fronting	Channeling in column	Replace or repack column
	Column overloaded	Use higher-capacity stationary phase; increase column diameter; decrease sample amount
Tailing Peaks	Basic solutes - silanol interactions	Use competing base such as triethylamine; use a stronger mobile phase; use base-deactivated silica-based reversed-phase column; use polymeric column
	Beginning of peak doubling	See peak doubling
	Chelating solutes - trace metals in base silica	Use high purity silica-based column with low trace-metal content; add EDTA or chelating compound to mobile phase; use polymeric column
	Silica-based column - degradation at high pH	Use polymeric, sterically protected, or high-coverage reversed-phase column; install silica gel saturator column between pump and injector
	Silica-based column - degradation at high temperature	Reduce temperature to less than 50°C
	Silica-based column - silanol interactions	Decrease mobile-phase pH to suppress silanol ionization; increase buffer concentration; derivatize solute to change polar interactions
	Unswept dead volume	Minimize number of connections; ensure injector rotor seal is tight; ensure all compression fittings are correctly seated
	Void formation at head of column	Replace column, or, if possible, open top end fitting and clean and fill in void with glass beads or same column packing; rotate injection valve quickly; use injection valve with pressure bypass; avoid pressure shock
Spikes	Bubbles in mobile phase	Degas mobile phase; use back-pressure restrictor at detector outlet; ensure that all fittings are tight
	Column stored without caps	Store column tightly capped; flush reversed-phase columns with degassed methanol

Correspond with other brand columns

Column	Supelco	Kromasil	Agilent	GL
C18-WP	Discovery RP-Amide C16		ZORBAX Rx C18	Inertsil ODS-EP
C18	SUPELCOSIL LC-18 Discovery C18	Kromasil C-18	ZORBAX Eclipse XDB-C18	Inertsil ODS-2
C18-BIO	Discovery BIO Wide Pore C18	Kromasil 300A C-18	ZORBAX 300SB-C18	Inertsil WP300 c18
C8	DISCOVERY C8	Kromasil C-8	ZORBAX Eclipse XDB-C8	Inertsil C8
C4		Kromasil C4		Inertsil C4
Phenyl	SUPELCOSIL LC-DP	Kromasil Phenyl	ZORBAX Eclipse XDBPhenyl	
Silica	SUPELCOSIL LC-Si	Kromasil SIL	ZORBAX Silica	Inertsil Sil
NH2	SUPELCOSIL LC-NH2	Kromasil NH2	ZORBAX NH2	Inertsil NH2
CN	SUPELCOSIL LC-CN	Kromasil CN	ZORBAX Eclipse XDB-CN	Inertsil CN-3

Column	Merck	Waters	Thermo
C18-WP		SymmetryShield C18	
C18	Puropsher STAR RP-18 endcapped	Symmetry C18	Hypersil ODS C18
C18-BIO	Lichrospher wp 300 RP-18e	Symmetry 300	Hypersil 300A C18
C8	Purospher STAR RP-8 endcapped	Symmetry C8	Hypersil C8
C4		Spherisorb® C4	Hypersil GOLD C4
Phenyl		Spherisorb® Phenyl	Hypersil Phenyl-2
Silica	Lichrospher si 100	Spherisorb® W(Silica)	Hypersil Silica
NH2	Purospher STAR NH2	Spherisorb® NH2	Hypersil NH2
CN	Lichrospher CN	Spherisorb® CN	Hypersil CN (CPS-2)

The USP liquid phase column summary

USP is United States Pharmacopoeia, provides a number of indicators for HPLC column packing:

USP	Packing Description	Recommence HPLC columns
L1	Octadecyl silane chemically bonded to porous silica or ceramic µparticles, 1.5 to 10µm in diameter, or a monolithic rod	C18, C18-WP. C18-BIO
L2	Octadecyl silane chemically bonded to silica gel of a controlled surface porosity that has been bonded to a solid spherical core, 30 to 50µ in diameter	C18 Packing
L3	Porous silica microparticles, 5 to 10µ in diameter	Silica
L4	Silica gel of controlled surface porosity bonded to a solid spherical core, 30 to 50µ in diameter	Silicycle packing
L7	Octyl silane chemically bonded to totally porous microsilica particles, 3 to 10µ in diameter	C8
L8	An essentially monomolecular layer of aminopropyl-silane chemically bonded to totally porous silica gel support, 10µ in diameter	NH2
L9	Irregular or spherical, totally porous silica gel having a chemically bonded, strongly acidic ation-exchange coating, 3 to 10 µm in diameter	SCX
L10	Nitrile groups chemically bonded to porous silica microparticles, 3 to 10µ in diameter	CN, Shodex Silica 5CN
L11	Phenyl groups chemically bonded to porous silica microparticles, 3 to 10µ in diameter	Phenyl, Shodex Silica 5NPE
L12	Strong anion-exchange packing made by chemically bonding a quaternary amine to a solid silica spherical core, 30 to 50 µm in diameter"	
L13	Trimethylsilane chemically bonded to porous silica microparticles, 3 to 10µ in diameter	Shodex Silica 5TMS
L14	Silica gel having a chemically bonded, strongly basic quaternary ammonium anion-exchange coating, 5 to 10 µm in diameter.	SAX
L15	Hexyl silane chemically bonded to totally porous silica particles, 3 to 10µ in diameter	Spherisorb S5 C6
L16	Dimethyl silane chemically bonded to totally porous silica particles, 5 to 10 µm in diameter	
L17	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the hydrogen form, 7 to 11µ in diameter	Sep H-L, H-M, H-H
L18	Dimethyl silane chemically bonded to totally porous silica particles, 5 to 10 µm in diameter	
L19	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the calcium form, 9µ in diameter.	Sep Ca-L, Ca-M, Ca-H
L20	Dihydroxypropane groups chemically bonded to porous silica particles, 3 to 10µ in diameter.	Shodex PROTEIN KW-800
L21	A rigid, spherical styrene-divinylbenzene copolymer, 5 to 10µ in diameter.	Transgenomic PRX-1, Shodex GPC KF-800,K-800, KD-800
L22	A cation exchange resin made of porous polystyrene gel with sulfonic acid groups, about 10µ in size	Shodex ICY-521, SUGAR KS-800 series
L23	An ion exchange resin made of porous polymethacrylate or polyacrylate gel with quaternary ammonium groups, about 10µ in size	Shodex IEC QA-825
L24	A semi-rigid hydrophilic gel consisting of vinyl polymers with numerous hydroxyl groups on the matrix surface, 32 to 63 µm in diameter	
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 poly-hydroxylated ether (surface contained some residual carboxyl functional groups) was found suitable.	Shodex OHpak SB-802 HQ Shodex OHpak SB-802.5 HQ, SB402.5
L26	Butyl silane chemically bonded to totally porous silica particles, 5 to 10µ in diameter	C4
L27	Porous silica particles, 30 to 50µ in diameter	Silicycle packing
L28	A multifunctional support, which consists of a high purity, 100 , spherical silica substrate that has been bonded with anionic (amine) functionality in addition to a conventional reversed phase C8 functionality"	
L29	Gamma alumina, reversed phase, low carbon percentage by weight, alumina-based polybutadiene spherical particles, 5 µm diameter with a pore diameter of 80"	
L30	Ethyl silane chemically bonded to a totally porous silica particle, 3 to 10 µm in diameter	
L31	A strong anion-exchange resin-quaternary amine bonded on latex particles attached to a core of 8.5 µm macroporous particles having a pore size of 2000 Å and consisting of ethylvinylbenzene cross-linked with 55 % divinyl benzene	
L32	A chiral ligand-exchange packing- L-proline copper complex covalently bonded to irregularly shaped silica particles, 5 to 10 µm in diameter	
L33	Packing having the capacity to separate proteins of 4,000 to 400,000 daltons. It is spherical, silica-based and processed to provide pH stability	Shodex PROTEIN KW-800 series Shodex KW400 series
L34	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the lead form, about 9µ in diameter	Sep Pb-L, Pb-M, Pb-H
L35	A zirconium-stabilized spherical silica packing with a hydrophilic (diol-type) molecular monolayer bonded phase having a pore size of 150Å.	Agilent Zorbax GF-250
L36	3,5-dinitrobenzoyl derivative of L-phenylglycine covalently bonded to 5 µm aminopropyl silica	
L37	Packing having the capacity to separate proteins by molecular size over a range of 2,000 to 40,000 Da. It is a polymethacrylate gel	Shodex OHpak SB-803 HQ, SB403
L38	Methacrylate-based size-exclusion packing for water-soluble samples	Shodex OHpak SB-802HQ
L39	Hydrophilic polyhydroxymethacrylate gel of totally porous spherical resin	Shodex Ohpak SB-800HQ, Shodex Rspak DM-614
L40	Cellulose tri-3,5-dimethylphenylcarbamate coated porous silica particles, 5µ to 20µ in diameter	Regis Cell®
L41	Immobilized α1-acid glycoprotein on spherical silica particles	
L42	Octylsilane and octadecylsilane groups chemically bonded to porous silica particles,5 µm in diameter	
L43	Pentafluorophenyl groups chemically bonded to silica particles, 5 to 10 µm in diameter(5-10µm)	Supelco Discovery HSF5
L44	A multifunctional support, which consists of a high purity, 60 , spherical silica substrate that has been bonded with a cationic exchanger, sulfonic acid functionality in addition to a conventional reversed phase C8 functionality.	
L45	Beta cyclodextrin bonded to porous silica particles, 5 to 10 µm in diameter	Shodex ORpak CDBS-453

USP	Packing Description	Recommence HPLC columns
L46	Polystyrene/divinylbenzene substrate agglomerated with quaternary amine functionalized latex beads, 10 µm in diameter.	
L47	High capacity anion-exchange microporous substrate, fully functionalized with a trimethylamine group, 8 µm in diameter.	
L48	Sulfonated, cross-linked polystyrene with an outer layer of submicron, porous,anion-exchange microbeads, 15 µm in diameter.	
L49	A reversed-phase packing made by coating a thin layer of polybutadiene on to spherical porous zirconia particles, 3 to 10 µm in diameter.	Discovery Zr-PBD
L50	Multifunction resin with reversed-phase retention and strong anion-exchange functionalities. The resin consists of ethylvinylbenzene, 55 % cross-linked with divinylbenzene copolymer, 3 to 15 µm in diameter, and a surface area of not less than 350 m2/g, substrate is coated with quaternary ammonium functionalized latex particles consisting of styrene cross-linked with divinylbenzene.	
L51	Amylose tris-3,5-dimethylphenylcarbamate-coated, porous, spherical, silica particles,5 to 10 µm in diameter.	®
L52	A strong cation exchange resin made of porous silica with sulfopropyl groups, 5 to 10 µm in diameter.	SCX
L53	Weak cation-exchange resin consisting of ethylvinylbenzene, 55 % cross-linked with divinylbenzene copolymer, 3 to 15 µm diameter. Substrate is surface grafted with carboxylic acid and/or phosphoric acid functionalized monomers. Capacity not less than 500 µm in diameter.	
L54	"A size exclusion medium made of covalent bonding of dextran to highly cross-linked porous agarose beads, about 13 µm in diameter."	
L55	A strong cation exchange resin made of porous silica coated with polybutadiene-maleic acid copolymer, about 5 µm in diameter.	
L56	Isopropyl silane chemically bonded to totally porous silica particles, 3 to 10 µm in diameter	
L57	A chiral-recognition protein, ovomucoid, chemically bonded to silica particles, about 5 µm in diameter, with a pore size of 120 angstroms.	
L58	Strong cation-exchange resin consisting of sulphonated cross-linked styrene-divinylbenzene copolymer in the sodium form, about 7 to 11µm diameter	Sep Na-L, Na-M, Na-H, Transgenomic Coregel 87N
L59	Packing having the capacity to separate proteins by molecular weight over the range of 10 to 500kDa. It is spherical(10µm), silica-based,and processed to provide hydrophilic characteristics and pH stability	Shodex PROTEIN KW-800 series, Shodex KW400 series
L60	Spherical, porous silica gel, 3 to 10 µm in diameter, surface has been covalently modified with palmitamidopropyl groups and endcapped.	C18-WP
L61	Hydroxide-selective, strong anion-exchange resin consisting of a highly cross-linked core of 13 µm microporous particles, pore size less than 10 , and consisting of ethylvinylbenzene cross-linked with 55 % divinylbenzene with a latex coating composed of 85 nm diameter microbeads bonded with alkanol quarternary ammonium ions (6 %).	
L62	C30 silane bonded phase on a fully porous spherical silica, 3 to 15 µm in diameter.	C30
L63	Glycopeptide teicoplanin linked through multiple covalent bonds to a 100 A units spherical silica	
L64	Strongly basic anion exchange resin consisting of 8% crosslinked styrene divinylbenzene copolymer with a quartenary ammonium group in the chloride form, 45 to 180 µm in diameter	
L65	Strongly acidic cation exchange resin consisting of 8% sulfonated crosslinked styrene divinylbenzene copolymer with a sulfonic acid group in the hydrogen form,63 to 250 µm in diameter	
L66	A crown ether coated on a 5 µm particle size silica gel substrate.The active site is (S)-18-crown-6ether	
L67	Porous vinyl alcohol copolymer with a C18 alkyl group attached to the hydroxyl group of the polymer, 2 to 10 µm in diameter	Shodex Asahipak ODP-40 Shodex ET-RP1
L68	Spherical,porous silica,10µm or less in diameter, the surface of which has been covalently modified with alkyl amide groups and not endcapped	
L69	Ethylvinylbenzene/divinylbenzene substrate agglomerated with quaternary amine functionalized 130nm latex beads,about 6.5µm in diameter	
L70	Cellulose tris(phenyl carbamate)coated on 5µm silica	
L71	Arigid, spherical polymetacrylate, 4 to 6 µm in diameter	Shodex RSpak DE-613
L72	(S)-phenylglycine and 3,5-dinitroanaline urea linkage covalently bonded to silica	
L73	A rigid,spherical polydivinylbenzene particle,5 to 10 µm in diameter	
L74	A strong anion-exchange resin consisting of a highly cross-linked core of 7-µm macroporous particles having a 100 Angstroms average pore size and consisting of ethylvinylbenzene cross-linked with 55% divinylbenzene and an anion-exchange layer grafted to the surface,which is functionalized with alkyl quartenary ammonium ions.	
L75	A chiral-recognition protein,bovine serum albumin(BSA),chemically bonded to silica particles,about 7 µm in diameter,with a pore size of 300 Angstroms.	

Pressure unit conversion table

1atm = 1.01325bar

UNIT	Pa	KPa	MPa	bar	kgf/cm^2	mmH_2O	mmHg	p.s.i
Pa	1	10^{-3}	10^{-6}	10^{-5}	10.2×10^{-6}	101.97×10^{-3}	7.5×10^{-3}	0.15×10^{-3}
KPa	10^{3}	1	10^{-3}	10^{-2}	10.2×10^{-3}	101.97	7.5	0.15
MPa	10^{6}	10^{3}	1	10	10.2	101.97×10^{3}	7.5×10^{3}	0.15×10^{3}
bar	10^{5}	10^{2}	10^{-1}	1	1.02	10.2×10^{3}	750.06	14.5
kgf/cm2	98066.5	98.07	98.07×10^{-3}	0.98	1	10.000	735.56	14.22
mmH2O	9.806	9.807×10^{-3}	9.807×10^{-6}	98.07×10^{-6}	10^{-4}	1	73.56×10^{-3}	1.42×10^{-3}
mmHg	133.32	133.32×10^{-3}	133.32×10^{-6}	1.33×10^{-3}	1.36×10^{-3}	13.6	1	19.34×10^{-3}
p.s.i	6894.76	6.89	6.89×10^{-3}	68.95×10^{-3}	70.31×10^{-3}	703.07	51.71	1

Pressure unit conversion table

Solvent ①②	UV wavelength nm ③	Refractive index ④	Boiling point ℃	Viscosity (cp 25 ℃)	Polarity	Solubility ⑤	Dielectric constant 20 ℃
Isooctane (*)	210	1.389	99	0.47	0.1	0.01	1.94
N-heptane (*)	200	1.385	98	0.4	0.2	0.01	1.92
N-hexane (*)	190	1.372	69	0.3	0.1	0.01	1.88
N-pentane (**)	210	1.355	36	0.22	0	0.01	1.84
Cyclohexane	210	1.423	81	0.9	0.1	0.012	2.02
Cyclopentane (*)	210	1.404	49	0.42	0.2	0.004	1.97
Carbon tetrachloride	265	1.457	77	0.9	1.6	0.008	2.24
Toluene	285	1.494	110	0.55	2.4	0.046	2.4
Xylene	290	1.493	138	0.6	2.5	unknown	2.3
Chlorobenzene	unknown	1.521	132	0.75	2.7	unknown	5.6
Benzene	280	1.498	80	0.6	2.7	0.07	2.3
Dichloromethane (**)	245	1.421	40	0.41	3.1	1.6	8.9
N-butanol	210	1.397	118	2.98	3.9	7.81	17.5
N-propanol	210	1.385	97	2.27	4	Miscible	20.3
Tetrahydrofuran(*)	220	1.405	66	0.55	4	Miscible	7.4
Ethyl acetate (*)	256	1.37	77	0.43	4.4	8.7	6.4
Isopropanol	210	1.384	82	2.3	4.3	Miscible	18.3
Chloroform (*)	245	1.443	61	0.53	4.1	0.815	4.8
Acetone (*)	330	1.356	56	0.3	5.4	Miscible	21.4
Ethanol	210	1.359	78	1.08	4.3	Miscible	24.6
Acetic acid	230	1.37	118	1.26	6	Miscible	6.2
Acetonitrile	210	1.341	82	0.34	6.2	Miscible	37.5
Methanol (*)	210	1.326	65	0.54	6.6	Miscible	32.7
Glycol	unknown	1.431	197	19.9	6.9	Miscible	37.7
Water	268	1.338	100	1	10.2	Miscible	80

① (*) means a low viscosity (<0.5cp), boiling point appropriate in (> 45 ℃)

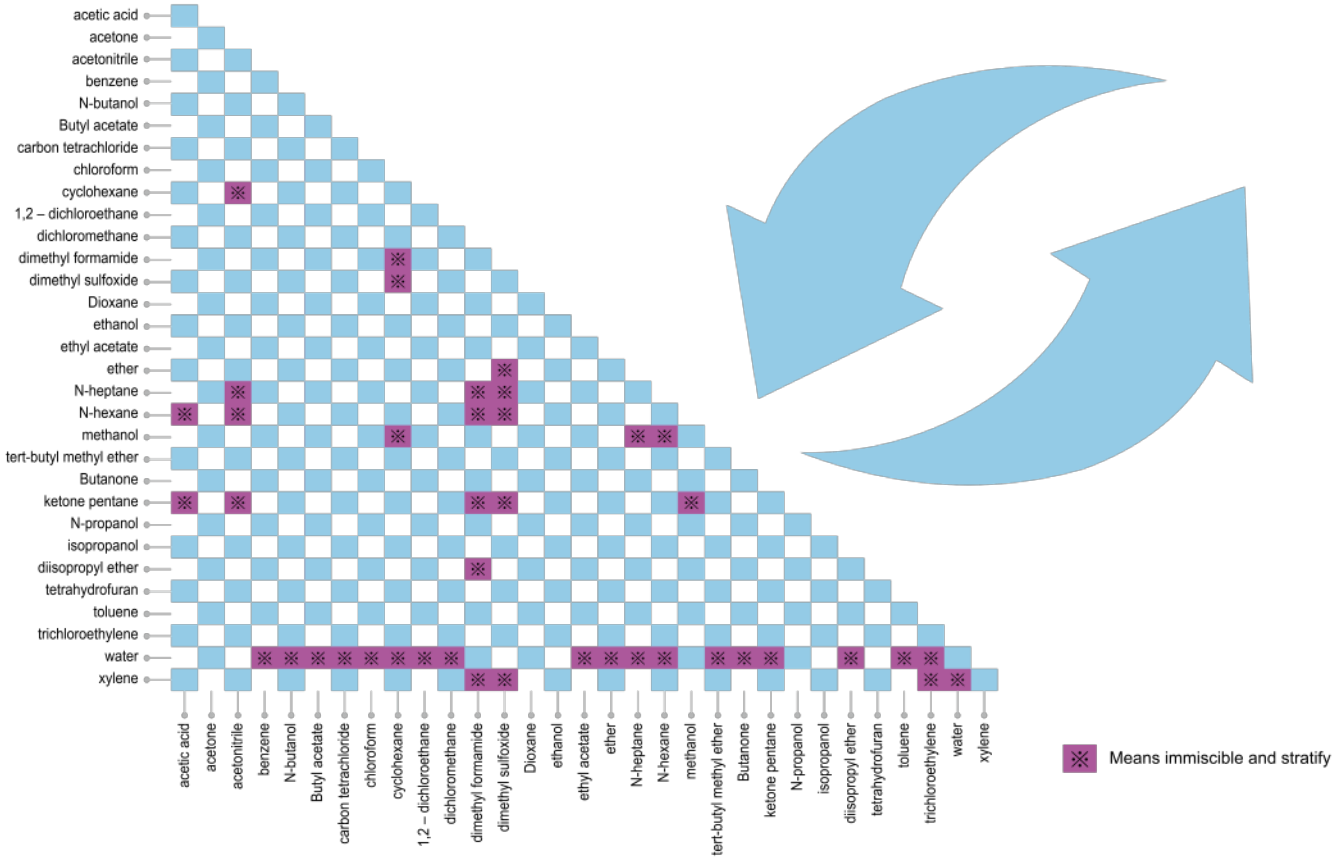
② (**) means small viscosity, low boiling point solvent.

③ Means approximate cutoff wavelength,when lower than this value, solvent is opaque.

④ Refractive index when 25 ℃ .

⑤ Percentage by weight of water at 20℃ when dissolved in a solvent, this value is useful in the liquid - solid chromatography.

Solvent miscibility



Application Index

Brief introduction

Currently, HPLC is widely used in the chemical, biological and pharmaceutical field.GVS three HPLC series include silica and polymer matrix columns, both analysis and preparative columns, to meet needs of customers in various fields.

Silica-based analytical column

HPLC columns

The Columns base on high-purity silica gel, using unique bonding technique, with excellent peak shape, better selectivity, sensitivity and reproducibility. With low content of matrix metal, the columns show perfect peak shape for all types of analytes. Different types of bonded phases provide more flexibilityfor method development. To ensure excellent column performance and long column life, we comply with strict production process in manufacturing and have a strict quality control for HPLC columns.

- Suitable for all types of samples
- Excellent column reproducibility
- A variety of bonded phases

The packings information:

Packings	C18-WP	C18	C18-BIO	C8	C4	Phenyl	CN	Diol
Particle diameter (μm)	3 and 5	5 and 10	5	3 and 5	5	5	3 and 5	3 and 5
Pore size(Å)	100	120	300	120	300	120	120	120
Pore volume (mL/g)	1.1	1.0	0.9	1.0	0.9	1.0	1.0	1.0
Endcapped	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Specific surface area(m2/g)	450	300	100	300	100	300	300	300
Metallic impurities (ppm)	<10	<10	<10	<10	<10	<10	<10	<10
Carbon content	17%	17%	8%	10%	3%	11%	7.5%	8.8%
pH range	1.5 - 10	2 - 8	1.5 - 11	2 - 8	2 - 8	2 - 8	2.5 - 8	2.5 - 8
Temperature range (°C)	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60

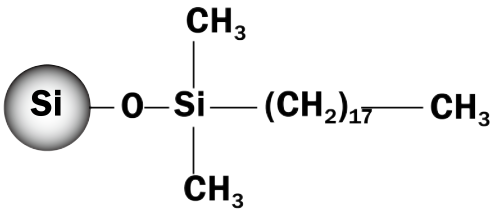
Packings	NH2	Silica	SAX	SCX	HILIC	HILIC(2)	HILIC(3)	30
Particle diameter (μm)	3 and 5	3 and 5	3 and 5	3 and 5	3 and 5	3 and 5	5	3 and 5
Pore size(Å)	120	120	120	120	120	120	120	120
Pore volume (mL/g)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Specific surface area(m2/g)	300	300	300	300	300	300	300	450
Metallic impurities (ppm)	<10	<10	<10	<10	<10	<10	<10	<10
Carbon content	4%	0%	16%	11%	8.6%	8%	16%	20%
pH range	2 - 8	2 - 8	2 - 8	2 - 8	1.5 - 8	1.5 - 8	1.5 - 8	2 - 8
Temperature range (°C)	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60

C18-WP

[Recommended for Method Development, fit for a variety of mobile phase conditions]

C18-WP use high purity of spherical silica matrix and have excellent stability. C18-WP can use 100% pure water as mobile phase for separation of acidic, neutral and basic organic compound, as well as many drugs and peptides etc. A variety of specifications, from analytical to preparative scale can be provided.

- bonded C18 groups
- pH stability range: 1.5-10
- Suitable for 100% water mobile phase
- Strong retain for polar substances
- Symmetrical peak shape for Alkaline substances
- High specific surface area, suitable for high load



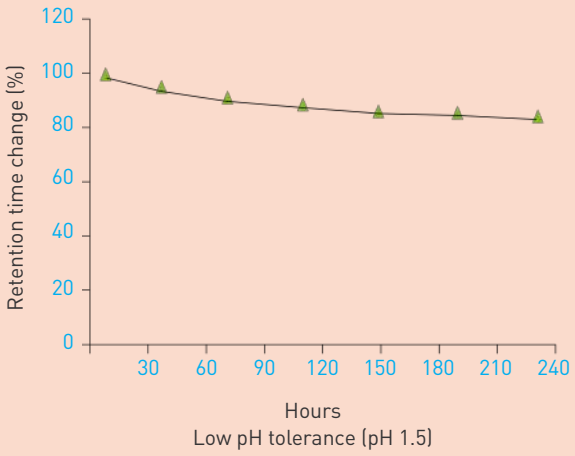
PH stability

Stability of low pH

In the low pH mobile phase, the main reason for short column life is drop of chemical bonded groupfrom silica gel by hydrolysis. Hydrolysis leads to changing retention timeof the analyte, short lifetime and poor reproducibility.
The following figure shows C18-WP stability under the conditions of pH 1.5 mobile phase.

Low pH tolerance (pH 1.5)

Column	C18-WP, 4.6 x 150 mm, 5μm
Mobile phase	Acetonitrile: 0.1% trifluoroacetic acid (pH 1.5) (50/50)
Flow rate	1.0 mL / min
Detection	UV 254 nm
Column temperature	30 ° C
Sample	toluene



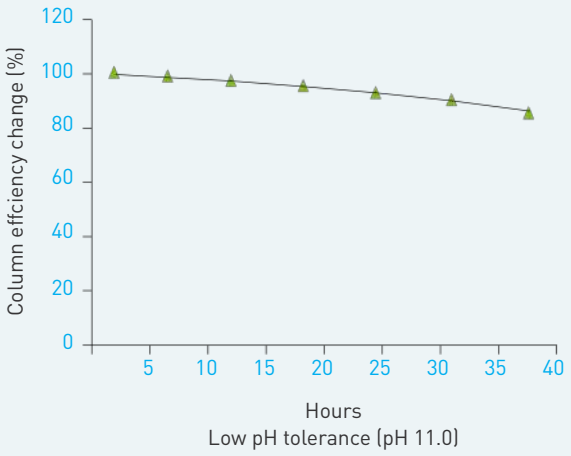
Low pH tolerance (pH 1.5)

Stability of high pH

In the high pH mobile phase, silica matrix is gradually dissolved. Ordinary pH range of silica-based columns is 2-8. When the pH of mobile phase is more than 8,silica gel is dissolved speedily, and column life is very short. C18-WP columns can protect silica matrix to have a longer life in high pH conditions, due to unique bonding and endcapped technology.

High pH tolerance (pH 11.0)

Column	C18-WP, 4.6 x 150 mm, 5μm
Mobile phase	Methanol: 0.5% aqueous ammonia (pH 11.0) (20/80)
Flow rate	1.0 mL / min
Detection	UV 254 nm
Column temperature	30 ° C
Sample	Phthalatedipropyl



Low pH tolerance (pH 11.0)

100% stability of the aqueous phase

Usually silica-based reversed-phase column can not be used in high proportion of water mobile phase conditions, andorganic phase in the mobile phasemust be maintained more than 5%. This may limit some polar compounds'separation in reversed-phase conditions. The reason is hydrophobic collapse.

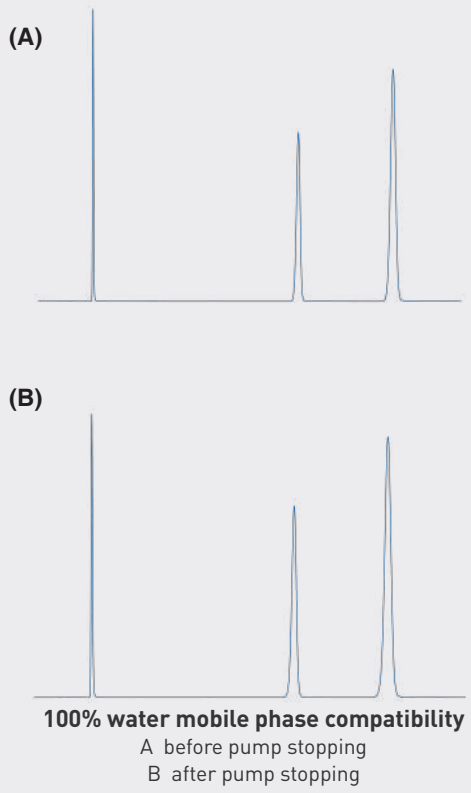
"Hydrophobic collapse" is a phenomenon that reversed-phase column loss the ability of retaining compounds in a mobile phase with a very high water content. Due to the hydrophobic interaction of functional groups, the surface of the stationary phase cannot be wet by the mobile phase and hydrophobic chains fold up.

According to the research, the hydrophobic collapse generally occurs when restarting of the mobile phase after stopping pump. The experiment can verify whether a column is compatible with pure water. Test column efficiency at first, and wash the column with 100% water mobile phaseat 1.0mL/min for 2h. Then slow down the flow rate to zero and stop pump for 1h. Columns are washed with 100% water mobile phase again and tested for column efficiency the second time.

Compare the difference of retention before and after stopping pump.

Test Condition

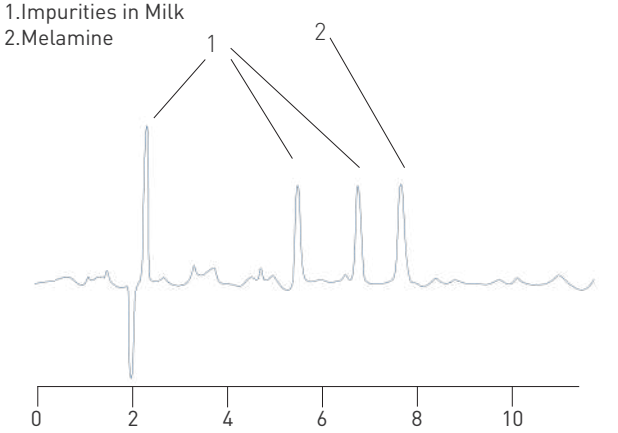
Column	C18-WP, 4.6 x 150 mm, 5μm
Mobile phase	methanol: water (70/30)
Flow rate	1.0 mL / min
Detection	UV 254 nm
Column temperature	30 ° C
Sample	1. Uracil 2. Toluene 3. Naphthalene



100% water mobile phase compatibility
A before pump stopping
B after pump stopping

Melamine in Milk Powder (according toGB/T22388-2008) No.03215

1.Impurities in Milk
2.Melamine



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	10 mM hexane sulfonate +10 mM citric acid buffer solution / acetonitrile (90/10)
Flow rate:	1.0 mL/min
Detection:	240 nm
Column temperature:	40 °C

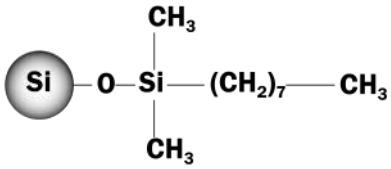
Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05073A	3μm	2.1 × 50mm
HCA030U021X10073A	3μm	2.1 × 100mm
HCA030U021X15073A	3μm	2.1 × 150mm
HCA030U021X20073A	3μm	2.1 × 200mm
HCA030U021X25073A	3μm	2.1 × 250mm
HCA030U046X05073A	3μm	4.6 × 50mm
HCA030U046X10073A	3μm	4.6 × 100mm
HCA030U046X15073A	3μm	4.6 × 150mm
HCA030U046X20073A	3μm	4.6 × 200mm
HCA030U046X25073A	3μm	4.6 × 250mm
HCA050U021X05072A	5μm	2.1 × 50mm
HCA050U021X10072A	5μm	2.1 × 100mm
HCA050U021X15072A	5μm	2.1 × 150mm
HCA050U021X20072A	5μm	2.1 × 200mm
HCA050U021X25072A	5μm	2.1 × 250mm
HCA050U046X05072A	5μm	4.6 × 50mm
HCA050U046X10072A	5μm	4.6 × 100mm
HCA050U046X15072A	5μm	4.6 × 150mm
HCA050U046X20072A	5μm	4.6 × 200mm
HCA050U046X25072A	5μm	4.6 × 250mm

C18

[Conventional C18 column]

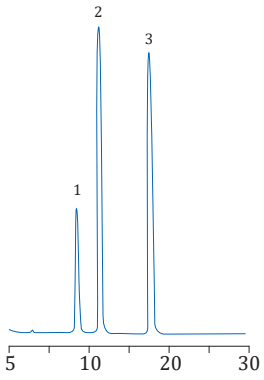
- Bonded C18 groups
- High-purity silica, metal content <10ppm
- Less hydrophobic than C18-WP, with different selectivity
- Economic column



Based on high purity spherical silica, C18 column is good at separating a variety of compounds.It is a typical economic column with high price ratio, as well as long column lifetime. For most analytes, the retention times are shorter than that of C18-WP columns of same specifications.

Tricyclic antidepressants **No.03216**

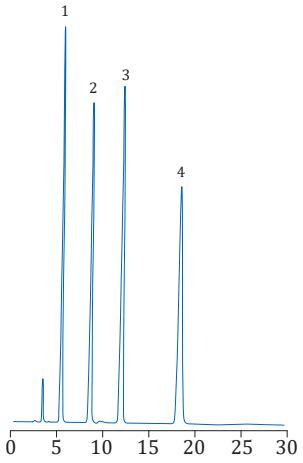
1.Protriptyline
2.Nortriptyline
3.Amitriptyline



Column:	C18 4.6 × 150mm, 5μm (HCA050U046X15071A)
Mobile phase:	methanol / 20 mM K_2HPO_4 buffer (pH 7.0) (80/20)
Flow rate:	1.0 mL/min
Detection:	254 nm
Column temperature:	40 °C

Purine alkaloid **No.03217**

1.Theobromine
2.Theophyline
3.Caffeine
4.Phenol



Column:	C18 4.6 × 150mm, 5μm (HCA050U046X15071A)
Mobile phase:	methanol / water (25/75)
Flow rate:	1.0 mL/min
Detection:	254 nm
Column temperature:	40 °C

Ordering information

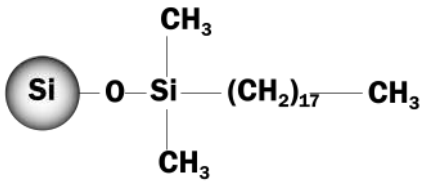
Particle size diameter × length Item No.

Product Code	Particle size	diameter × length
HCA050U021X05071A	5μm	2.1 × 50mm
HCA050U021X10071A	5μm	2.1 × 100mm
HCA050U021X15071A	5μm	2.1 × 150mm
HCA050U021X20071A	5μm	2.1 × 200mm
HCA050U021X25071A	5μm	2.1 × 250mm
HCA050U046X05071A	5μm	4.6 × 50mm
HCA050U046X10071A	5μm	4.6 × 100mm
HCA050U046X15071A	5μm	4.6 × 150mm
HCA050U046X20071A	5μm	4.6 × 200mm
HCA050U046X25071A	5μm	4.6 × 250mm
HCA100U046X15074A	10μm	4.6 × 150mm
HCA100U046X25074A	10μm	4.6 × 250mm

C18-BIO

[Applicable to macromolecules]

- Bonded C18 groups
- 300Å pore size, fit for macromolecules separation, such as peptides 1
- High column effciency and long lifetime
- Stable in the range of pH 1.5-11

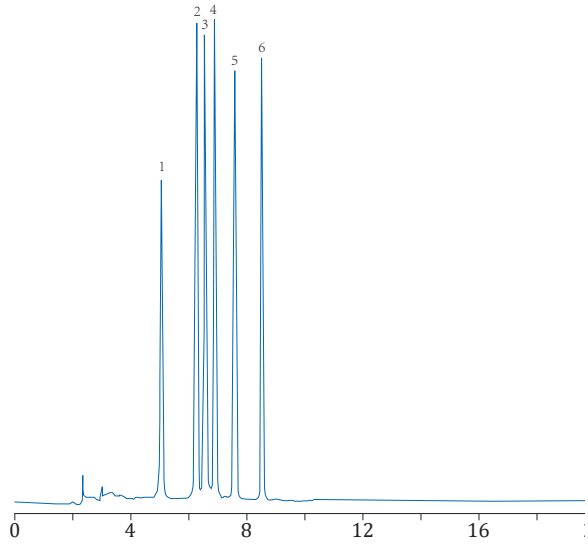


300Å pore size, highpurity silica, high density bonding, and completely endcapped, make C18-BIO able to separatelarge moleculars, especially proteins and polypeptides.

Applications:

Oligonucleotide **No.03218**

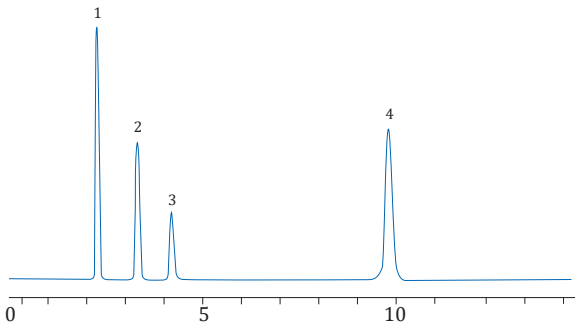
1.CAAGACGCAA
2.CAACCAACGT
3.GGTGATCAAC
4.CCCTGAACAA
5.CGTGTATTGG
6.GGTCCTATAC



Column:	C18-BIO 4.6 × 150mm, 5μm (HCA050U046X15078A)
Mobile phase:	A: 50 mM NaH2PO4 buffer solution (pH 7.0); B: acetonitrile 0min B: 5%; 20min B: 15%
Flow rate:	1.0 mL/min
Detection:	260 nm
Column temperature:	25 °C

Anti-HIV drugs **No.03217**

1.Theobromine
2.Theophyline
3.Caffeine
4.Phenol



Column:	C18-BIO 4.6 × 150mm, 5μm (HCA050U046X15078A)
Mobile phase:	methanol / 20 mM NH4H2PO4 buffer (10/90)
Flow rate:	1.0 mL/min
Detection:	260 nm
Column temperature:	35 °C

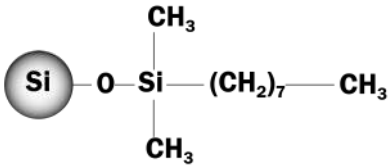
Ordering information

Product Code	Particle size	diameter × length
HCA050U021X05078A	5μm	2.1 × 50mm
HCA050U021X10078A	5μm	2.1 × 100mm
HCA050U021X15078A	5μm	2.1 × 150mm
HCA050U021X20078A	5μm	2.1 × 200mm
HCA050U021X25078A	5μm	2.1 × 250mm
HCA050U046X05078A	5μm	4.6 × 50mm
HCA050U046X10078A	5μm	4.6 × 100mm
HCA050U046X15078A	5μm	4.6 × 150mm
HCA050U046X20078A	5μm	4.6 × 200mm
HCA050U046X25078A	5μm	4.6 × 250mm

C8

[High resolution, rapid analysis]

- Bonded C8 groups
- Better resolutionthan C18 group for medium polarity subjects,and short retention time for non-polar compunds
- Good peak shapes for acidic, basic, and neutral substances
- Long column life and good repeatability

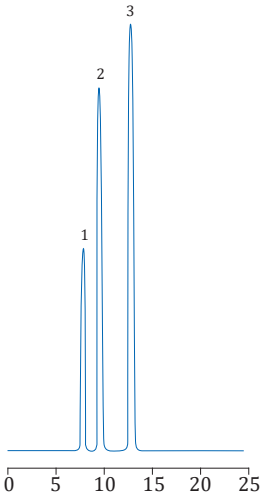


C8 offers less degree of hydrophobic selectivity compared to C18. C8 is a better choice if need to save time and achieve rapid analysis in the same chromatographic condition on octadecyl bonded phase.

Applications

Tricyclic antidepressants **No.03220**

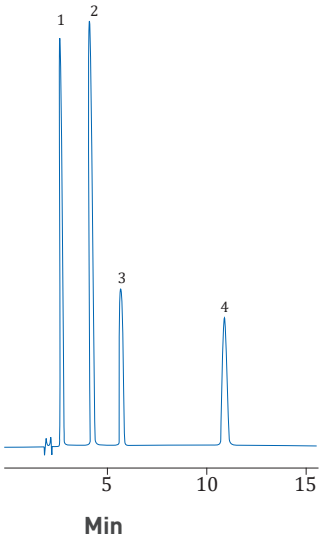
1.Protriptyline
2.Nortriptyline
3.Amitriptyline



Column:	C8 4.6 × 150mm, 5μm (HCA050U046X15075A)
Mobile phase:	methanol / 20 mM K_2HPO_4 buffer (pH 7.0) (80/20)
Flow rate:	1.0 mL/min
Detection:	254 nm
Column temperature:	40 °C

SulfaNo **No.03221**

1.Sulfonamide
2.Sulfisomidine
3.Sulfadiazine
4.Sulfamethazine



Column:	C8 4.6 × 150mm, 5μm (HCA050U046X15075A)
Mobile phase:	acetonitrile / 0.1% H_3PO_4 buffer (10/90)
Flow rate:	1.0 mL/min
Detection:	254 nm
Column temperature:	40 °C

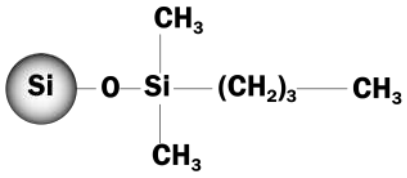
Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05065A	3μm	2.1 × 50mm
HCA030U021X10065A	3μm	2.1 × 100mm
HCA030U021X15065A	3μm	2.1 × 150mm
HCA030U021X20065A	3μm	2.1 × 200mm
HCA030U021X25065A	3μm	2.1 × 250mm
HCA030U046X05065A	3μm	4.6 × 50mm
HCA030U046X10065A	3μm	4.6 × 100mm
HCA030U046X15065A	3μm	4.6 × 150mm
HCA030U046X20065A	3μm	4.6 × 200mm
HCA030U046X25065A	3μm	4.6 × 250mm
HCA050U021X05075A	5μm	2.1 × 50mm
HCA050U021X10075A	5μm	2.1 × 100mm
HCA050U021X15075A	5μm	2.1 × 150mm
HCA050U021X20075A	5μm	2.1 × 200mm
HCA050U021X25075A	5μm	2.1 × 250mm
HCA050U046X05075A	5μm	4.6 × 50mm
HCA050U046X10075A	5μm	4.6 × 100mm
HCA050U046X15075A	5μm	4.6 × 150mm
HCA050U046X20075A	5μm	4.6 × 200mm
HCA050U046X25075A	5μm	4.6 × 250mm

C4

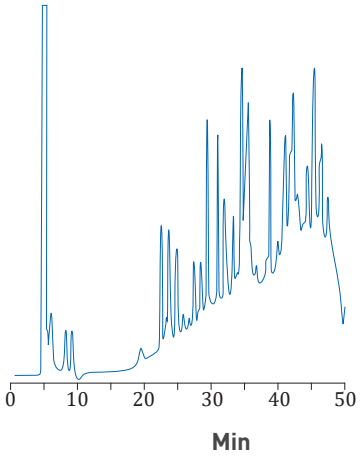
[Low hydrophobic reverse phase, rapid analysis]

- Bonded C4 groups
- 300Å pore size, fit for macromolecules separation
- Rapid analysis
- High column efficiency and excellent peak shape



Retention times are shorter than on C8 and C18 phases. 300Å pore size is suitable for analysis of biological samples.

Hydrolysis bovine serum albumin **No.03222**



Column:	C4 4.6 × 250mm, 5μm (HCA050U046X15079A)
Mobile phase:	A: 0.09% TFA; B: 0.085% TFA + 80% acetonitrile 0min B 5%; 5min B 5%; 35min B 50%; 45min B 100%
Flow rate:	1.0 mL/min
Detection:	214 nm
Column temperature:	25 °C

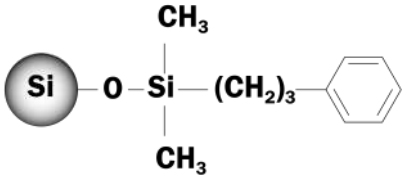
Ordering information

Product Code	Particle size	diameter × length
HCA050U021X05079A	5μm	2.1 × 50mm
HCA050U021X10079A	5μm	2.1 × 100mm
HCA050U021X15079A	5μm	2.1 × 150mm
HCA050U021X20079A	5μm	2.1 × 200mm
HCA050U021X25079A	5μm	2.1 × 250mm
HCA050U046X05079A	5μm	4.6 × 50mm
HCA050U046X10079A	5μm	4.6 × 100mm
HCA050U046X15079A	5μm	4.6 × 150mm
HCA050U046X20079A	5μm	4.6 × 200mm
HCA050U046X25079A	5μm	4.6 × 250mm

Phenyl

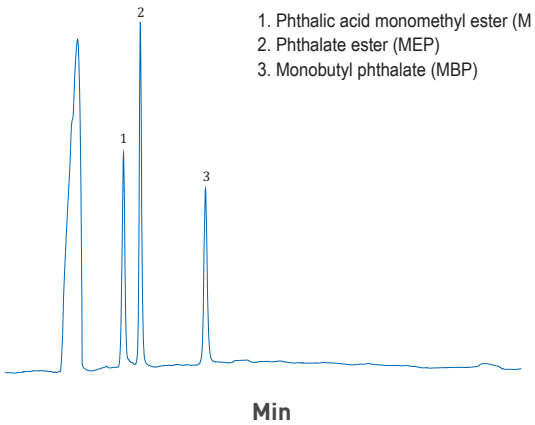
[Analysis for compounds with cyclic structure]

- Bonded phenylpropyl groups
- Interactions with π-π of aromatic compound
- Unique selectivity for compounds with cyclic structure
- Good reproducibility



Phenyl column bonded phenylpropyl group, with surface coverage is 3.0 μmol/m2. Phenyl exhibits a unique selectivity for aromatic compounds, due to a possibility for π-π interactions between the phenyl bonded phase and the solute.

O-phthalic monoester acid **No.03223**



Column:	Phenyl 4.6 × 150mm, 5μm (HCA050U046X15037A)
Mobile phase:	acetonitrile / water / acetic acid(45/55/0.2)
Flow rate:	0.8 mL/min
Detection:	228 nm
Column temperature:	25 °C

Ordering information

Product Code	Particle size	diameter × length
HCA050U021X05037A	5μm	2.1 × 50mm
HCA050U021X10037A	5μm	2.1 × 100mm
HCA050U021X15037A	5μm	2.1 × 150mm
HCA050U021X25037A	5μm	2.1 × 250mm
HCA050U046X05037A	5μm	4.6 × 50mm
HCA050U046X10037A	5μm	4.6 × 100mm
HCA050U046X15037A	5μm	4.6 × 150mm
HCA050U046X25037A	5μm	4.6 × 250mm

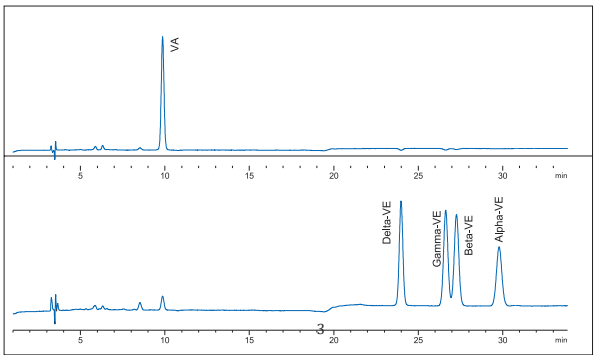
C30

[Applicable to Carotenoid Separation]

- Unique C30 bonded phase, offering diverse selectivity
- High shape selectivity for structurally similar isomers

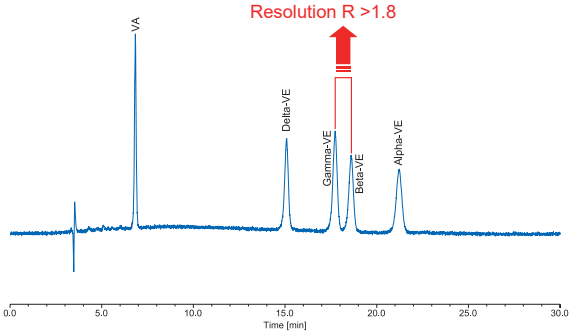
C30 is bonded with unique C30 functional groups, suitable for the separation of polar substances (such as sugars and nucleic acids) and lipophilic compounds (such as vitamin E and carotenoids).

Determination of vitamins A and E GB5009.82—2016



Column:	C30, 4.6 x 250mm, 5μm (HCA050U046X25052A)
Flow rate:	0.8ml/min
Column temperature	20°C
Injection volume	10μl
Detector:	UV, vitamin A at 325nm; vitamin E at 294nm
Mobile phase	A: Methanol B: Water
Gradient conditions	

Time（min）	Flow Rate	Water(%)	Methanol(%)
0.0	0.8	4	96
12.0	0.8	4	96
12.5	1.0	4	96
17.0	1.0	0	100
30.0	1.0	0	100
31.0	0.8	4	96
33.0	0.8	4	96



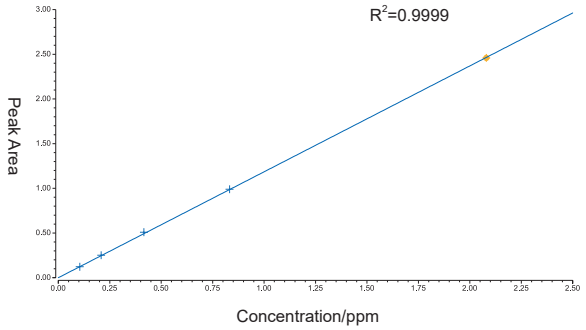
Column:	C30, 4.6 x 250mm, 3μm (HCA030U046X25053A)
Flow rate:	0.8ml/min
Column temperature	20°C
Injection volume	10μl
Detector:	UV, 294nm
Mobile phase	100% Methanol

Determination of Lutein GB5009.248—2016

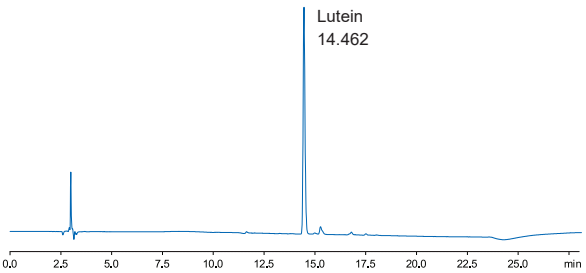
Column:	C30, 4.6 x 250mm, 5μm (HCA050U046X25052A)
Flow rate:	1.0ml/min
Column temperature	30°C
Injection volume	50μl
Detector:	UV, vitamin A at 325nm; vitamin E at 294nm
Mobile phase	A:Methanol : Water (88:12, volume ratio, containing 0.1% BHT) B:Tert-butyl methyl ether(containing 0.1% BHT)
Gradient conditions	

Time（min）	A（%）	B（%）
0	85	15
5	85	15
18	60	40
18.1	85	15
25	85	15

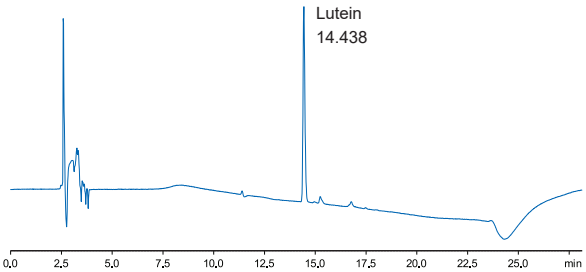
Standard Curve



Sample Chromatogram:



Sample Chromatogram:



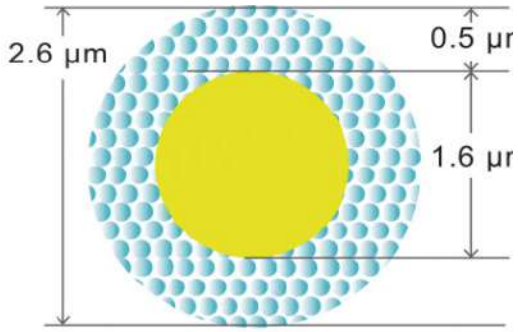
Ordering information

Packings	Product Code	diameter × length
C30	HCA050U046X25052A	4.6 × 250mm,5um
C30	HCA030U046X25053A	4.6 × 250mm,5um
C30 Guard Cartrideg Kit	HCA050U040X02052KA	1 Holder and 1 Cartridge,5 μm,4.0 *20 mm
C30 Guard Cartrideg	HCA050U040X02052A	4.0×20mm, 5μm

C18 HPLC Column

[Applicable to Carotenoid Separation]

- High column efficiency, low column pressure
- High-throughput rapid analysis
- Compatible with UHPLC and HPLC
- High reproducibility

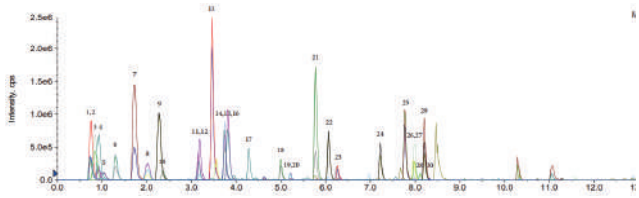


Shell is a nucleoparticle silica chromatography column with a particle size of 2.6 μm. It consists of a solid spherical core with a diameter of 1.6 μm and a porous shell layer with a thickness of 0.5 μm. It possesses equal column efficiency and separation performance to sub-2 μm UHPLC columns while only requiring half the column pressure. This allows it to be used on both UHPLC and HPLC instruments, enabling ultra-fast separation with shorter analysis times and higher separation efficiency. solute.

HTraditional Chinese Medicine Pesticide Residues - Pharmacopoeia

1.CAAGACGCAA
2.CAACCAACGT
3. GGTGATCAAC
4.CCCTGAACAA
5. CGTGTATTGG
6. GGTCCTATAC

1.Methamidophos
2.Temidiphos ethyl sulfoxide
3.Carbaryl
4.Temidiphospropyl sulfoxide
5.Ethyl parathion
6.3-Hydroxycarbofuran
7.Thiophos
8.Benxllithium thiosulfate
9.Phosphanil
10.Temidiphos
11.Benxllithium sulfoxide
12.Metsulfuron methyl
13.Carbofuran
14.Chlorsulfuron
15.Metyl para-phosphorus sulfoxide
16.Aminopropyl sulfuron
17.Ethyl parathion
18.Terbutyl thiophosphate sulfoxide
19.Metyl para-phosphorus sulfoxide
20.Nitrifurazone
21.Benxllithium
22.Fenthion
23.Terbutyl thiophosphate sulfoxide
24.Clorophene
25.Thiocloropher
26.Methyl isothiophosphate
27.Ciclophen
28.Dieldrin
29.Fenvalerate
30.Metyl para-phosphorus

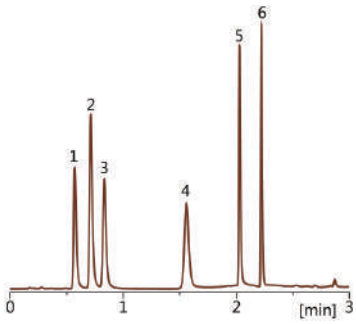


Column:	C18 2.1 × 100mm, 2.6um (HCA026U021X100I1A)
Mobile phase	A phase 0.1% formic acid solution (containing 5mmol/L ammonium formate) B phase acetonitrile - 0.1% formic acid solution (containing 5mmol/L ammonium formate) (95:5) wacetic acid(45/55/0.2)
Flow rate:	0.3ml/min
Temperature	40°C
Ionization mod	ESI, positive ion mode analysis
modetemperature:	Multi-reaction monitoring (MRM)

Time(min)	A(%)	B(%)
0~1	70	30
1~12	70~0	30~100
12~14	0	100

HTraditional Chinese Medicine Pesticide Residues - Pharmacopoeia

1.Sulfadiazine
2.Sulfathiazole
3.Sulfamerazine
4.Sulfamethoxypyidazine
5.Sulfamethoxazole
6.Sulfaquinoxaline



Column:	C18, 2.1mm×50mm, 2.6μm, (HCA026U021X050I1A)
Mobile phase	A: Acetonitrile ; B: 0.1% Formic Acid
Flow rate:	1.0ml/min
Detector:	254nm
Temperature	40°C

Time(min)	A(%)	B(%)
0	10	90
2	90	10

Ordering information

Packings	Product Code	Particle size	diameter × length
C18	HCA026U021X050I1A	2.6μm	2.1 × 50mm
C18	HCA026U021X100I1A	2.6μm	2.1 × 100mm
C18	HCA026U046X100I1A	2.6μm	4.6 × 100mm
C18	HCA026U046X050I1A	2.6μm	4.6 × 50mm

More information

Packings	Product Code	Particle size	diameter × length
PFP	HCA026U021X100I3A	2.6μm	4.6 × 50mm

Silica

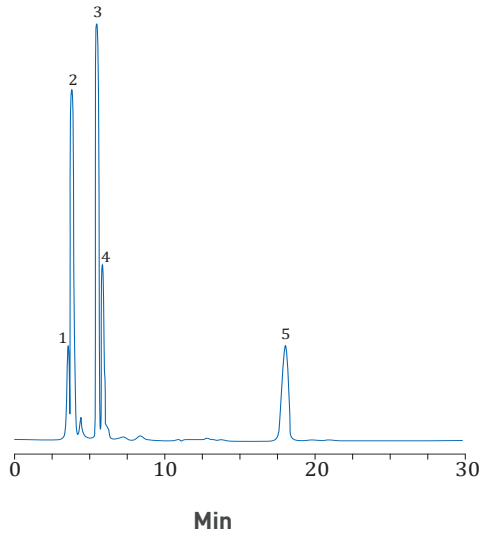
[Non- bonded silica, normal phase]

- Spherical silica, non- bonded
- For non-polar and medium polar organic compounds
- Ultra pure, low metal impurity
- Symmetrical peak shape

None bonded high-purity silica, metal impurity content <10ppm, high mechanical strength. Silica is fit for separation of non-polar and media polar organic compounds to achieve sharp peak shape and high reproducibility for columns.

Fat-soluble vitamins **No.03224**

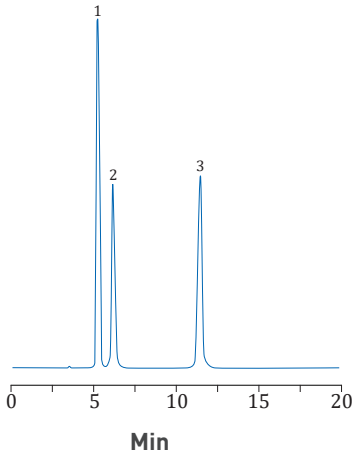
1.Vitamin A palmitate
2.Vitamin K1
3.Vitamin E
4.Vitamin K3
5.Vitamin D



Column:	Silica 4.6 × 150mm, 5μm (HCA050U046X15076A)
Mobile phase:	n-hexane / chloroform (60/40)
Flow rate:	1.0 mL/min
Detection:	254 nm
Column temperature:	25 °C

Steroid **No.03225**

1.Estrone
2.Estradiol
3.Estriol



Column:	Silica 4.6 × 150mm, 5μm (HCA050U046X15076A)
Mobile phase:	n-hexane / ethanol (85/15)
Flow rate:	1.0 mL/min
Detection:	270 nm
Column temperature:	40 °C

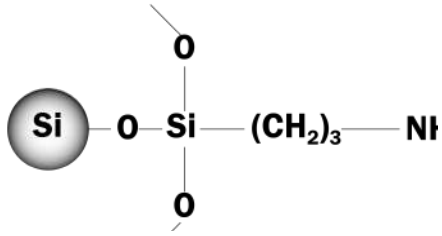
Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05066A	3μm	2.1 × 50mm
HCA030U021X10066A	3μm	2.1 × 100mm
HCA030U021X15066A	3μm	2.1 × 150mm
HCA030U021X20066A	3μm	2.1 × 200mm
HCA030U021X25066A	3μm	2.1 × 250mm
HCA030U046X05066A	3μm	4.6 × 50mm
HCA030U046X10066A	3μm	4.6 × 100mm
HCA030U046X15066A	3μm	4.6 × 150mm
HCA030U046X20066A	3μm	4.6 × 200mm
HCA030U046X25066A	3μm	4.6 × 250mm
HCA050U021X05076A	5μm	2.1 × 50mm
HCA050U021X10076A	5μm	2.1 × 100mm
HCA050U021X15076A	5μm	2.1 × 150mm
HCA050U021X20076A	5μm	2.1 × 200mm
HCA050U021X25076A	5μm	2.1 × 250mm
HCA050U046X05076A	5μm	4.6 × 50mm
HCA050U046X10076A	5μm	4.6 × 100mm
HCA050U046X15076A	5μm	4.6 × 150mm
HCA050U046X20076A	5μm	4.6 × 200mm
HCA050U046X25076A	5μm	4.6 × 250mm

NH_2

[Both Normal and reverse phase mode]

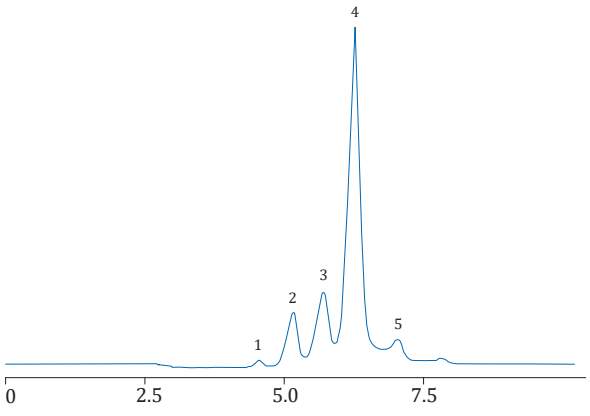
- Bonded aminopropyl group
- Suitable for normal and reverse phase mode
- Separate sugars in reverse mode



Aminopropyl stationary phase serves as a weak anion exchanger and offer polar selectivity under reversed phase and normal phase conditions.

Carbonhydrates **No.03226**

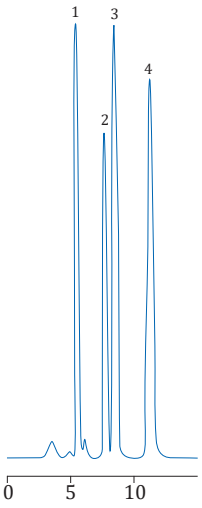
1.Glucose
2.Maltose
3.Maltotriose
4.Maltotetraose
5.Matlopentaos



Column:	NH_2 4.6 x 150mm, 5μm (HCA050U046X15077A)
Mobile phase:	acetonitrile / water (50/50)
Flow rate:	1.0 mL/min
Detection:	RID
Column temperature:	40 °C

Tocopherol isomers **No.03227**

1.α-Tocopherol
2.α-Tocopherol
3.α-Tocopherol
4.α-Tocopherol



Column:	NH_2 4.6 x 150mm, 5μm (HCA050U046X15077A)
Mobile phase:	n-hexane / ethyl acetate (70/30)
Flow rate:	1.0 mL/min
Detection:	295 nm
Column temperature:	40 °C

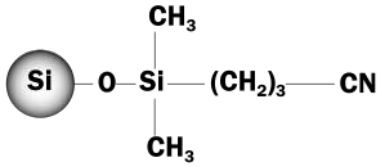
Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05067A	3μm	2.1 × 50mm
HCA030U021X10067A	3μm	2.1 × 100mm
HCA050U021X15067A	3μm	2.1 × 150mm
HCA030U021X20067A	3μm	2.1 × 200mm
HCA030U021X25067A	3μm	2.1 × 250mm
HCA030U046X05067A	3μm	4.6 × 50mm
HCA030U046X10067A	3μm	4.6 × 100mm
HCA030U046X15067A	3μm	4.6 × 150mm
HCA030U046X20067A	3μm	4.6 × 200mm
HCA030U046X25067A	3μm	4.6 × 250mm
HCA050U021X05077A	5μm	2.1 × 50mm
HCA050U021X10077A	5μm	2.1 × 100mm
HCA050U021X15077A	5μm	2.1 × 150mm
HCA050U021X20077A	5μm	2.1 × 200mm
HCA050U021X25077A	5μm	2.1 × 250mm
HCA050U046X05077A	5μm	4.6 × 50mm
HCA050U046X10077A	5μm	4.6 × 100mm
HCA050U046X15077A	5μm	4.6 × 150mm
HCA050U046X20077A	5μm	4.6 × 200mm
HCA050U046X25077A	5μm	4.6 × 250mm

CN

[Can be used for normal or reverse phase separation]

- Bonded cyanopropyl
- Can be used for normal or reverse phase separation
- High column efficiency and good reproducibility



CN is cyanide propyl boned silica column with n-electron interaction and unshared electron pair hydrogen bonding. Can be used for both reverse phase and normal phase mode. When used for reverse mode, having different selectivity from C18 and C8 columns; when used for normal phase mode, retention is lower retention than non-bonded silica gel column.

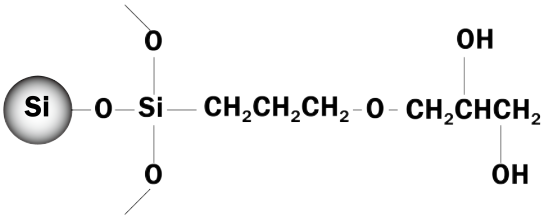
Ordering information

Product Code	Particle size	diameter × length
HCA030U021X15034A	3μm	2.1 × 150mm
HCA050U021X05033A	5μm	2.1 × 50mm
HCA050U021X10033A	5μm	2.1 × 100mm
HCA050U021X15033A	5μm	2.1 × 150mm
HCA050U021X20033A	5μm	2.1 × 200mm
HCA050U021X25033A	5μm	2.1 × 250mm
HCA050U046X05033A	5μm	4.6 × 50mm
HCA050U046X10033A	5μm	4.6 × 100mm
HCA050U046X15033A	5μm	4.6 × 150mm
HCA050U046X20033A	5μm	4.6 × 200mm
HCA050U046X25033A	5μm	4.6 × 250mm

Diol

[Suitable for normal phase separation]

- Bonded group of 1,2 - dihydroxy-propyl ether propionate
- Normal phase separation
- Good reproducibility



Diol bonded 1,2 - dihydroxy-propyl ether propionate group, coverage of 4.0 micromol / m², can interact with polar compounds. diol is able to distinguish compounds from slight difference, also can separate biological molecules based on size exclusion mechanism.

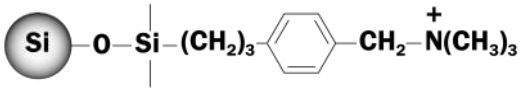
Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05036A	3μm	2.1 × 50mm
HCA030U021X10036A	3μm	2.1 × 100mm
HCA030U021X15036A	3μm	2.1 × 150mm
HCA030U021X25036A	3μm	2.1 × 250mm
HCA030U046X05036A	3μm	4.6 × 50mm
HCA030U046X10036A	3μm	4.6 × 100mm
HCA030U046X15036A	3μm	4.6 × 150mm
HCA030U046X25036A	3μm	4.6 × 250mm
HCA050U021X05035A	5μm	2.1 × 50mm
HCA050U021X10035A	5μm	2.1 × 100mm
HCA050U021X15035A	5μm	2.1 × 150mm
HCA050U021X25035A	5μm	2.1 × 250mm
HCA050U046X05035A	5μm	4.6 × 50mm
HCA050U046X10035A	5μm	4.6 × 100mm
HCA050U046X15035A	5μm	4.6 × 150mm
HCA050U046X25035A	5μm	4.6 × 250mm

SAX

[Suitable for analysis of acidic substances]

- Strong anion exchange mode
- Suitable for analysis of acidic substances, including nucleotide and organic acids etc.
- High column efficiency, high batch stability, good columns reproducibility
- To adjust retention time of the analytes by changing buffer concentration of mobile phase
- Stable in high proportion of water mobile phase



SAX column are boned quaternary ammonium strong anion-exchange group in the high-purity silica matrix, having mixed chemical structure of quaternary ammonium and phenyl functional groups. This mixed-mode by strong anion exchange phase and hydrophobic phase is suitable for separation of aromatic or aliphatic carboxylic acids, sulfonic acids, nucleotides and acids etc.

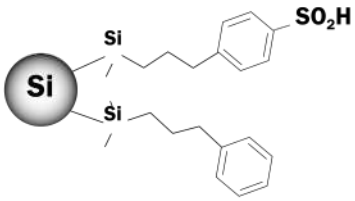
Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05020A	3μm	2.1 × 50mm
HCA030U021X10020A	3μm	2.1 × 100mm
HCA030U021X15020A	3μm	2.1 × 150mm
HCA030U021X25020A	3μm	2.1 × 250mm
HCA030U046X05020A	3μm	4.6 × 50mm
HCA030U046X10020A	3μm	4.6 × 100mm
HCA030U046X15020A	3μm	4.6 × 150mm
HCA030U046X25020A	3μm	4.6 × 250mm
HCA050U021X05021A	5μm	2.1 × 50mm
HCA050U021X10021A	5μm	2.1 × 100mm
HCA050U021X15021A	5μm	2.1 × 150mm
HCA050U021X25021A	5μm	2.1 × 250mm
HCA050U046X05021A	5μm	4.6 × 50mm
HCA050U046X10021A	5μm	4.6 × 100mm
HCA050U046X15021A	5μm	4.6 × 150mm
HCA050U046X25021A	5μm	4.6 × 250mm

SCX

[Suitable for analysis of alkaline substances]

- Strong cation exchange mode
- Fit for analysis of alkaline substances, especially amines
- high column efficiency, stable batch, good columns reproducibility



SCX is benzenesulfonic acid boned silica, having mixed chemical structure of sulfonic acid group and phenyl group. SCX is mixed mode of strong cation exchange phase and hydrophobic phase. Not only can be used for separation of cationic / basic and nitrogenous compounds, but also give appropriate reservation for a variety of weak cation, neutral organic compound. SCX is used for separation and determination of amines and polyamine compounds, such as alkaloids, peptides and components in cold medicines.

Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05022A	3μm	2.1 × 50mm
HCA030U021X10022A	3μm	2.1 × 100mm
HCA030U021X15022A	3μm	2.1 × 150mm
HCA030U021X25022A	3μm	2.1 × 250mm
HCA030U046X05022A	3μm	4.6 × 50mm
HCA030U046X10022A	3μm	4.6 × 100mm
HCA030U046X15022A	3μm	4.6 × 150mm
HCA030U046X25022A	3μm	4.6 × 250mm
HCA050U021X05023A	5μm	2.1 × 50mm
HCA050U021X10023A	5μm	2.1 × 100mm
HCA050U021X15023A	5μm	2.1 × 150mm
HCA050U021X25023A	5μm	2.1 × 250mm
HCA050U046X05023A	5μm	4.6 × 50mm
HCA050U046X10023A	5μm	4.6 × 100mm
HCA050U046X15023A	5μm	4.6 × 150mm
HCA050U046X25023A	5μm	4.6 × 250mm
HCA050U046X25045A	5μm	4.6 × 250mm

Note: HCA050U046X25045A is the original SCX column.

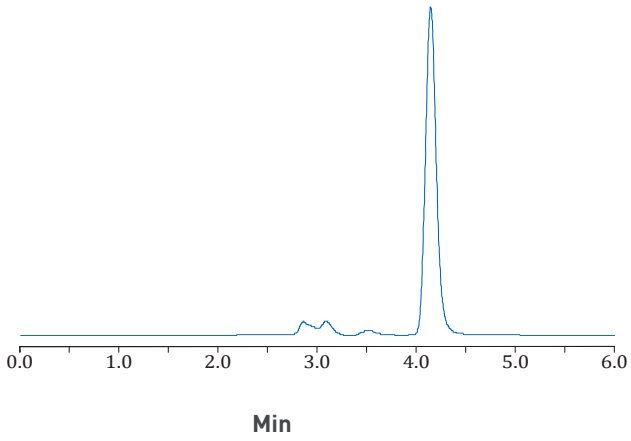
HILIC

[Suitable for analysis of strong polar substances]

Hydrophilic interaction liquid chromatography (HILIC) is a kind of liquid chromatography analytical method for strong polar and strong hydrophilic compounds separation. Sometimes, it is difficult to retain polar compound on reverse-phase column and Ion pair reagent cannot be added to mobile phase in LC / MS analysis. When use normal phase chromatography for analysis, polar and hydrophilic compounds are often difficult to be dissolved in conventional normal phase solvents. This time HILIC will be considered to use for analysis.

In three HILIC stationary phases, HILIC is strong alkaline, HILIC (2) is weak alkaline, HILIC (3) is neutral.

Melamine **No.03228**



Column:	HILIC (3) 4.6 × 250mm, 5μm (HCA050U046X25027A)
Mobile phase:	acetonitrile / 10 mM ammonium acetate (90/10)
Flow rate:	1.0 mL/min
Detection:	240 nm
Column temperature:	25 °C

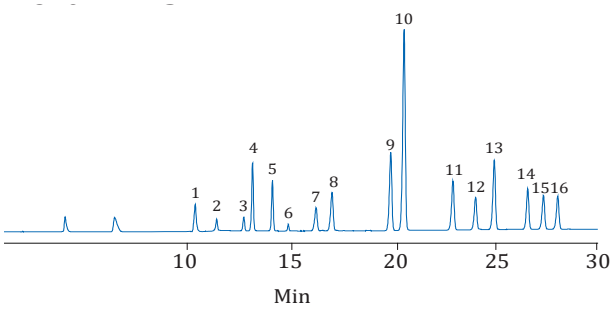
Difference of reverse phase chromatography, normal phase chromatography and HILIC

	stationary phase	mobile phase	elution order	applications
Reverse phas chromatography	Non-polar, such as C18, C8 etc	Polar, such as methanol, ethanol, water etc.	Polar subject flow quickly, non- polar flow slowly	Medium polar and non-polar substances
Normal phase chromatography	Polar ,such as silica, amino, Cyano etc.	"Non-polar, such as N-hexane, acid ethyl ester etc."	non-polar subject flow quickly, polar flow slowly	Medium polar and polar substances
HILIC	Silica bonded hydrophilic stationary phase	Polar, methanol, ethanol, buffer saline etc.	non-polar subject flow quickly, polar flow slowly	Strong polar and strong hydrophilic compounds

Ordering information

Packings	Product Code	Particle size	diameter × length
HILIC	HCA030U021X05030A	3μm	2.1 × 50mm
HILIC	HCA030U021X15030A	3μm	2.1 × 150mm
HILIC	HCA030U046X15030A	3μm	4.6 × 150mm
HILIC(1)	HCA030U021X10089A	3μm	2.1 × 100mm
HILIC(1)	HCA030U021X15089A	3μm	2.1 × 150mm
HILIC(1)	HCA050U021X05031A	5μm	2.1 × 50mm
HILIC(1)	HCA050U021X10031A	5μm	2.1 × 100mm
HILIC(1)	HCA050U021X15031A	5μm	2.1 × 150mm
HILIC(1)	HCA030U046X05089A	3μm	4.6 × 50mm
HILIC(1)	HCA030U046X25089A	3μm	4.6 × 250mm
HILIC(1)	HCA050U046X15031A	5μm	4.6 × 150mm
HILIC(1)	HCA050U046X25031A	5μm	4.6 × 250 mm
HILIC(2)	HCA030U021X05029A	3μm	2.1 × 50mm
HILIC(2)	HCA030U021X10029A	3μm	2.1 × 100mm
HILIC(2)	HCA030U021X15029A	3μm	2.1 × 150mm
HILIC(2)	HCA030U021X25029A	3μm	2.1 × 250mm
HILIC(2)	HCA050U021X05032A	5μm	2.1 × 50mm
HILIC(2)	HCA050U021X10032A	5μm	2.1 × 100mm
HILIC(2)	HCA050U021X15032A	5μm	2.1 × 150mm
HILIC(2)	HCA050U021X25032A	5μm	2.1 × 250mm
HILIC(2)	HCA030U046X05029A	3μm	4.6 × 50mm
HILIC(2)	HCA030U046X10029A	3μm	4.6 × 100mm
HILIC(2)	HCA030U046X15029A	3μm	4.6 × 150mm
HILIC(2)	HCA030U046X25029A	3μm	4.6 × 250mm
HILIC(2)	HCA050U046X05032A	5μm	4.6 × 50mm
HILIC(2)	HCA050U046X10032A	5μm	4.6 × 100mm
HILIC(2)	HCA050U046X15032A	5μm	4.6 × 150mm
HILIC(2)	HCA050U046X25032A	5μm	4.6 × 250mm
HILIC(3)	HCA030U021X15028A	3μm	2.1 × 100mm
HILIC(3)	HCA050U021X15027A	5μm	2.1 × 150mm
HILIC(3)	HCA050U021X25027A	5μm	2.1 × 250mm
HILIC(3)	HCA050U046X15027A	5μm	4.6 × 150mm
HILIC(3)	HCA050U046X25027A	5μm	4.6 × 250mm
HILIC(4)	HCA030U021X05082A	3μm	2.1 × 50mm
HILIC(4)	HCA030U021X15082A	3μm	2.1 × 150mm
HILIC(4)	HCA050U046X25083A	5μm	4.6 × 250 mm

PAHS



Column: PAHs 4.6 × 250mm, 5μm
Temperature: 30 °C
Mobile phase: gradient A:water B:acetonitrile,0min:40%B;25min 100%B;35min 100%B;45min 40%B
Flow rate: 2.0 mL/min
Uv: 266nm
In.0j volume: 5ul (10ppm)

No	Retain Time (min)	compound	Area	resolution	N
1	10.308	Naphthalene	68432	0	50295
2	11.296	Acenaphthylene	30529	6.096	77067
3	12.628	Acenaphthene	39603	7.939	85468
4	13.057	Fluorene	200639	2.464	89050
5	14.033	Phenanthrene	145706	5.558	101577
6	14.812	Anthracene	15861	4.926	177837
7	16.174	Fluoranthene	99718	6.995	67625
8	16.959	Pyrene	168211	1.89	74148
9	19.84	Benzo(a) anthracene	327460	11.781	109283
10	20.497	Chrysene	868613	2.694	110027
11	22.894	Benzo(b) fluoranthene	213493	9.649	134462
12	24.006	Benzo(k) fluoranthene	142185	4.479	151157
13	24.923	Benzo(a)pyrene	301765	3.705	161656
14	26.564	Dibenzo(a,h) anthracene	167883	6.765	200804
15	27.336	Benzo(g,h,i) perylene	149700	3.173	191558
16	28.039	Indeno(1,2,3-cd) pyrene	145279	2.814	202122

Ordering information

Packings	Product Code	Particle size	diameter × length
PAHs	HCA050U046X25051A	5μm	4.6 ×250mm
PAHs Guard Cartridge	HCA050U040X02051A	5μm	4.0 × 20mm
PAHs Guard Cartridge Kit	HCA050U040X02051KA	5μm	1 Holder and 1 Cartridge 5μm,4.0 × 20mm

Guard column

[Longer column life, higher column efficiency]

- Protect analytical column, extend column life
- Easy to use
- Cartridges can be purchased separately, affordable

Why use guard column?

Using guard column can protect analytical column from contamination by sample and solvent residue and extend column life.

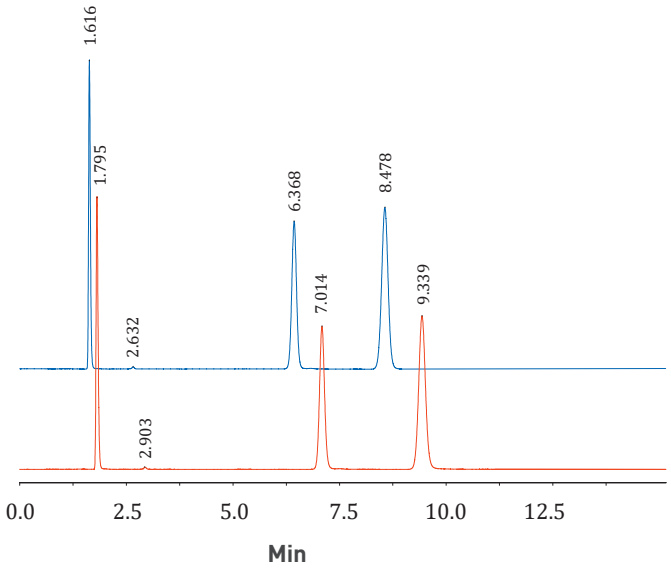
Will use of guard columns affect analysis result?

In HPLC system, use of guard column will not affect analysis results. As shown in the figure, resolution and peak shape are not affected by increased guard column. The impact of 4mm ID guard column on pressure is only 50 psi.

When to replace guard column?

Guard column is used to prevent contamination of column, so when the cartridges have been blocked by pollution, change a new one to avoid damage to analytical column.

We advise you replace guard cartridges periodically according to the properties of sample and the frequency of column use. When system pressure increases and peak shape become poor, check especially whether the problem is raised by guard column contamination. If true replace it in time.



Ordering information

Packings	Product Code	Particle size	diameter × length
Guard Cartridge Holder A	HCA040X0200HA		4.0 × 20mm
C18-WP Guard Cartridge	HCA050U040X02072A	5μm	4.0 × 20mm
C18-WP Guard Cartridge Kit	HCA050U040X02072KA	5μm	4.0 × 20mm
C18-WP Guard Cartridge	HCA050U021X02072A	5μm	2.1 × 20mm
C18-WP Guard Cartridge Kit	HCA050U021X02072KA	5μm	2.1 × 20mm
C18 Guard Cartridge	HCA050U040X02071A	5μm	4.0 × 20mm
C18 Guard Cartridge Kit	HCA050U040X02071KA	5μm	4.0 × 20mm
C8 Guard Cartridge	HCA050U040X02075A	5μm	4.0 × 20mm
C8 Guard Cartridge Kit	HCA050U040X02075KA	5μm	4.0 × 20mm
C8 Guard Cartridge	HCA050U021X02065A	5μm	2.1 × 20mm
C8 Guard Cartridge Kit	HCA050U021X02065KA	5μm	2.1 × 20mm
C4 Guard Cartridge Kit	HCA050U040X02079KA	5μm	4.0 × 20mm
Silica Guard Cartridge	HCA050U040X02076A	5μm	4.0 × 20mm
Silica Guard Cartridge Kit	HCA050U040X02076KA	5μm	4.0 × 20mm
Silica Guard Cartridge	HCA050U021X02067A	5μm	2.1 × 20mm
Silica Guard Cartridge Kit	HCA050U021X02067KA	5μm	2.1 × 20mm
NH2 Guard Cartridge	HCA050U040X02077A	5μm	4.0 × 20mm
NH2 Guard Cartridge Kit	HCA050U040X02077KA	5μm	4.0 × 20mm
NH2 Guard Cartridge	HCA050U021X02067A	5μm	2.1 × 20mm
NH2 Guard Cartridge Kit	HCA050U021X02067KA	5μm	2.1 × 20mm
CN Guard Cartridge	HCA050U040X02033A	5μm	4.0 × 20mm
CN Guard Cartridge Kit	HCA050U040X02033KA	5μm	4.0 × 20mm
CN Guard Cartridge	HCA050U021X02034A	5μm	2.1 × 20mm
CN Guard Cartridge Kit	HCA050U021X02034KA	5μm	2.1 × 20mm
Phenyl Guard Cartridge	HCA050U040X02037A	5μm	4.0 × 20mm
Phenyl Guard Cartridge Kit	HCA050U040X02037KA	5μm	4.0 × 20mm

Description:

1.Guard Cartridge Kit specification: 1 piece cartridge holder+1piece cartridge

2.Guard cartridge specification: 2 pieces / box

Polymer matrix analytical column

Sep reverse phase column

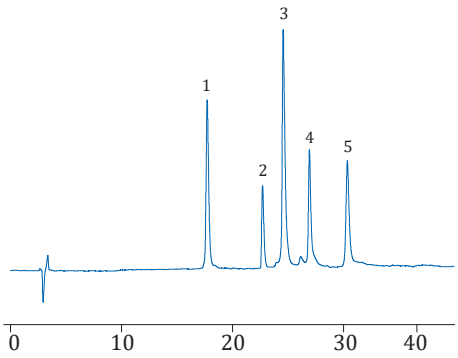
[Wider pH range]

Sep series have three kinds of reverse phase which structure is phenyl functional group that enables hydrophobic interaction.Sep RP and RP3 bonded to porous particles. Sep RP is 100Å while Sep RP3 is 300Å. Sep SP is phenyl bonded to nonporous particles.

Comparedwith silica based reversed phases, PS/DVB matrix columns have advantages over applications at extreme pH(1-14)with special selectivity andslightly lower separation efficiency.

Protein separation **No.03229**

1.Ribonuclease B
2.Insulin
3.Cytochrome C
4.Lysozyme
5.Bovine serum albumin (BSA)



Column: RP3 4.6 × 150mm, 5μm (HCA050U046X150A3A)
Mobile phase: A: 0.1% TFA aqueous solution
B: 0.1% TFA dissolved in acetonitrile
0min 5min 45min
20%B 20%B 60%B
Flow rate: 1.0 mL/min
Detection: 214 nm
Column temperature: 40 °C

Ordering information

Packings	Product Code	Particle size	diameter × length
Sep RP1	HCA050U021X050A1A	5μm	2.1×50mm
Sep RP1	HCA050U021X150A1A	5μm	2.1×100mm
Sep RP1	HCA050U021X100A1A	5μm	2.1×150mm
Sep RP1	HCA050U021X250A1A	5μm	2.1×250mm
Sep RP1	HCA050U046X050A1A	5μm	4.6×50mm
Sep RP1	HCA050U046X100A1A	5μm	4.6×100mm
Sep RP1	HCA050U046X150A1A	5μm	4.6×150mm
Sep RP1	HCA050U046X250A1A	5μm	4.6×250mm
Sep RP1	HCA050U078X150A1A	5μm	7.8×150mm
Sep RP1	HCA050U078X250A1A	5μm	7.8×250mm
Sep RP1	HCA100U021X050A2A	10μm	2.1×50mm
Sep RP1	HCA100U021X100A2A	10μm	2.1×100mm
Sep RP1	HCA100U021X150A2A	10μm	2.1×150mm
Sep RP1	HCA100U021X250A2A	10μm	2.1×250mm
Sep RP1	HCA100U046X050A2A	10μm	4.6×50mm
Sep RP1	HCA100U046X100A2A	10μm	4.6×100mm
Sep RP1	HCA100U046X150A2A	10μm	4.6×150mm
Sep RP1	HCA100U046X250A2A	10μm	4.6×250mm
Sep RP1	HCA100U078X150A2A	10μm	7.8×150mm
Sep RP1	HCA100U078X250A2A	10μm	7.8×250mm
Sep RP3	HCA050U021X050A3A	5μm	2.1×50mm
Sep RP3	HCA050U021X100A3A	5μm	2.1×100mm
Sep RP3	HCA050U021X150A3A	5μm	2.1×150mm
Sep RP3	HCA050U021X250A3A	5μm	2.1×250mm
Sep RP3	HCA050U046X050A3A	5μm	4.6×50mm
Sep RP3	HCA050U046X100A3A	5μm	4.6×100mm
Sep RP3	HCA050U046X150A3A	5μm	4.6×150mm
Sep RP3	HCA050U046X250A3A	5μm	4.6×250mm
Sep RP3	HCA050U078X150A3A	5μm	7.8×150mm
Sep RP3	HCA050U078X250A3A	5μm	7.8×250mm
Sep RP3	HCA100U021X050A4A	10μm	2.1×50mm
Sep RP3	HCA100U021X100A4A	10μm	2.1×100mm
Sep RP3	HCA100U021X150A4A	10μm	2.1×150mm

Ordering information

Packings	Product Code	Particle size	diameter × length
Sep RP3	HCA100U021X250A4A	10μm	2.1×250mm
Sep RP3	HCA100U046X050A4A	10μm	4.6×50mm
Sep RP3	HCA100U046X100A4A	10μm	4.6×100mm
Sep RP3	HCA100U046X150A4A	10μm	4.6×150mm
Sep RP3	HCA100U046X250A4A	10μm	4.6×250mm
Sep RP3	HCA100U078X150A4A	10μm	7.8×150mm
Sep RP3	HCA100U078X250A4A	10μm	7.8×250mm
Sep SP	HCA0030U021X050A5A	3μm	2.1×50mm
Sep SP	HCA0030U021X150A5A	3μm	2.1×150mm
Sep SP	HCA0030U046X050A5A	3μm	4.6×50mm
Sep SP	HCA0030U046X100A5A	3μm	4.6×100mm
Sep SP	HCA0030U046X150A5A	3μm	4.6×150mm
Sep SP	HCA0030U046X250A5A	3μm	4.6×250mm
Sep SP	HCA050U021X050A6A	5μm	2.1×50mm
Sep SP	HCA050U021X150A6A	5μm	2.1×150mm
Sep SP	HCA050U046X050A6A	5μm	4.6×50mm
Sep SP	HCA050U046X150A6A	5μm	4.6×150mm
Sep SP	HCA050U046X250A6A	5μm	4.6×250mm
Sep SP	HCA050U078X250A6A	5μm	7.8×250mm
Sep SP	HCA100U021X050A7A	10μm	2.1×50mm
Sep SP	HCA100U021X150A7A	10μm	2.1×150mm
Sep SP	HCA100U046X050A7A	10μm	4.6×50mm
Sep SP	HCA100U046X150A7A	10μm	4.6×150mm
Sep SP	HCA100U046X250A7A	10μm	4.6×250mm
Sep SP	HCA100U078X250A7A	10μm	7.8×250mm

Sep sugar column and organic acids column

[Sugars, sugar alcohols and organic acid analysis]

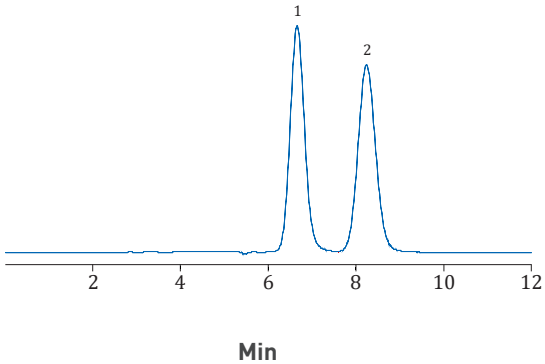
Sep sugar column and organic acids column are based on low crosslinked polystyrene / divinylbenzene (PS/DVB) particles with the surface modified with sulfonic acid (-SO3H) for Carbomix H-NP resins, followed by chelating of calcium ions (Ca+2) for synthesis of Carbomix Ca-NP resins. Resin cross-linking degree is an important parameter in the separation. We provide a 5% (-L), 8% (-M) and 10% (-H), three kinds of crosslinking degrees products. And 5um and 10μm particle size products are offered.

Sep sugar columns and organic acids columns are more comprehensive and economic, compared with Bio-Rad , Transgenomic and other brands of similar products.

Packings	Type	Cross-linking degree	PH range	Maximum temperature	Applications
Sep H-L	H	5%	1-3	85°C	fermentation products and fruit juice containing organic acids, sugar and sugar alcohol
Sep H-M	H	8%	1-3	85°C	
Sep H-H	H	10%	1-3	85°C	
Sep Ca-L	Ca	5%	5-9	85°C	monosaccharides, oligosaccharides and sugar alcohols
Sep Ca-M	Ca	8%	5-9	85°C	
Sep Ca-H	Ca	10%	5-9	85°C	
Sep Pb-L	Pb	5%	5-9	85°C	Pentose and hexose in wood products, dairy products containing sucrose, lactose,
Sep Pb-M	Type	8%	5-9	85°C	
Sep Pb-H	Pb	10%	5-9	85°C	
Sep K-L	Pb	5%	5-9	85°C	Sucrose, honey, corn syrup, etc.
Sep K-M	K	8%	5-9	85°C	
Sep K-H	K	10%	5-9	85°C	
Sep Na-L	K	5%	5-9	85°C	Oligosaccharides, samples containing sodium ions
Sep Na-M	Na	8%	5-9	85°C	
Sep Na-H	Na	10%	5-9	85°C	

Sorbitol and Mannitol **No.03234**

1.Mannitol
2. Sorbitol



Column:	Sep Ca-M 4.6 × 250 mm, 10μm (HCA100U046X250C4A)
Mobile phase:	water
Flow rate:	0.5 mL/min
Detection:	RID
Column temperature:	80 °C

Sugar column and Organic acid column retention time reference table

	Sep H-L	Sep H-L	Sep H-M	Sep H-H	Sep Ca-M	Sep Ca-H
Particle size	5μm	10μm	10μm	10μm	10μm	10μm
Malic acid	8.66	12.03	9.8	9.24	/	/
Oxalic acid	8.94	7.72	7.44	7.72	/	/
Citric acid	9.63	10.26	8.69	8.35	/	/
Tartaric acid	10	10.74	8.94	8.64	/	/
Maleic acid	10.01	9.5	8.53	8.56	/	/
Succinic acid	12.26	14.45	11.54	10.47	/	/
Fumaric acid	13.08	7.37	7.16	7.49	/	/
Lactic acid	13.66	15.41	12.7	11.55	/	/
Formic acid	14.97	16.11	13.51	12.48	/	/
Acetic acid	16.07	17.52	14.64	13.39	/	/
Maltotriose	9.08	8.94	7.7	7.9	8.33	8.57
D-(+)-Cellobiose	9.41	9.79	8.18	8.17	8.81	8.96
(D-(+)-Maltose	9.51	10.01	8.29	8.23	9.02	9.09
D-Lactose	9.6	10.24	8.42	8.29	9.25	9.22
D-Glucose	10.73	11.9	9.68	9.16	10.61	10.32
D-(+)-Mannose	11.13	12.55	10.13	9.48	12.05	11.45
D-(+)-Galactose	11.16	12.54	10.15	9.48	11.77	11.2
D-Fructose	11.24	12.65	10.27	9.58	13.34	12.45
D-Xylose	11.32	12.61	10.24	9.6	11.63	11.19
D-Lyxose	11.62	13.08	10.64	9.87	13.96	13.02
L-(+)-Arabinose	11.89	13.45	10.93	10.08	13.41	12.53
D-(-)-Arabinose	11.9	13.46	10.93	10.08	13.43	12.52
D-(-)-Ribose	12.09	13.73	11.16	10.25	20.7	19.23
D-(+)-Sucrose	/	/	/	/	8.93	9.03
Maltitol	9.72	10.51	8.41	8.29	11.92	11.24
D-Mannitol	11.56	12.99	10.53	9.79	17.34	15.6
Galactitol	11.61	13.13	10.66	9.87	19.44	18.05
D-Sorbitol	11.61	13.12	10.64	9.86	20.22	18.71
Adonitol	12.15	13.59	11.1	10.26	14.73	13.67
Arabinitol	12.33	13.82	11.3	10.41	17.72	16.06
Xylitol	12.46	14.03	11.47	10.53	21.08	18.66
Erythriyol	13.16	14.7	11.94	11	15.98	14.47

Column: 7.8 × 300 mm, time unit (min)
7.8× 300 mm, time unit (min)
5μm: flow rate: 0.5mL/min, column temperature: 80 ° C, detection device: RID
10μm: flow rate: 0.6mL/min, column temperature: 80 ° C, detection device: RID

Ordering information

Packings	Product Code	Particle size	diameter × length
Sep H-L	HCA100U046X300B2A	10μm	4.6×300mm
Sep H-L	HCA100U078X300B2A	10μm	7.8×300mm
Sep H-M	HCA050U046X250B3A	5μm	4.6×250mm
Sep H-M	HCA050U078X100B3A	5μm	7.8×100mm
Sep H-M	HCA050U078X300B3A	5μm	7.8×300mm
Sep H-M	HCA100U046X250B4A	10μm	4.6×250mm
Sep H-M	HCA100U046X300B4A	10μm	4.6×300mm
Sep H-M	HCA100U078X300B4A	10μm	7.8×300mm
Sep H-H	HCA100U046X300B6A	10μm	4.6×300mm
Sep H-H	HCA100U078X300B6A	10μm	7.8×300mm
Sep Ca-L	HCA100U046X300C2A	10μm	4.6×300mm
Sep Ca-L	HCA100U078X300C2A	10μm	7.8×300mm
Sep Ca-M	HCA050U046X250C3A	5μm	4.6×250mm
Sep Ca-M	HCA050U078X300C3A	5μm	7.8×300mm
Sep Ca-M	HCA100U046X250C4A	10μm	4.6×250mm
Sep Ca-M	HCA100U046X300C4A	10μm	4.6×300mm
Sep Ca-M	HCA100U078X300C4A	10μm	7.8×300mm
Sep Ca-H	HCA050U046X250C5A	5μm	4.6×250mm
Sep Ca-H	HCA100U046X300C6A	10μm	4.6×300mm
Sep Ca-H	HCA100U078X300C6A	10μm	7.8×300mm
Sep Pb-L	HCA100U046X300D2A	10μm	4.6×300mm
Sep Pb-L	HCA100U078X300D2A	10μm	7.8×300mm
Sep Pb-M	HCA050U046X250D3A	5μm	4.6×250mm
Sep Pb-M	HCA050U078X100D3A	5μm	7.8×100mm
Sep Pb-M	HCA050U078X300D3A	5μm	7.8×300mm
Sep Pb-M	HCA100U046X300D4A	10μm	4.6×300mm
Sep Pb-M	HCA100U078X300D4A	10μm	7.8×300mm
Sep Pb-H	HCA100U046X300D6A	10μm	4.6×300mm
Sep Pb-H	HCA100U078X300D6A	10μm	7.8×300mm
Sep K-L	HCA100U046X300E2A	10μm	4.6×300mm
Sep K-L	HCA100U078X300E2A	10μm	7.8×300mm
Sep K-M	HCA050U046X250E3A	5μm	4.6×250mm
Sep K-M	HCA050U078X100E3A	5μm	7.8×100mm
Sep K-M	HCA050U078X100E3A	5μm	7.8×300mm
Sep K-M	HCA100U046X300E4A	10μm	4.6×300mm
Sep K-M	HCA100U078X300E4A	10μm	7.8×300mm
Sep K-H	HCA100U046X300E6A	10μm	4.6×300mm
Sep K-H	HCA100U078X300E6A	10μm	7.8×300mm
Sep Na-L	HCA100U046X300F2A	10μm	4.6×300mm
Sep Na-L	HCA100U078X300F2A	10μm	7.8×300mm
Sep Na-M	HCA050U046X250F3A	5μm	4.6×250mm
Sep Na-M	HCA050U078X100F3A	5μm	7.8×100mm
Sep Na-M	HCA050U078X300F3A	5μm	7.8×300mm
Sep Na-M	HCA100U046X250F4A	10μm	4.6×250mm
Sep Na-M	HCA100U046X300F4A	10μm	4.6×300mm
Sep Na-M	HCA100U078X300F4A	10μm	7.8×300mm
Sep Na-H	HCA100U046X300F6A	10μm	4.6×300mm
Sep Na-H	HCA100U078X300F6A	10μm	7.8×300mm

Sep ion exchange column

[Polymer matrix ion exchange]

Sep polymer matrix ion exchange column, which support is composed of a rigid, spherical, highly cross-linked poly(styrene divinylbenzene) (PS/DVB) bead, show high efficiency and high recovery separations for biological molecules.The PS/DVB resin surface is grafted with a highly hydrophilic, neutral polymer thin layer that eliminates non-specific bindings with biological analytes.Sep ion-exchange phases are composed of SCX, WCX, SAX,and WAX.

- Suitable for peptides, carbohydrates, polysaccharides, proteins, polynucleotides, etc
- Wide pH range: 2 - 12
- High resolution for slightly differed structures of biological species
- High adsorption capacity
- Excellent resolution and selectivity

Ordering information

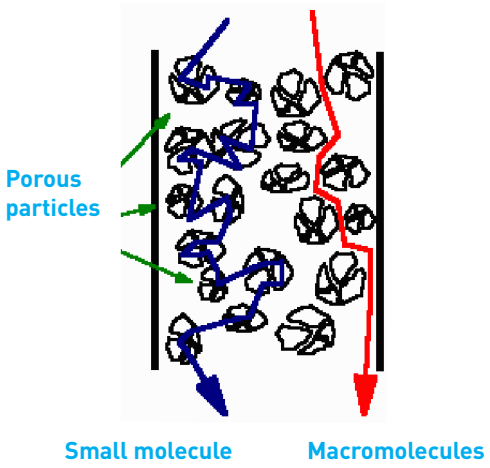
Packings	Product Code	Particle size	diameter × length
Sep SCX	HCA030U021X050H1A	3μm	2.1×50mm
Sep SCX	HCA030U021X100H1A	3μm	2.1×100mm
Sep SCX	HCA030U046X050H1A	3μm	4.6×50mm
Sep SCX	HCA030U046X100H1A	3μm	4.6×100mm
Sep SCX	HCA030U046X150H1A	3μm	4.6×150mm
Sep SCX	HCA050U021X100H2A	5μm	2.1×100mm
Sep SCX	HCA050U021X150H2A	5μm	2.1×150mm
Sep SCX	HCA050U046X050H2A	5μm	4.6×50mm
Sep SCX	HCA050U046X100H2A	5μm	4.6×100mm
Sep SCX	HCA050U046X150H2A	5μm	4.6×150mm
Sep SCX	HCA050U046X250H2A	5μm	4.6×250mm
Sep SCX	HCA100U021X050H3A	10μm	2.1×50mm
Sep SCX	HCA100U021X100H3A	10μm	2.1×100mm
Sep SCX	HCA100U021X150H3A	10μm	2.1×150mm
Sep SCX	HCA100U046X050H3A	10μm	4.6×50mm
Sep SCX	HCA100U046X100H3A	10μm	4.6×100mm
Sep SCX	HCA100U046X150H3A	10μm	4.6×150mm
Sep SCX	HCA100U046X250H3A	10μm	4.6×250mm
Sep WCX	HCA030U021X050H4A	3μm	2.1×50mm
Sep WCX	HCA030U021X100H4A	3μm	2.1×100mm
Sep WCX	HCA030U046X050H4A	3μm	4.6×50mm
Sep WCX	HCA030U046X100H4A	3μm	4.6×100mm
Sep WCX	HCA030U046X150H4A	3μm	4.6×150mm
Sep WCX	HCA050U021X050H5A	5μm	2.1×50mm
Sep WCX	HCA050U021X100H5A	5μm	2.1×100mm
Sep WCX	HCA050U021X150H5A	5μm	2.1×150mm
Sep WCX	HCA050U046X050H5A	5μm	4.6×50mm
Sep WCX	HCA050U046X100H5A	5μm	4.6×100mm
Sep WCX	HCA050U046X150H5A	5μm	4.6×150mm
Sep WCX	HCA100U021X050H6A	10μm	2.1×50mm
Sep WCX	HCA100U021X100H6A	10μm	2.1×100mm
Sep WCX	HCA100U021X150H6A	10μm	2.1×150mm
Sep WCX	HCA100U046X050H6A	10μm	4.6×50mm
Sep WCX	HCA100U046X100H6A	10μm	4.6×100mm
Sep WCX	HCA100U046X150H6A	10μm	4.6×150mm
Sep WCX	HCA100U460X250H6A	10μm	4.6×250mm

Ordering information

Packings	Product Code	Particle size	diameter × length
Sep SAX	HCA030U021X050G1A	3μm	2.1×50mm
Sep SAX	HCA030U021X100G1A	3μm	2.1×100mm
Sep SAX	HCA030U046X050G1A	3μm	4.6×50mm
Sep SAX	HCA030U046X100G1A	3μm	4.6×100mm
Sep SAX	HCA030U046X150G1A	3μm	4.6×150mm
Sep SAX	HCA050U021X050G2A	5μm	2.1×50mm
Sep SAX	HCA050U021X100G2A	5μm	2.1×100mm
Sep SAX	HCA050U021X150G2A	5μm	2.1×150mm
Sep SAX	HCA050U046X050G2A	5μm	4.6×50mm
Sep SAX	HCA050U046X100G2A	5μm	4.6×100mm
Sep SAX	HCA050U046X150G2A	5μm	4.6×150mm
Sep SAX	HCA100U021X050G3A	10μm	2.1×50mm
Sep SAX	HCA100U021X100G3A	10μm	2.1×100mm
Sep SAX	HCA100U021X150G3A	10μm	2.1×150mm
Sep SAX	HCA100U046X050G3A	10μm	4.6×50mm
Sep SAX	HCA100U046X100G3A	10μm	4.6×100mm
Sep SAX	HCA100U046X150G3A	10μm	4.6×150mm
Sep SAX	HCA100U046X250G3A	10μm	4.6×250mm
Sep WAX	HCA030U021X050G4A	3μm	2.1×50mm
Sep WAX	HCA030U021X100G4A	3μm	2.1×100mm
Sep WAX	HCA030U046X050G4A	3μm	4.6×50mm
Sep WAX	HCA030U046X100G4A	3μm	4.6×100mm
Sep WAX	HCA030U046X150G4A	3μm	4.6×150mm
Sep WAX	HCA050U021X050G5A	5μm	2.1×50mm
Sep WAX	HCA050U021X100G5A	5μm	2.1×100mm
Sep WAX	HCA050U021X150G5A	5μm	2.1×150mm
Sep WAX	HCA050U046X050G5A	5μm	4.6×50mm
Sep WAX	HCA050U046X100G5A	5μm	4.6×100mm
Sep WAX	HCA050U046X150G5A	5μm	4.6×150mm
Sep WAX	HCA100U021X050G6A	10μm	2.1×50mm
Sep WAX	HCA100U021X100G6A	10μm	2.1×100mm
Sep WAX	HCA100U021X150G6A	10μm	2.1×150mm
Sep WAX	HCA100U046X050G6A	10μm	4.6×50mm
Sep WAX	HCA100U046X100G6A	10μm	4.6×100mm
Sep WAX	HCA100U046X150G6A	10μm	4.6×150mm
Sep WAX	HCA100U046X250G6A	10μm	4.6×250mm

Size exclusion column (SEC)

Size Exclusion Chromatography (SEC), is a chromatographic method in which molecules in solution are separated by their size, not by molecular weight. It is usually applied to large molecules or macromolecular complexes such as industrial polymers, proteins and nano-particles.
Major brands on the market are TKS, Shodex etc. CNW size exclusion columns have the same excellent performence.



The column used is filled with high-purity silica or polymer containing many pores. Macromolecules which cannot enter the pores flow quickly through the column, while small molecules which can penetrate deep into the pores flow more slowly through the column; other molecules have different retention time arccording to their size.

Compare the calibration curves and select a column that is best suited to the range of molecule weights to be measured. If samples contain molecules larger than the packing material pores, they are excluded and can cause a peak to appear near the exclusion limit.

Size exclusion chromatography can be divided into:

Gel permeation chromatography (GPC) which uses a hydrophobic column packing material and a non-aqueous mobile phase (organic solvent) to measure the molecular weight distribution of synthetic polymers.

Gel filtration chromatography (GFC) which uses a hydrophilic packing material and an aqueous mobile phase to separate, fractionate, or measure the molecular weight distribution of molecules soluble in water, such as polysaccharides and proteins.

Gel silica matrix SEC column

Gel columns are all silica matrix size exclusion chromatography. X and S series packings, offering both 3μm and 5μm two particle sizes, can meet different separation requirements. Widely used in biological molecules and water-soluble polymers separation, including proteins, nucleic acids, etc. X-Series packing is more universal. Compared to X-Series, S-Series is more suitable for insulin, trypsin etc. hydrophobic protein, as well as monoclonal antibody protein.

Gel X series of columns (Universal)

pH range: 2 - 8.5, maximum temperature 80℃, salt concentration 20 mM -2.0M, mobile phase is conventional aqueous phase and organic phase solvent.

Filler Model

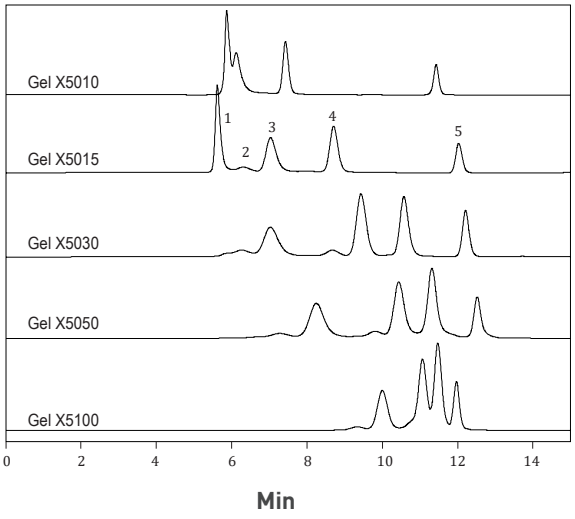
packing model	aperture diameter	Partical size	protein molecular weight	water-soluble
polymer molecular weight	100Å	3μm	100 - 100,000	500 - 10,000
Gel X3015	150Å	3μm	500 - 150,000	500 - 25,000
Gel X3030	300Å	3μm	5,000 - 1,250,000	1,000 - 100,000
Gel X5010	100Å	5μm	100 - 100,000	500 - 10,000
Gel X5015	150Å	5μm	500 - 150,000	500 - 25,000
Gel X5030	300Å	5μm	5,000 - 1,250,000	1,000 - 100,000
Gel X5050	500Å	5μm	15,000 - 5,000,000	2,500 - 500,000
Gel X5100	1000Å	5μm	50,000 - 7,500,000	5,000 - 1,500,000
Gel X5200	2000Å	5μm	>10,000,000	50,000 - >2,500,000

Gel S series columns (S series packing is ideal for separation of insulin, trypsin etc. hydrophobic protein, as well as monoclonal antibody protein)

pH range: 2 - 8.5, maximum temperature 80℃ , salt concentration 20 mM - 2.0M, mobile phase is conventional aqueous phase and organic phase solvent.

Packing model	Aperture diameter	Partical size	Protein molecular weight
Gel S3010	100Å	3μm	100 - 100,000
Gel S3015	150Å	3μm	500 - 150,000
Gel S3030	300Å	3μm	5,000 - 1,250,000
Gel S5015	150Å	5μm	500 - 150,000
Gel S5030	300Å	5μm	5,000 - 1,250,000
Gel S5050	500Å	5μm	15,000 - 5,000,000

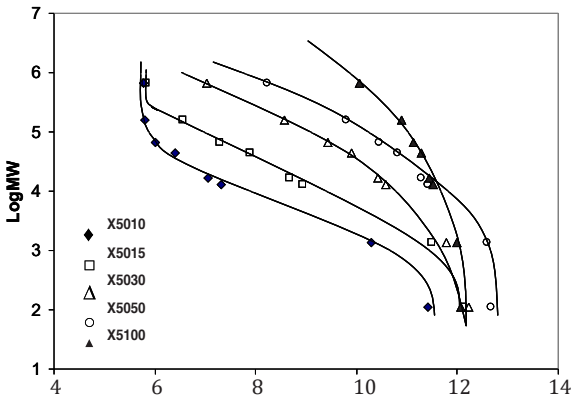
Comparison of different columns for separation of protein samples **No.03235**



Column:	Gel X5010 4.6 × 300mm, 5μm (HCA050U046X300ADA) Gel X5015 4.6 × 300mm, 5μm (HCA050U046X300AEA) Gel X5030 4.6 × 300mm, 5μm (HCA050U046X300AFA) Gel X5100 4.6 × 300mm, 5μm (HCA050U046X300AHA)
Mobile phase:	150 mM sodium phosphate buffer (pH 7.0)
Flow rate:	0.35 mL/min
Detection:	214 nm
Column temperature:	23 °C

1.Thyroglobulin (1.0 mg/mL), 670 kD
2.BSA dimer, 132 kD
3.BSA (1.0 mg/mL), 66 kD
4.Ribonuclease A (1.0 mg/mL), 13.7 kD
5.Uracil (2.5 ug/mL), 120 kD.

protein molecular weight calibration curve **No.03236**



Column:	Column: Gel X5010 7.8 × 300mm, 5μm (HCA050U078X300ADA) Gel X5015 7.8 × 300mm, 5μm (HCA050U078X300AEA) Gel X5030 7.8 × 300mm, 5μm (HCA050U078X300AFA) Gel X5100 7.8 × 300mm, 5μm (8.830AH.0001)
Mobile phase:	150 mM sodium phosphate buffer (pH 7.0)
Flow rate:	0.35 mL/min
Detection:	214 nm
Column temperature:	23 °C

1.Thyroglobulin, 670 kD
2.gamma-Globulin, 158kD
3.BSA, 66 kD
4.Ovalbumin, 44 kD
5.Myoglobin, 17.6 kD 6.Ribonuclease A, 13.7 kD
7.B12, 1.35 kD
8.Uracil, 120.

Ordering information

Packings	Product Code	Particle size	diameter × length
X3010	HCA030U046X050AAA	3μm	4.6×50mm
X3010	HCA030U046X150AAA	3μm	4.6×150mm
X3010	HCA030U046X250AAA	3μm	4.6×250mm
X3010	HCA030U046X300AAA	3μm	4.6×300mm
X3010	HCA030U078X050AAA	3μm	7.8×50mm
X3010	HCA030U078X150AAA	3μm	7.8×150mm
X3010	HCA030U078X250AAA	3μm	7.8×250mm
X3010	HCA030U078X300AAA	3μm	7.8×300mm
X3015	HCA030U046X050ABA	3μm	4.6×50mm
X3015	HCA030U046X150ABA	3μm	4.6×150mm
X3015	HCA030U046X250ABA	3μm	4.6×250mm
X3015	HCA030U046X300ABA	3μm	4.6×300mm
X3015	HCA030U078X050ABA	3μm	7.8×50mm
X3015	HCA030U078X150ABA	3μm	7.8×150mm
X3015	HCA030U078X250ABA	3μm	7.8×250mm
X3015	HCA030U078X300ABA	3μm	7.8×300mm
X3030	HCA030U046X050ACA	3μm	4.6×50mm

Ordering information

Packings	Product Code	Particle size	diameter × length
X3030	HCA030U046X150ACA	3μm	4.6×150mm
X3030	HCA030U046X250ACA	3μm	4.6×250mm
X3030	HCA030U046X300ACA	3μm	4.6×300mm
X3030	HCA030U078X050ACA	3μm	7.8×50mm
X3030	HCA030U078X150ACA	3μm	7.8×150mm
X3030	HCA030U078X250ACA	3μm	7.8×250mm
X3030	HCA030U078X300ACA	3μm	7.8×300mm
X5010	HCA050U046X050ADA	5μm	4.6×50mm
X5010	HCA050U046X150ADA	5μm	4.6×150mm
X5010	HCA050U046X250ADA	5μm	4.6×250mm
X5010	HCA050U046X300ADA	5μm	4.6×300mm
X5010	HCA050U078X050ADA	5μm	7.8×50mm
X5010	HCA050U078X150ADA	5μm	7.8×150mm
X5010	HCA050U078X250ADA	5μm	7.8×250mm
X5010	HCA050U078X300ADA	5μm	7.8×300mm
X5015	HCA050U046X050AEA	5μm	4.6×50mm
X5015	HCA050U046X150AEA	5μm	4.6×150mm
X5015	HCA050U046X250AEA	5μm	4.6×250mm
X5015	HCA050U046X300AEA	5μm	4.6×300mm
X5015	HCA050U078X050AEA	5μm	7.8×50mm
X5015	HCA050U078X150AEA	5μm	7.8×150mm
X5015	HCA050U078X250AEA	5μm	7.8×250mm
X5015	HCA050U078X300AEA	5μm	7.8×300mm
X5030	HCA050U046X050AFA	5μm	4.6×50mm
X5030	HCA050U046X150AFA	5μm	4.6×150mm
X5030	HCA050U046X250AFA	5μm	4.6×250mm
X5030	HCA050U046X300AFA	5μm	4.6×300mm
X5030	HCA050U078X050AFA	5μm	7.8×50mm
X5030	HCA050U078X150AFA	5μm	7.8×150mm
X5030	HCA050U078X250AFA	5μm	7.8×250mm
X5030	HCA050U078X300AFA	5μm	7.8×300mm
X5050	HCA050U046X050AFA	5μm	4.6×50mm
X5050	HCA050U046X150AFA	5μm	4.6×150mm
X5050	HCA050U046X250AFA	5μm	4.6×250mm
X5050	HCA050U046X300AFA	5μm	4.6×300mm
X5050	HCA050U078X050AFA	5μm	7.8×50mm
X5050	HCA050U078X150AFA	5μm	7.8×150mm
X5050	HCA050U078X250AFA	5μm	7.8×250mm
X5050	HCA050U078X300AFA	5μm	7.8×300mm
X5100	HCA050U046X050AHA	5μm	4.6×50mm
X5100	HCA050U046X150AHA	5μm	4.6×150mm
X5100	HCA050U046X250AHA	5μm	4.6×250mm
X5100	HCA050U046X300AHA	5μm	4.6×300mm
X5100	HCA050U078X050AHA	5μm	7.8×50mm
X5100	HCA050U078X150AHA	5μm	7.8×150mm
X5100	HCA050U078X250AHA	5μm	7.8×250mm
X5100	HCA050U078X300AHA	5μm	7.8×300mm
X5200	HCA050U046X050AJA	5μm	4.6×50mm
X5200	HCA050U046X150AJA	5μm	4.6×150mm
X5200	HCA050U046X250AJA	5μm	4.6×250mm
X5200	HCA050U046X300AJA	5μm	4.6×300mm
X5200	HCA050U078X050AJA	5μm	7.8×50mm

Packings	Product Code	Particle size	diameter × length
X5200	HCA050U078X150AJA	5μm	7.8×150mm
X5200	HCA050U078X250AJA	5μm	7.8×250mm
X5200	HCA050U078X300AJA	5μm	7.8×300mm
S3010	HCA030U046X050AKA	3μm	4.6×50mm
S3010	HCA030U046X150AKA	3μm	4.6×150mm
S3010	HCA030U046X250AKA	3μm	4.6×250mm
S3010	HCA030U046X300AKA	3μm	4.6×300mm
S3010	HCA030U078X050AKA	3μm	7.8×50mm
S3010	HCA030U078X150AKA	3μm	7.8×150mm
S3010	HCA030U078X250AKA	3μm	7.8×250mm
S3010	HCA030U078X300AKA	3μm	7.8×300mm
S3015	HCA030U046X050ALA	3μm	4.6×50mm
S3015	HCA030U046X150ALA	3μm	4.6×150mm
S3015	HCA030U046X250ALA	3μm	4.6×250mm
S3015	HCA030U046X300ALA	3μm	4.6×300mm
S3015	HCA030U078X050ALA	3μm	7.8×50mm
S3015	HCA030U078X150ALA	3μm	7.8×150mm
S3015	HCA030U078X250ALA	3μm	7.8×250mm
S3015	HCA030U078X300ALA	3μm	7.8×300mm
S3030	HCA030U046X050AMA	3μm	4.6×50mm
S3030	HCA030U046X150AMA	3μm	4.6×150mm
S3030	HCA030U046X250AMA	3μm	4.6×250mm
S3030	HCA030U046X300AMA	3μm	4.6×300mm
S3030	HCA030U078X050AMA	3μm	7.8×50mm
S3030	HCA030U078X150AMA	3μm	7.8×150mm
S3030	HCA030U078X250AMA	3μm	7.8×250mm
S3030	HCA030U078X300AMA	3μm	7.8×300mm
S5015	HCA050U046X050ANA	5μm	4.6×50mm
S5015	HCA050U046X150ANA	5μm	4.6×150mm
S5015	HCA050U046X250ANA	5μm	4.6×250mm
S5015	HCA050U046X300ANA	5μm	4.6×300mm
S5015	HCA050U078X050ANA	5μm	7.8×50mm
S5015	HCA050U078X150ANA	5μm	7.8×150mm
S5015	HCA050U078X250ANA	5μm	7.8×250mm
S5015	HCA050U078X300ANA	5μm	7.8×300mm
S5030	HCA050U046X050AOA	5μm	4.6×50mm
S5030	HCA050U046X150AOA	5μm	4.6×150mm
S5030	HCA050U046X250AOA	5μm	4.6×250mm
S5030	HCA050U046X300AOA	5μm	4.6×300mm
S5030	HCA050U078X050AOA	5μm	7.8×50mm
S5030	HCA050U078X150AOA	5μm	7.8×150mm
S5030	HCA050U078X250AOA	5μm	7.8×250mm
S5030	HCA050U078X300AOA	5μm	7.8×300mm
S5050	HCA050U046X050APA	5μm	4.6×50mm
S5050	HCA050U046X150APA	5μm	4.6×150mm
S5050	HCA050U046X250APA	5μm	4.6×250mm
S5050	HCA050U046X300APA	5μm	4.6×300mm
S5050	HCA050U078X050APA	5μm	7.8×50mm
S5050	HCA050U078X150APA	5μm	7.8×150mm
S5050	HCA050U078X250APA	5μm	7.8×250mm
S5050	HCA050U078X300APA	5μm	7.8×300mm

CruxPoly and ElfPoly polymer matrix SEC column

CruxPoly and ElfPoly series columns are based on highly cross-linked polystyrene / divinylbenzene (PS/DVB) particles with very narrow particle size and pore size distributions. Their uniformpore size distribution offers near linear calibration curves covering wide molecular weight range. Compared to silica gel matrix size exclusion column, polymer matrix is stable to resist wide range of solvents, and have low background noise for light scattering detection. They are uesd to separate .polystyrene, polyacrylate, polysiloxane etc.

CruxPoly series columns

PH range: 1 – 14; maximum temperature: 145 ℃ . Mobile phase is organic solvents (THF, DMAC, TCB, NMP etc.).

packing model	aperture diameter	Partical size	Molecular weight exclusion limit
CruxPoly T100	100Å	5μm,10μm	100 - 100,000
CruxPoly T300	300Å	5μm,10μm	500 - 250,000
CruxPoly T500	500Å	5μm,10μm	1,000 - 750,000
CruxPoly T1000	1000Å	5μm,10μm	5,000 - 2,500,000
CruxPoly TMIX	100 - 1000Å	5μm,10μm	5,000 - 2,500,000

Ordering information

Packings	Product Code	Particle size	diameter × length
CruxPoly T100	HCA050U046X300BAA	5μm	4.6×300mm
CruxPoly T100	HCA050U078X050BAA	5μm	7.8×50mm
CruxPoly T100	HCA050U078X300BAA	5μm	7.8×300mm
CruxPoly T100	HCA100U046X300BBA	10μm	4.6×300mm
CruxPoly T100	HCA100U078X300BBA	10μm	7.8×300mm
CruxPoly T300	HCA050U046X050BCA	5μm	4.6×50mm
CruxPoly T300	HCA050U046X300BCA	5μm	4.6×300mm
CruxPoly T300	HCA050U078X050BCA	5μm	7.8×50mm
CruxPoly T300	HCA050U078X300BCA	5μm	7.8×300mm
CruxPoly T500	HCA050U078X300BEA	5μm	4.6×300mm
CruxPoly T500	HCA050U078X050BEA	5μm	7.8×50mm
CruxPoly T500	HCA050U078X300BEA	5μm	7.8×300mm
CruxPoly T1000	HCA050U046X300BGA	5μm	4.6×300mm
CruxPoly T1000	HCA050U078X300BGA	5μm	7.8×300mm

Preparative column

Preparative columns and semi-preparative columns have a variety of packings, particle size as 5 and 10μm.

Silica gel matrix:

C18 C18-BIO C8
C4 Phenyl
Silica CN NH2
Diol HILIC
HILIC(2)
HILIC(3) SAX
SCX

Polymer matrix:

Sep RP1 Sep RP3
Sep SP Sep SAX
Sep WAX Sep SCX
Sep WCX

Size exclusion chromatography:

Gel X5010
Gel X5015
Gel X5030
Gel X5050
Gel X5100
Gel X5200
Gel S5015
Gel S5030
Gel S5050
CruxPoly T100
CruxPoly T300
CruxPoly T500
CruxPoly T1000
CruxPoly TMIX
ElfPoly Z300
ElfPoly Z500
ElfPoly Z1000
ElfPoly Z2000
ElfPoly ZMIX

Preparative column and semi-preparative column dimensions as:

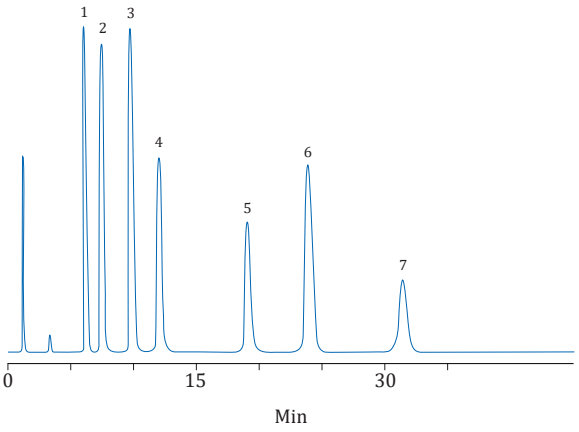
50mm x 10.0mm
100mm x 10.0mm
150mm x 10.0mm
250mm x 10.0mm
10mm x 21.2mm
50mm x 21.2mm
100mm x 21.2mm
150mm x 21.2mm
250mm x 21.2mm
50mm x 30.0mm
100mm x 30.0mm
150mm x 30.0mm
250mm x 30.0mm
50mm x 50.0mm
150mm x 50.0mm
250mm x 50.0mm

The description and characteristics of preparative and semi-preparative silimlar to analytical column. Please contact GVS salesman or inquire for price and delivery date.

Application: Drugs

Tricyclic antidepressants No.1209001

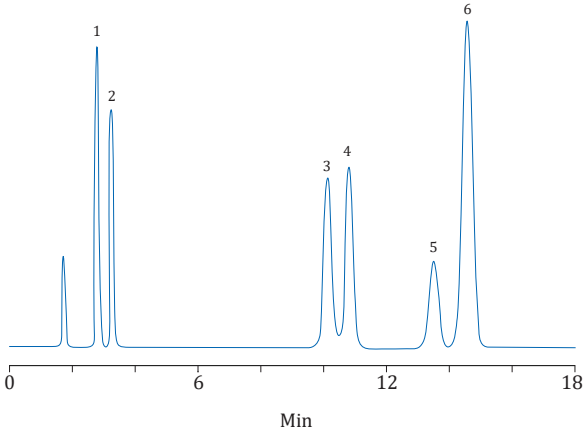
1. Protriptyline
2. Desipramine
3. Nortriptyline
4. Doxepin
5. Imipramine
6. Amitriptyline
7. Trimipramine



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	methanol / 20 mM KH2PO4 - K2HPO4 buffer (pH 7.0) (70/30)
Flow rate:	1.2 mL/min
Detection:	240 nm
Column temperature:	30 °C

Cough and cold medicine ingredients No.1209003

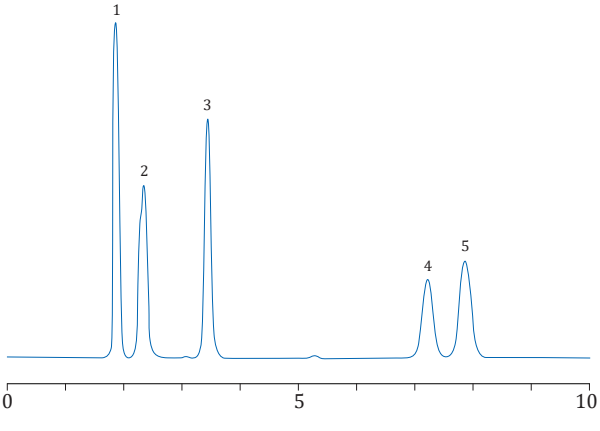
1. Acetaminophen
2. Caffeine
3. Chlorpheniramine Maleate
4. Aspirine
5. Ethenzamide
6. Bucetin



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	methanol / 50 mM NH4H2PO4 - H3PO4 buffer (pH 2.5) (20/80)
Flow rate:	1.0mL/min
Detection:	235 nm
Column temperature:	40 °C

Beta-blockers No.1209002

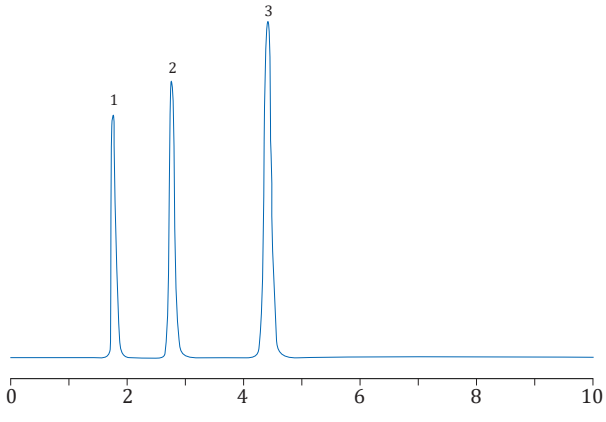
1. Atenolol
2. Nadolol
3. Metoprolol
4. Propranolol
5. Alprenolol



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	methanol / 20 mM KH2PO4 - K2HPO4 buffer (pH 7.0) (70/30)
Flow rate:	1.2 mL/min
Detection:	240 nm
Column temperature:	30 °C

Procainamide No.1209004

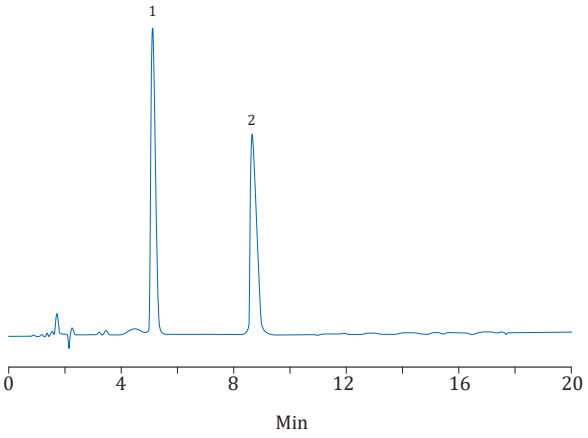
1. Uracil
2. Procainamide
3. N-Acetylprocainamide



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	methanol / 50 mM NH4H2PO4 - H3PO4 buffer (pH 2.5) (20/80)
Flow rate:	1.0mL/min
Detection:	235 nm
Column temperature:	40 °C

Anticholinergics No.1209005

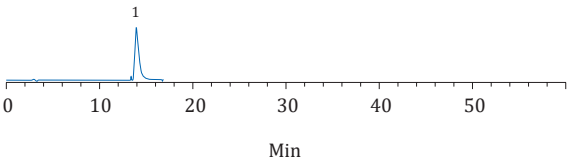
1. Scopolamine Hydrobromide
2. Atropine Sulfate



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	methanol / 30 mM NaH2PO4 buffer (15/85)
Flow rate:	1.0 mL/min
Detection:	254 nm
Column temperature:	40 °C

Glycyrrhizin No.1209007

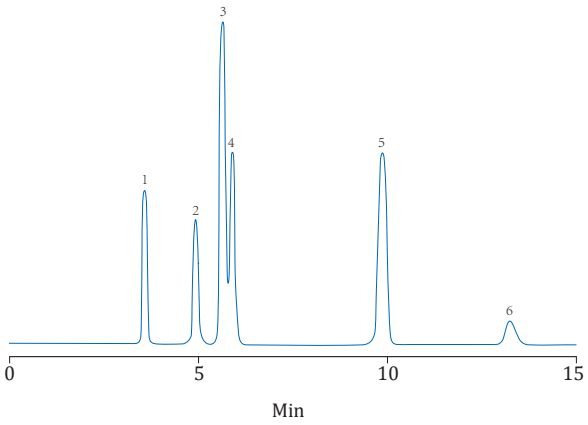
1. Glycyrrhizin



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	acetonitrile / 0.1% acetic acid (38/62)
Flow rate:	1.0mL/min
Detection:	254 nm
Column temperature:	30 °C

Non-steroidal anti-inflammatory drugs No.1209006

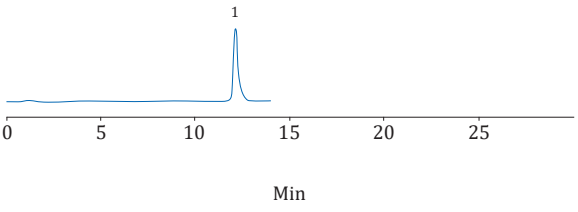
1. Piroxicam
2. Sulindac
3. Ketoprofen
4. Naproxen
5. Flurbiprofen
6. Ibuprofen



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	acetonitrile / 1% acetic acid buffer solution (65/35)
Flow rate:	1.0 mL/min
Detection:	260 nm
Column temperature:	40 °C

Matrine No.1209008

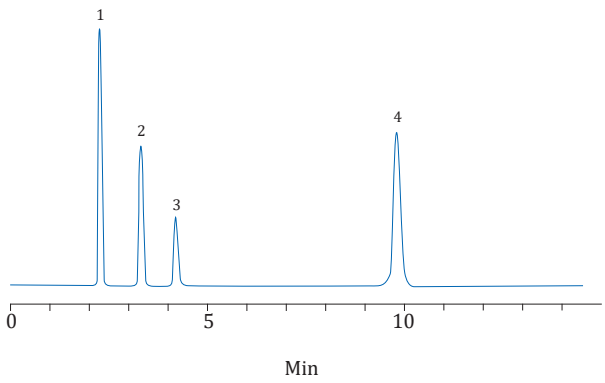
1.Matrine



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	acetonitrile / 0.1% phosphoric acid (triethylamine adjusted pH 8.0) = 28/72
Flow rate:	2.0mL/min
Detection:	220 nm
Column temperature:	40 °C

Anti-HIV drugs No.1209009

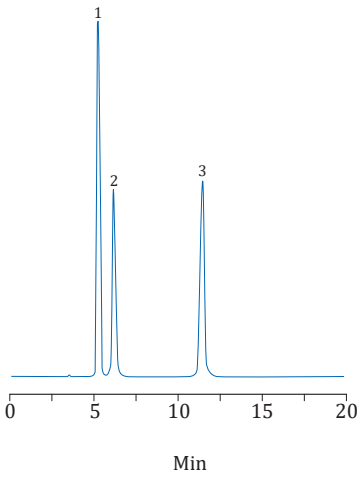
1.Thymidine
2.d4T
3.AZT-Glucuronide
4.AZT



Column:	C18-BIO 4.6 × 150mm, 5μm (HCA050U046X15078A)
Mobile phase:	methanol / 20 mM NH4H2PO4 buffer (10/90)
Flow rate:	1.0 mL/min
Detection:	260 nm
Column temperature:	35 °C

Steroids -1 No.1209011

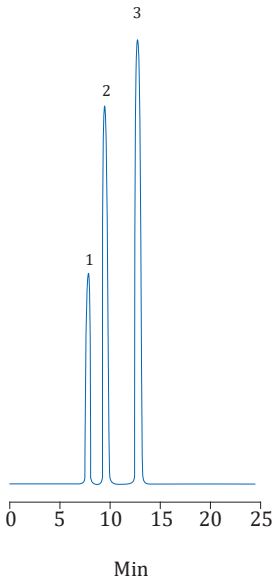
1. Estrone
2. Estradiol
3. Estriol



Column:	Silica 4.6 × 150mm, 5μm (HCA050U046X15076A)
Mobile phase:	n-hexane / ethanol (85/15)
Flow rate:	1.0mL/min
Detection:	270 nm
Column temperature:	40 °C

Tricyclic antidepressants No.1209010

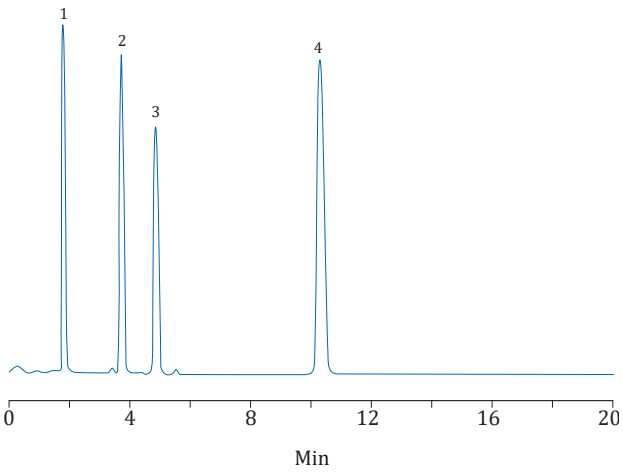
1. Protriptyline
2. Nortriptyline
3. Amitriptyline



Column:	C8 4.6 x 150mm, 5μm (HCA050U046X15075A)
Mobile phase:	methanol / 20 mM K2HPO4 buffer (pH 7.0) (80/20)
Flow rate:	1.0 mL/min
Detection:	254 nm
Column temperature:	40 °C

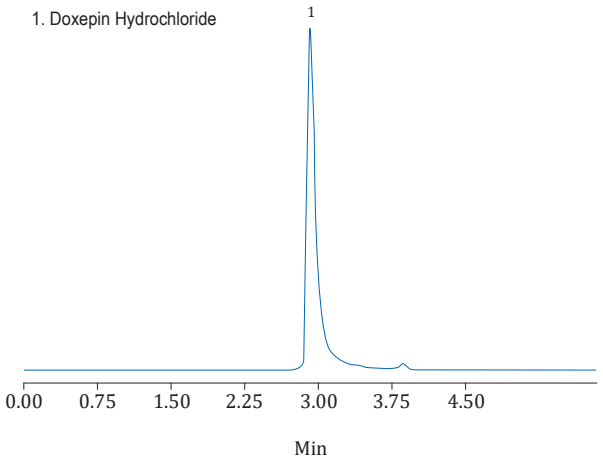
Steroids -2 No.1209012

1. Estriol
2. β-Estradiol
3. Estrone
4. Progesterone



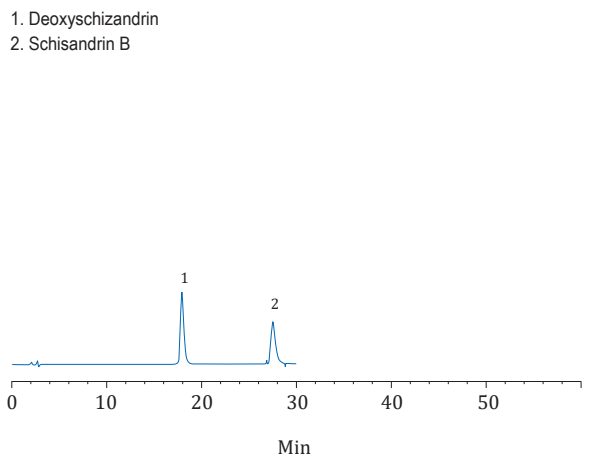
Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	acetonitrile / water (60/40)
Flow rate:	1.0mL/min
Detection:	30 nm
Column temperature:	35 °C

Doxepin Hydrochloride No.1209013



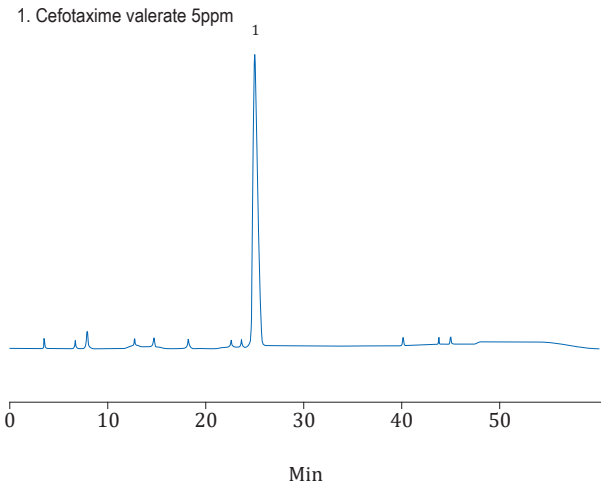
Column:	C 18 - W P, 5um, 250mm x 4 .6mm (HCA050U046X25072A)
Mobile phase:	0.1% triethylamine 0.2 mol / L sodium dihydrogen phosphate: methanol = 65:35 PH = 2.5
Flow rate:	1.0 mL/min
Detection:	254 nm
Column temperature:	50 °C

Deoxyschizandrin schisandrin B No.1209015



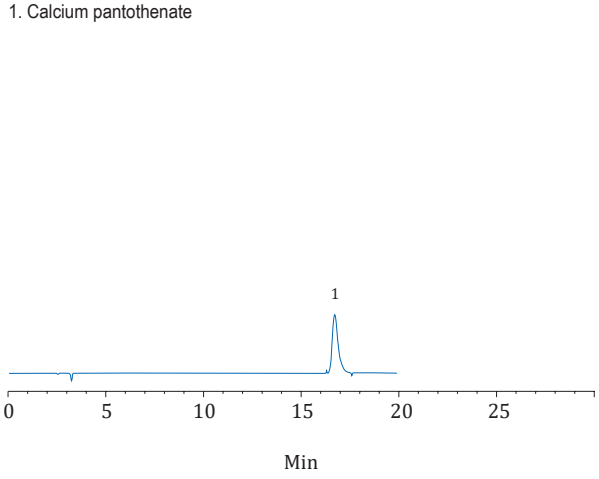
Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	methanol / water (77/23)
Flow rate:	1.0mL/min
Detection:	254 nm
Column temperature:	30 °C

Cefotaxime valerate No.1209014



Column:	C18-WP 150mm × 4.6, 5 um (HCA050U046X15072A)
Mobile phase:	T(min) / Sodium dihydrogen phosphate(pH = 6.25) / methanol
	0-7 / 86 / 14
	7-9 / 86-82 / 14-18
	9-16 / 82 / 18
	16-45 / 82-60 / 18-40
	45-50 / 60 / 40
	50-55 / 60-86 / 40-14
	55-60 / 86 / 14
Flow rate:	1.0 mL/min
Detection:	235nm
Column temperature:	30 °C

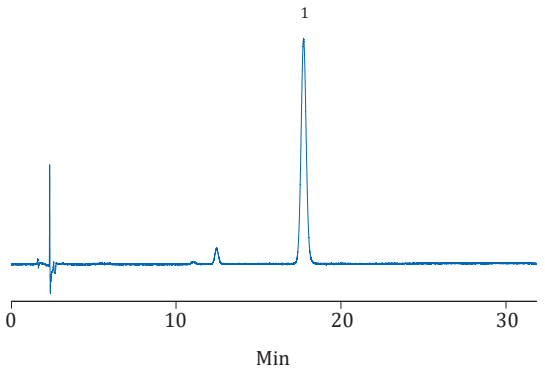
Calcium pantothenate No.1209016



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	acetonitrile / 20 mM potassium phosphate dibasic = 5/95
Flow rate:	1.0mL/min
Detection:	200 nm
Column temperature:	30 °C

Cefotaxime Sodium No.1209017

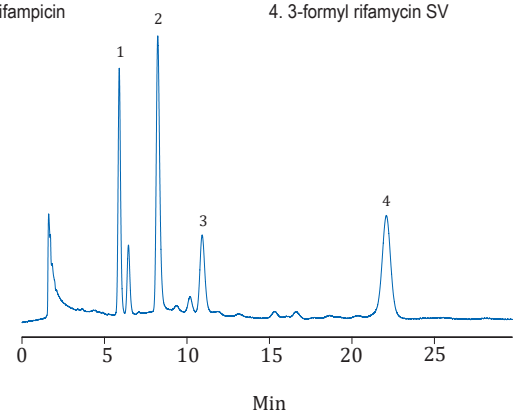
1. Cefuroxime Sodium



Column:	C18 4.6 × 250mm, 5μm (HCA050U046X25071A)
Mobile phase:	sodium acetate - acetic acid buffer solution (pH3.4) / acetonitrile = 10/1
Flow rate:	1.5mL/min
Detection:	254 nm
Column temperature:	25 °C

Rifampicin and related substances No.1209019

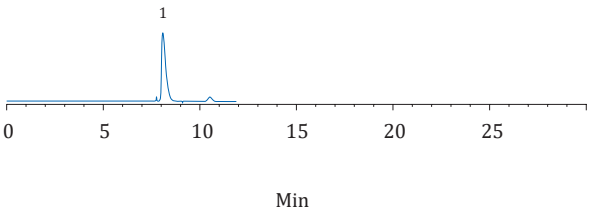
1. rifampicin quinone
2. rifampicin
3. N-oxidation of rifampicin
4. 3-formyl rifamycin SV



Column:	C8 4.6 × 150mm, 5μm (HCA050U046X15075A)
Mobile phase:	methanol / acetonitrile / 0.075mM potassium dihydrogen phosphate / 1M citric acid (30/30/36/4)
Flow rate:	1.0mL/min
Detection:	254 nm
Column temperature:	25 °C

Taurine No.1209018

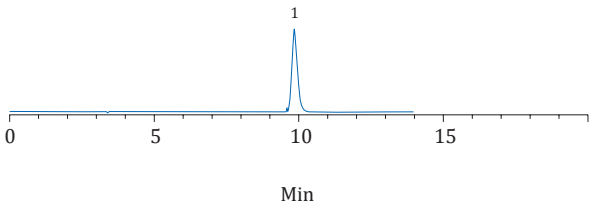
1. taurine



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	methanol / 50mM sodium acetate (37/63)
Flow rate:	1.0 mL/min
Detection:	360 nm
Column temperature:	30 °C

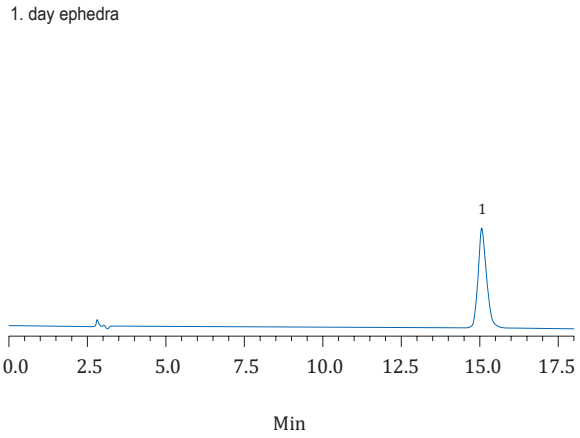
Melatonin No.1209020

1. melatonin



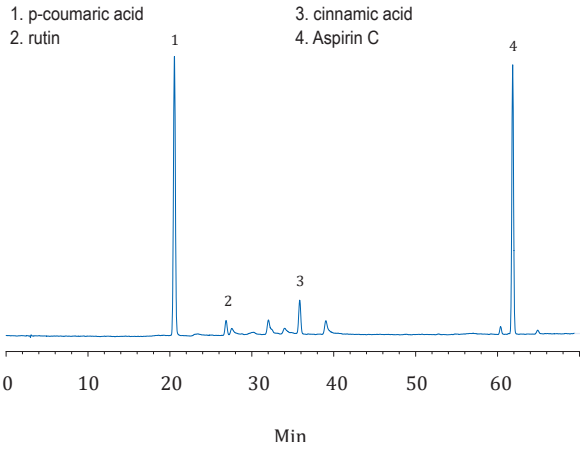
Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	methanol / water +50 mM TFA (45/55)
Flow rate:	1mL/min
Detection:	222 nm
Column temperature:	30°C

Day ephedra No.1209021



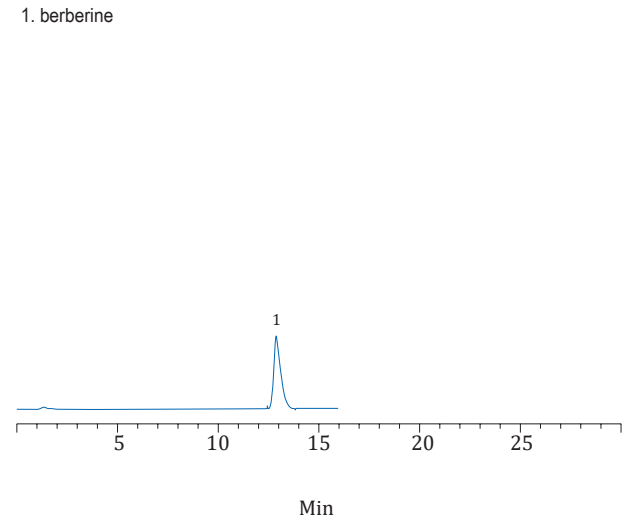
Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	acetonitrile / water / 0.1% phosphoric acid (1/2/97)
Flow rate:	1.0 mL/min
Detection:	222 nm
Column temperature:	25 °C

Aspirin C in propolis No.1209023



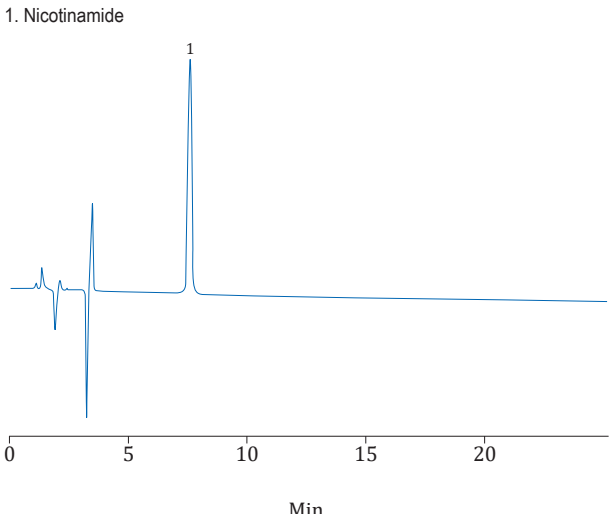
Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	A: methanol B: water (formic acid adjusted PH = 2.7)
	0min 20%A / 70min 95%A / 75min 80%A
Flow rate:	1mL/min
Detection:	310 nm
Column temperature:	40 °C

Berberine No.1209022



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	12.5mM sodium dodecyl / 12.5mM potassium dihydrogen phosphate / acetonitrile (25/25/50)
Flow rate:	1.0mL/min
Detection:	345 nm
Column temperature:	25 °C

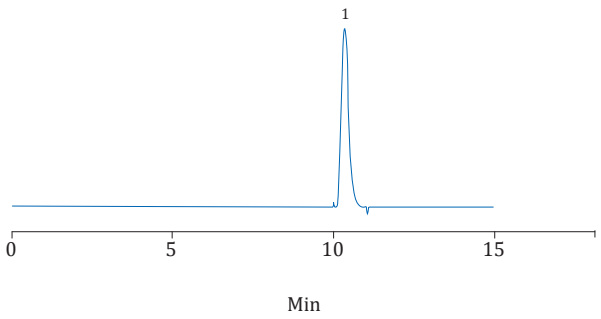
Nicotinamide No.1209024



Column:	C 18-WP, 5 µm, 150 mm × 4.6 mm, (HCA050U046X15072A)
Mobile phase:	methanol 70 mL, isopropanol, 20 mL, heptane sulfonate 1 g, was dissolved with 910 mL of water and after mixing using perchloric acid to adjust to pH 2.1 ±0.1, filtered through 0.45 µm membrane
Flow rate:	1.0mL/min
Detection:	261 nm
Column temperature:	25 °C

VitB6 No.1209025

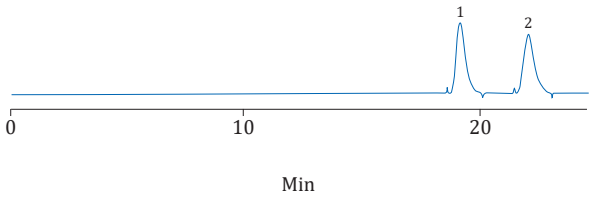
1. VitB6



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	methanol / 0.04% pentane sulfonate (use acetic acid to adjust ph3.0) = 15/85
Flow rate:	1mL/min
Detection:	291nm
Column temperature:	30 °C

Psoralen No.1209027

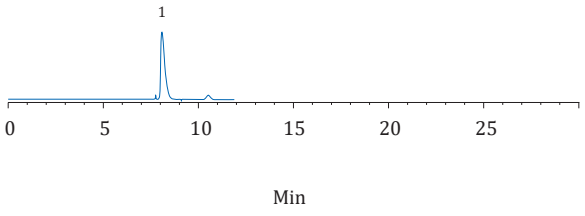
1. psoralen
1. isopsoralen



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	methanol / water = 40/60
Flow rate:	1mL/min
Detection:	246 nm
Column temperature:	30 °C

Coenzyme Q No.1209026

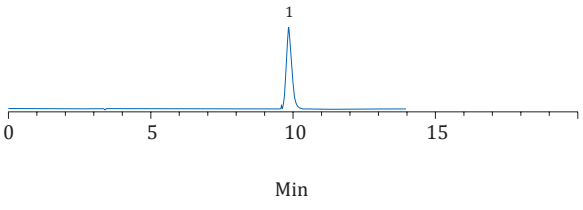
1. taurine



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	methanol / ethanol = 50/50
Flow rate:	1mL/min
Detection:	275nm
Column temperature:	30 °C

Loganin No.1209028

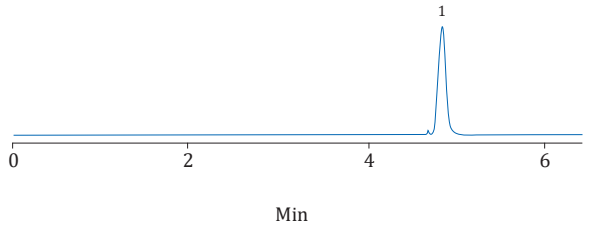
1. melatonin



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	methanol / acetonitrile / 0.1% phosphoric acid = 5/9/86
Flow rate:	1mL/min
Detection:	236 nm
Column temperature:	30°C

Paeonol No.1209029

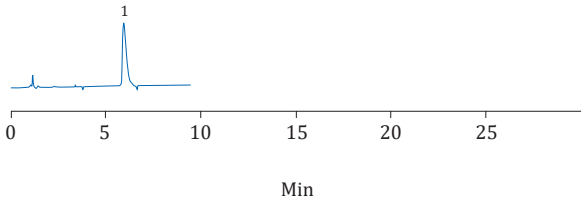
1. Paeonol



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	methanol / water = 70/30
Flow rate:	1.0 mL/min
Detection:	274 nm
Column temperature:	30 °C

Clarithromycin No.1209031

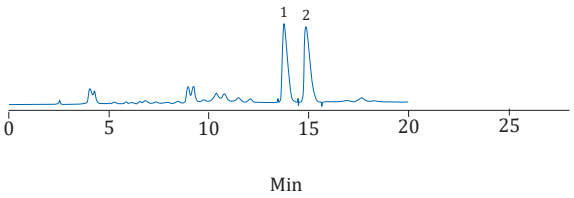
1. Clarithromycin



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	acetonitrile / phosphate buffer (ph5.5) = 40/60
Flow rate:	1.0 mL/min
Detection:	210 nm
Column temperature:	30 °C

Cefixime No.1209030

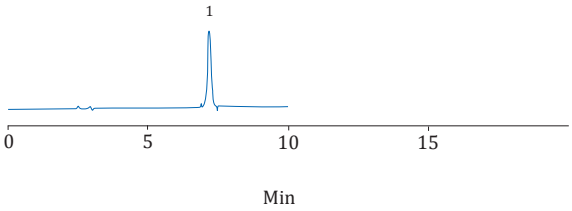
1. E isomer
2. cefixime



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	tetrabutylammonium hydroxide (ph7.0) / acetonitrile = 72:28
Flow rate:	1.0mL/min
Detection:	254 nm
Column temperature:	30 °C

Paeoniflorin No.1209032

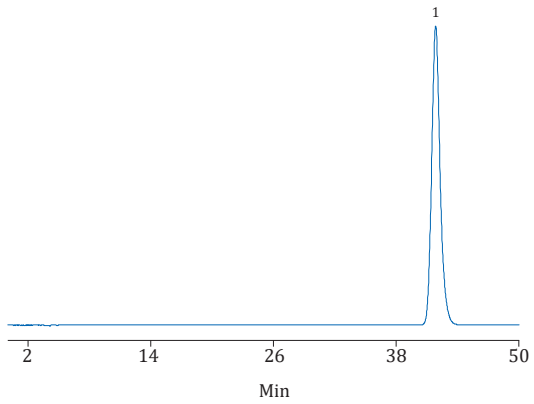
1. Paeoniflorin



Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	acetonitrile / 0.04% phosphoric acid = 15/85
Flow rate:	1.0mL/min
Detection:	230nm
Column temperature:	30 °C

Carbamazepine No.1209033

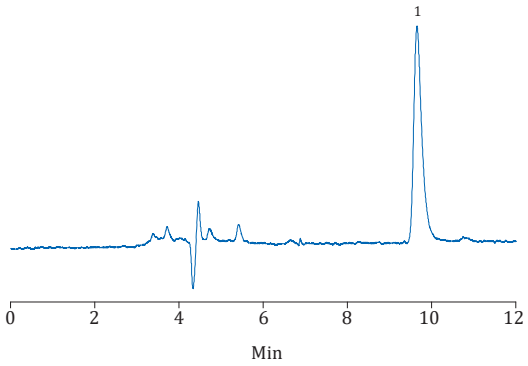
1. Carbamazepine



Column:	CN 4.6 × 250mm, 5μm (HCA050U046X25033A)
Mobile phase:	methanol / water / trifluoroacetic acid (12/85/3)
Flow rate:	1.0mL/min
Detection:	230nm
Column temperature:	25 °C

Domiphen bromide No.1209035

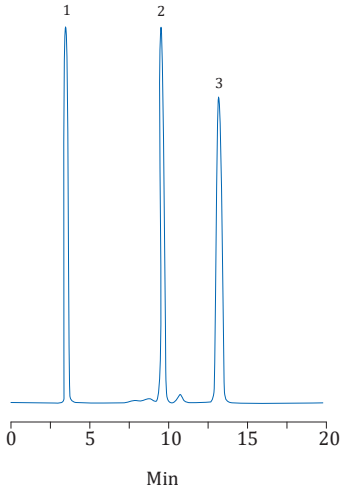
1. Domiphen bromide



Column:	SCX 4.6 × 250mm, 5μm (HCA050U046X25033A)
Mobile phase:	methanol / 50mM ammonium acetate (80/20)
Flow rate:	0.7mL/min
Detection:	274 nm
Column temperature:	25 °C

Acetylacetone No.1209034

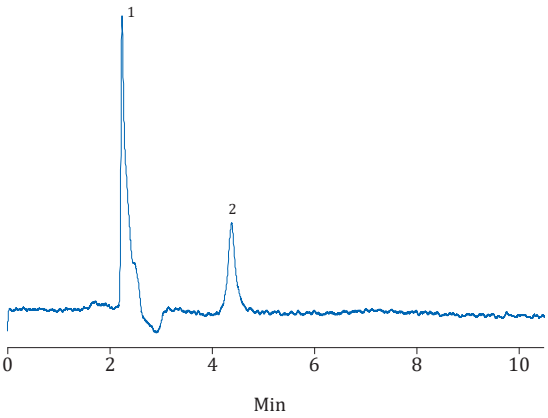
1. Acetylacetone
2. 1-Nitronaphthalene
3. Naphthalene



Column:	C18 4.6 × 150mm, 5μm (HCA050U046X15071A)
Mobile phase:	30mM Na3PO4 buffer (Use H3PO4 to adjust pH2.5)
Flow rate:	1.0mL/min
Detection:	254nm
Column temperature:	40 °C

Methotrexate No.1209036

1. Methanol
2. Methotrexate

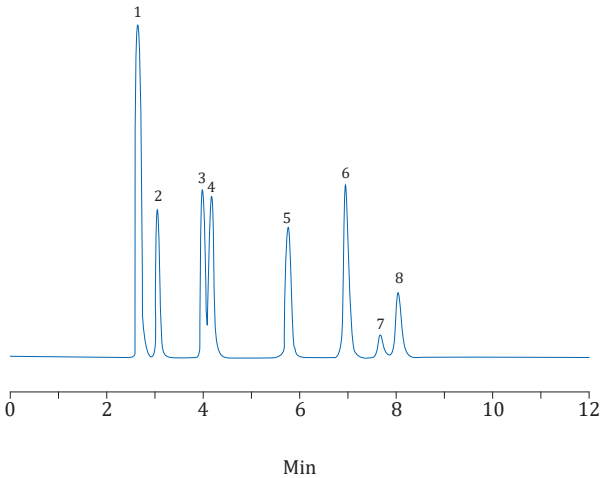


Column:	HILIC 4.6 × 150mm, 5μm (HCA050U046X15031A)
Mobile phase:	acetonitrile / 10mM ammonium acetate (90/10)
Flow rate:	1.0mL/min
Detection:	306 nm
Column temperature:	25°C

Application:Foods

Water-soluble vitamins No.1209037

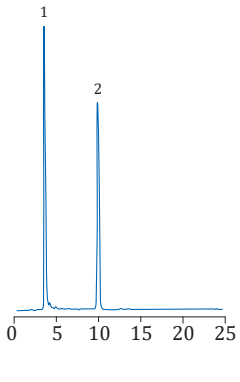
1. Vitamin C
2. Vitamin B13
3. Nicotinic acid
4. Nicotinamide
5. Pyridoxal
6. Pyridoxine
7. Calcium pantothenate
8. Thiamin



Column:	C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)
Mobile phase:	acetonitrile / 20mM H3PO4 +5 mM pentane sulfonate buffer (8/92)
Flow rate:	1.0 mL/min
Detection:	210 nm
Column temperature:	40 °C

Vitamin B No.1209039

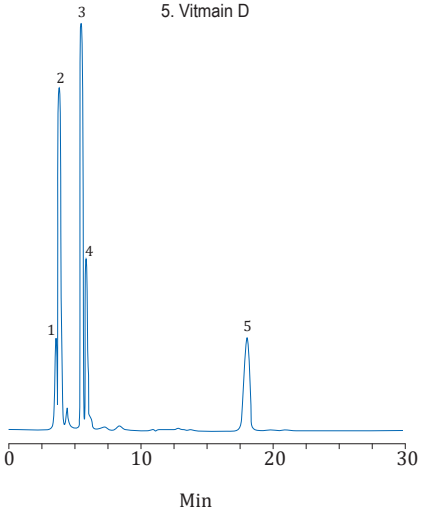
1. Thiamin HCl
2. Riboflavin



Column:	C18 4.6 × 150mm, 5μm (HCA050U046X15071A)
Mobile phase:	acetonitrile / 10mM Na3PO4 buffer (adjust to pH 5.0) =15/85
Flow rate:	1.0mL/min
Detection:	254 nm
Column temperature:	40 °C

Fat-soluble vitamins No.1209038

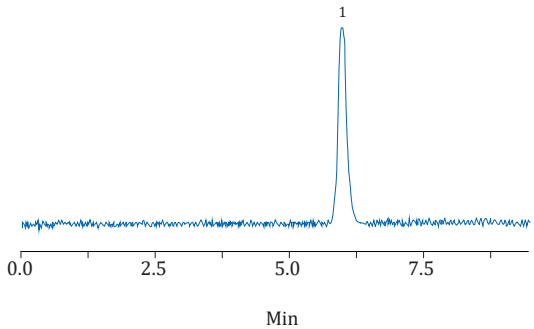
1. VA palmitate
2. Vitamin K1
3. Vitamin E
4. Vitamin K3
5. Vitmain D



Column:	Silica 4.6 × 150mm, 5μm (HCA050U046X15076A)
Mobile phase:	hexane / chloroform (60/40)
Flow rate:	1.0 mL/min
Detection:	254 nm
Column temperature:	25 °C

Citrus red No. 2 in juice No.1209040

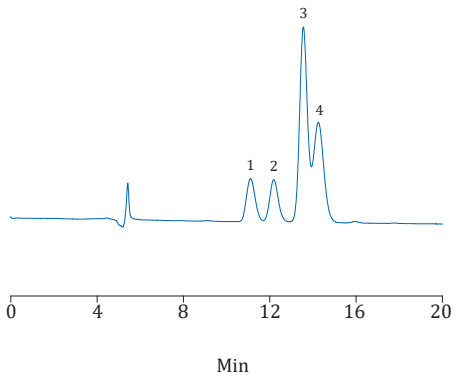
1. Citrus red No. 2



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	acetonitrile / water (80/20)
Flow rate:	1.0mL/min
Detection:	500 nm
Column temperature:	35 °C

Carbohydrate -1 No.1209041

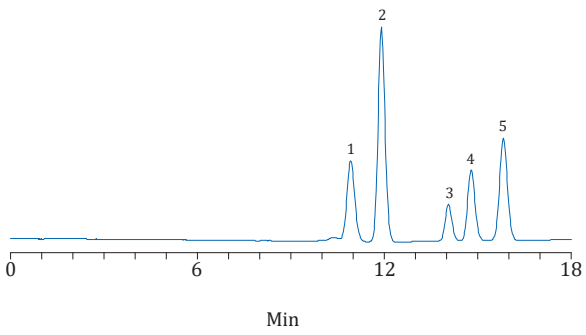
1. Glucose
2. L-xylose
3. Fructose
4. Lyxose



Column:	Sep Ca-H 7.8 × 300mm, 5μm (HCA050U078X300C3A)
Mobile phase:	water
Flow rate:	0.6mL/min
Detection:	192nm
Column temperature:	85 °C

Carbohydrate -2 No.1209042

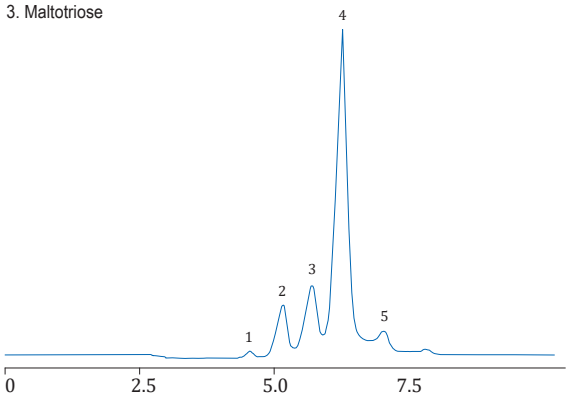
1. Maltotriose
2. Maltose
3. Glucose
4. Mannose
5. Fructose



Column:	Sep Ca-H 7.8 × 300mm, 5μm (HCA050U078X300C3A)
Mobile phase:	water
Flow rate:	0.6 mL / min
Detection:	192nm
Column temperature:	85 °C

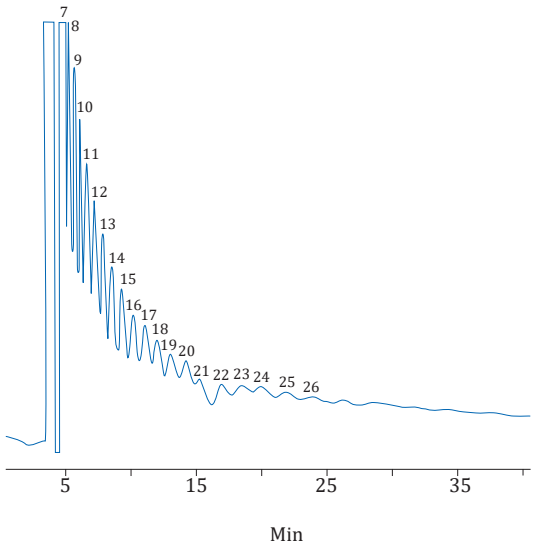
Carbohydrate -3 No.1209043

1. Glucose
2. Maltose
3. Maltotriose
4. Maltotetraose
5. Matlopentaos



Column:	NH_2 4.6 × 150mm, 5μm (HCA050U046X15077A)
Mobile phase:	acetonitrile / water (50/50)
Flow rate:	1.0mL/min
Detection:	RID
Column temperature:	40°C

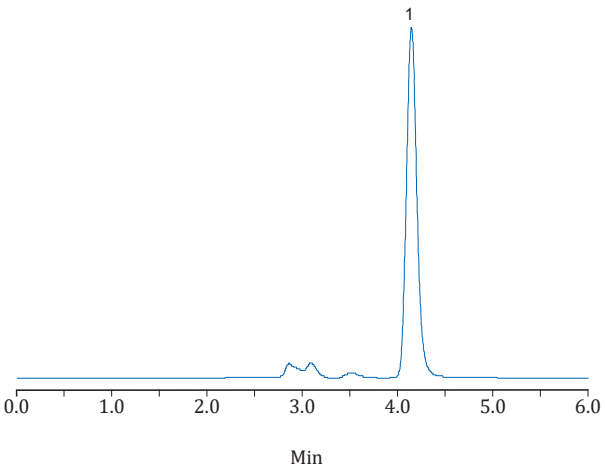
Isomaltooligosaccharide No.1209044



Column:	C4 4.6 × 150mm, 5μm (HCA050U046X15079A)
Mobile phase:	methanol / water (2.5/97.5)
Flow rate:	1.0mL/min
Detection:	RID
Column temperature:	40°C

Melamine No.1209045

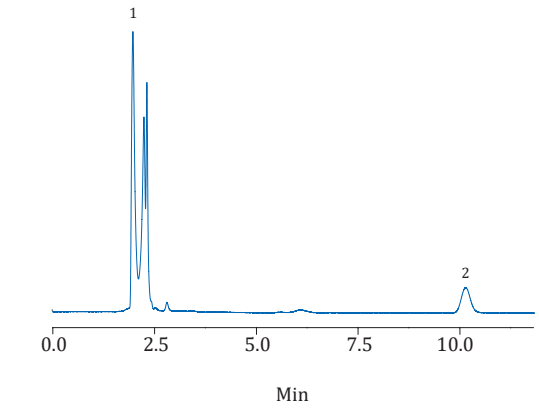
1. Melamine



Column:	HILIC (3) 4.6 × 250mm, 5μm (HCA050U046X25027A)
Mobile phase:	acetonitrile / 10mM ammonium acetate (90/10)
Flow rate:	1.0mL/min
Detection:	240nm
Column temperature:	25°C

Melamine in raw milk (according to GB / T 22400-2008) No.1209047

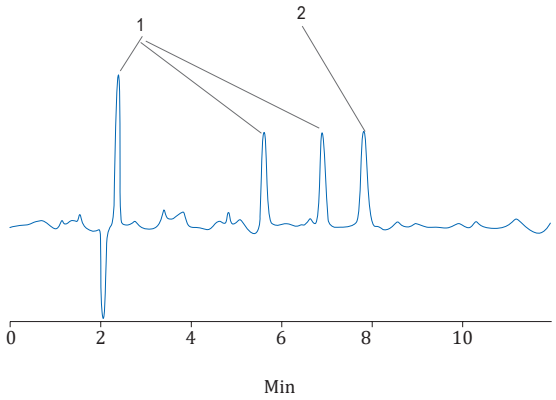
1. Impurity
2. Melamine



Column:	sil SCX 4.6 × 250mm, 5μm (HCA050U046X25045A)
Mobile phase:	acetonitrile / 50mM KH2PO4 buffer (pH 3.0) (30/70)
Flow rate:	1.5mL/min
Detection:	240nm
Column temperature:	25°C

Melamine in Milk Powder No.1209046

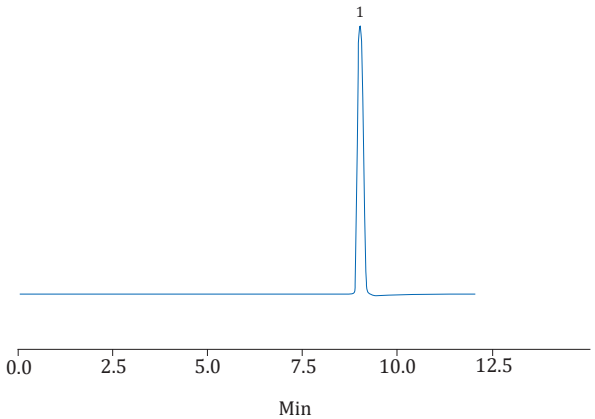
1. Milk impurities
2. Melamine



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	10mM citrate buffer +10 mM sodium hexane solution / acetonitrile (90/10)
Flow rate:	1.0 mL / min
Detection:	240nm
Column temperature:	40°C

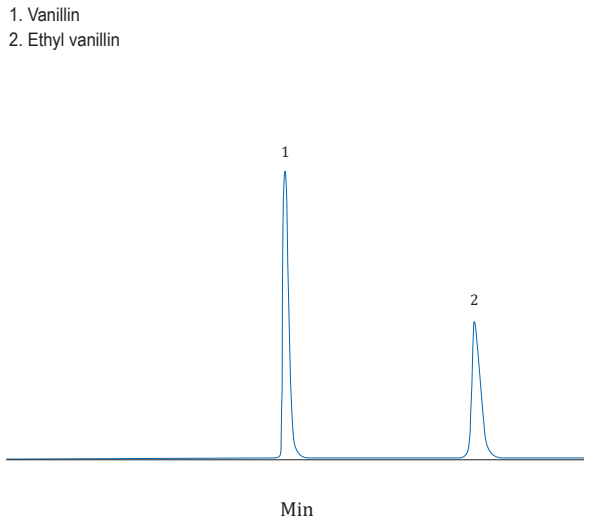
Furosine No.1209048

1. Furosine



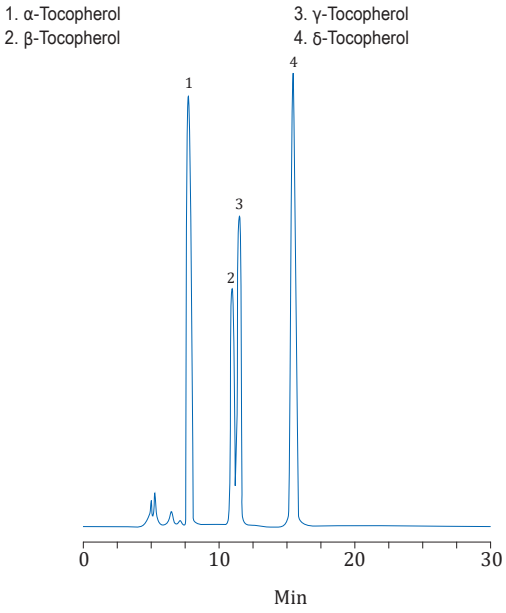
Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	A = 0.1% TFA aqueous solution; B = 0.1% TFA acetonitrile
Gradient:	0min: 1%B, 25min: 21%B
Flow rate:	1mL/min
Detection:	280nm
Column temperature:	room temperature

Vanillin and ethyl vanillin No.1209049



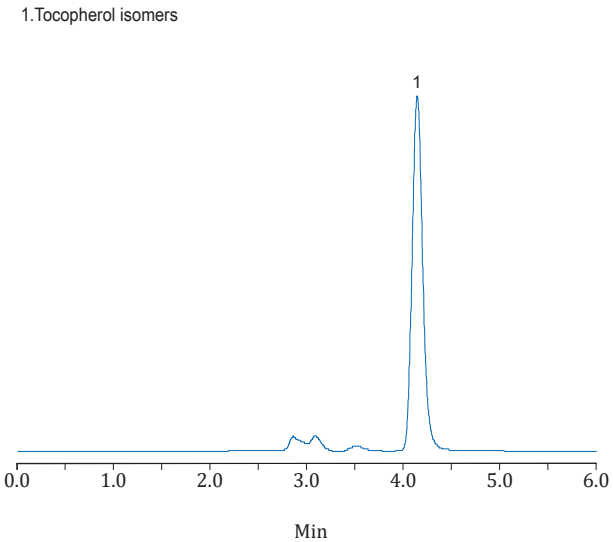
Column:	C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase:	acetonitrile / 0.02M sodium dihydrogen phosphate (PH4.0) = 30/70
Flow rate:	1.0mL/min
Detection:	276nm
Column temperature:	30 °C

Tocopherol isomers No.1209051



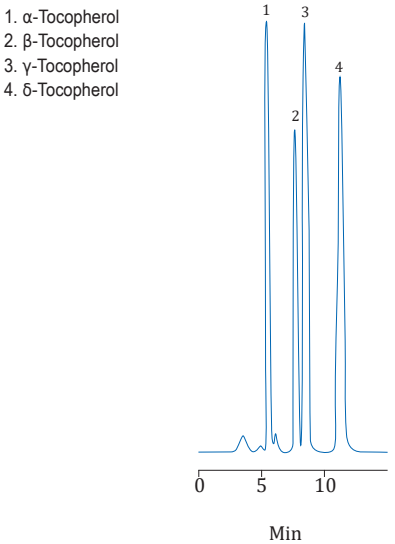
Column:	Silica 4.6 × 150mm, 5μm (HCA050U046X15076A)
Mobile phase:	hexane / ethanol (99/1)
Flow rate:	0.7mL/min
Detection:	280nm
Column temperature:	40°C

Tocopherol isomers No.1209050



Column:	HILIC (3) 4.6 × 250mm, 5μm (HCA050U046X25072A)
Mobile phase:	acetonitrile / 10mM ammonium acetate (90/10)
Flow rate:	1.0 mL / min
Detection:	240nm
Column temperature:	25 °C

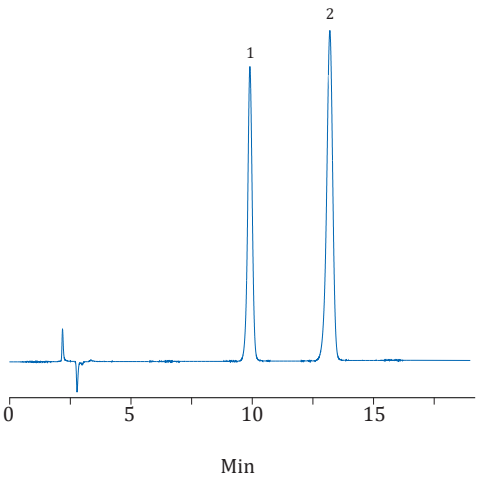
Tocopherol No.1209052



Column:	NH_2 4.6 × 150mm, 5μm (HCA050U046X15076A)
Mobile phase:	hexane / ethyl acetate (70/30)
Flow rate:	1.0mL/min
Detection:	295nm
Column temperature:	40°C

Benzoic acid, sorbic acid — No.1209053

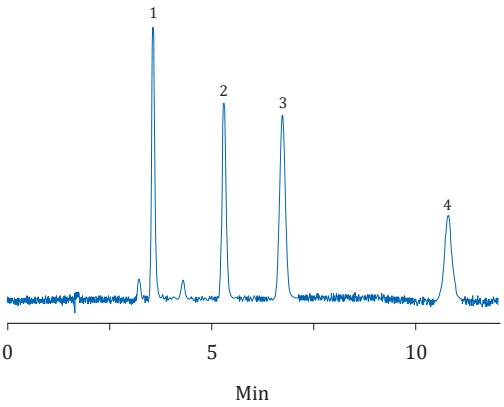
1. Bezoic Acid
2. Sorbic acid



Column:	C18-WP 250mm * 4.6,5 um (HCA050U046X25072A)
Mobile phase:	20mM ammonium acetate / methanol (90/10)
Flow rate:	1.0mL/min
Detection:	230nm
Column temperature:	25°C

Sudan in chili sauce — No.1209055

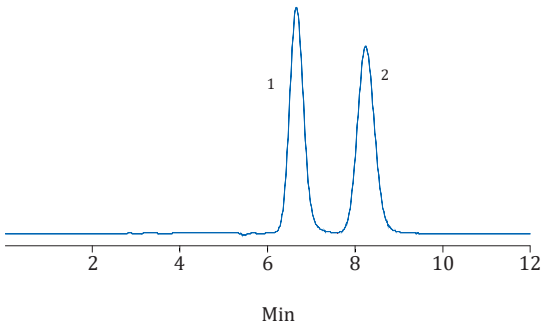
1. Sudan I
2. Sudan II
3. Sudan III
4. Sudan IV



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	acetonitrile / water (95/5)
Flow rate:	1.0mL/min
Detection:	500nm
Column temperature:	35°C

Sorbitol and mannitol — No.1209054

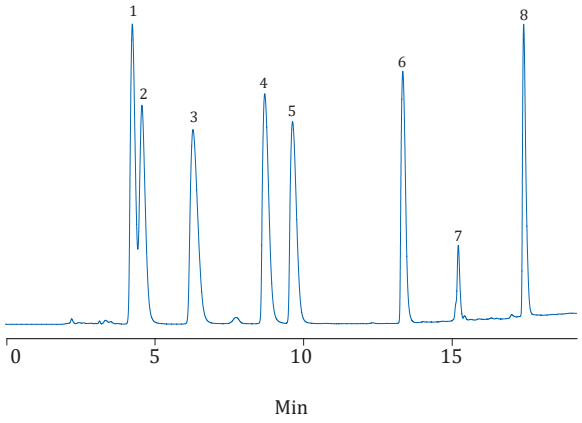
1. Mannitol
2. Sorbitol



Column:	Sep Ca-M 4.6 × 250mm, 10μm (HCA100U046X250C4A)
Mobile phase:	water
Flow rate:	0.5 mL/min
Detection:	RID
Column temperature:	80°C

Synthetic colorants — No.1209056

1. New Red
2. Tartrazine
3. Amaranth
4. Indigotine
5. Ponceau 4RC
6. Sunset Yellow
7. Brilliant Blue FCF
8. Erythrosin B disodium salt

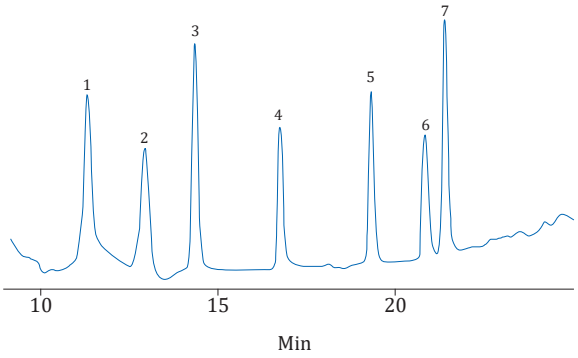


Column:	C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)
Mobile phase:	A: methanol; B: 20mM ammonium acetate (pH 4.0) 0min B: 80%; 5min B: 65%; 12min B: 2%
Flow rate:	1.0mL/min
Detection:	254nm
Column temperature:	25°C

Application:Pesticide

Carbamate pesticide in pepper No.1209057

1. Aldicarb-sulfoxide
2. Aldicarb-sulfone
3. Methomyl
4. Carbofuran-3-hydroxy
5. Aldicarb
6. Carbofuran
7. Carbaryl



Column: C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)

Mobile phase:

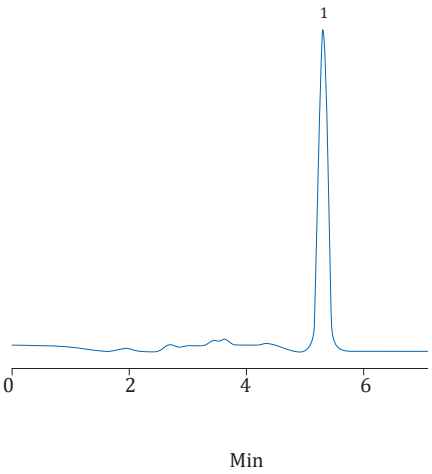
t(min)	% water	% methanol	Flow rate (mL / min)
0	85	15	0.5
2	75	25	0.5
8	75	25	0.5
9	60	40	0.8
10	55	45	0.8
19	20	80	0.8
25	20	80	0.8
26	85	15	0.5

Detection Column: Fluorescence detector, λex 330nm, λem 465nm
50mM NaOH solution and OPA reagent, flow rate 0.3mL/min;

Column temperature: 42 °C

Glyphosate No.1209059

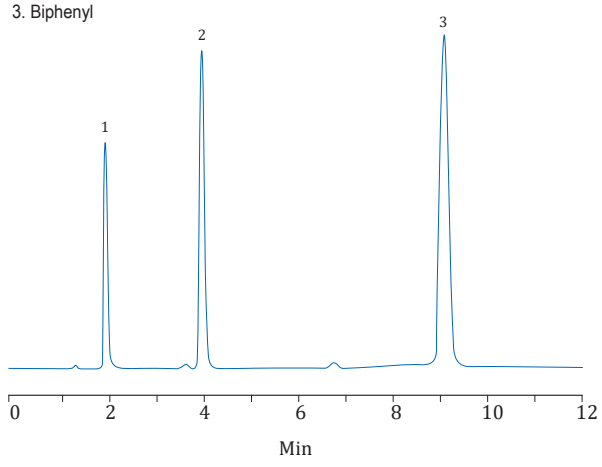
1. Glyphosate



Column: SAX 4.6 × 150mm, 5μm (HCA050U046X15021A)
Mobile phase: methanol / 10mM KH2PO4 (pH 2.0) (15/85)
Flow rate: 1.0mL/min
Detection: 195 nm
Column temperature: 25 °C

Fungicides No.1209058

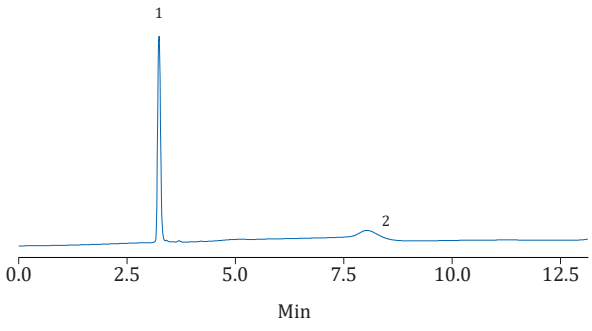
1. Thiabendazole
2. o-Phenylphenol
3. Biphenyl



Column: C18-WP 4.6 × 150mm, 5μm(HCA050U046X15072A)
Mobile phase: acetonitrile / 30mM NH4H2PO4 buffer (65/35)
Flow rate: 1.0 mL/min
Detection: 254 nm
Column temperature: 40°C

Clethodim No.1209060

1. Clethodim
2. Impurity

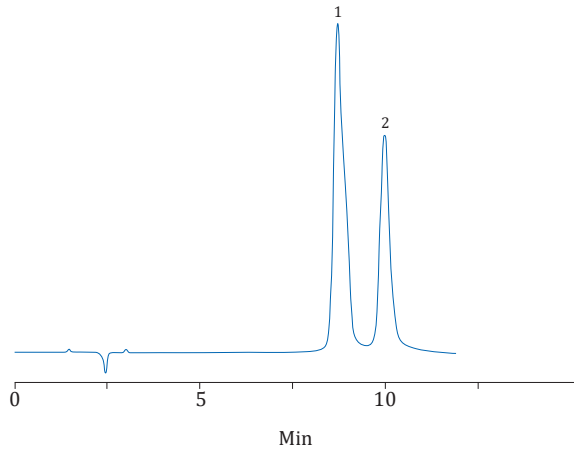


Column: Silica 4.6 * 250mm 5um (HCA050U046X25076A)
Mobile phase: dichloromethane: cyclohexane (70:30, containing 0.5%acetic acid)
Flow rate: 1.0mL/min
Detection: 280nm
Column temperature: 25 °C

Application: Veterinary drug residues

Quinolones No.1209061

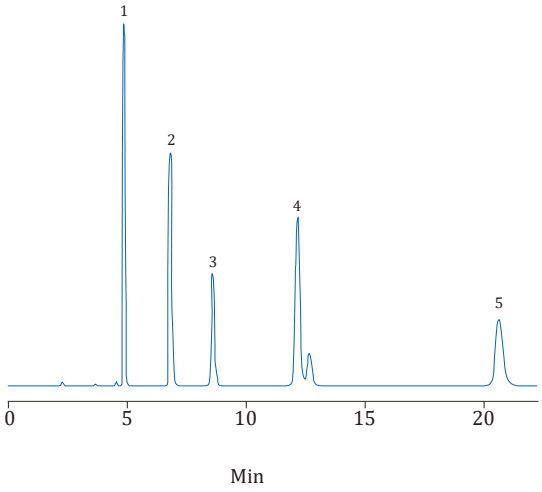
1. Norfloxacin
2. Ciprofloxacin



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	25mM phosphate buffer / acetonitrile (85/15)
Flow rate:	1.0mL/min
Detection:	254 nm
Column temperature:	25 °C

Sulfa drugs in feed No.1209063

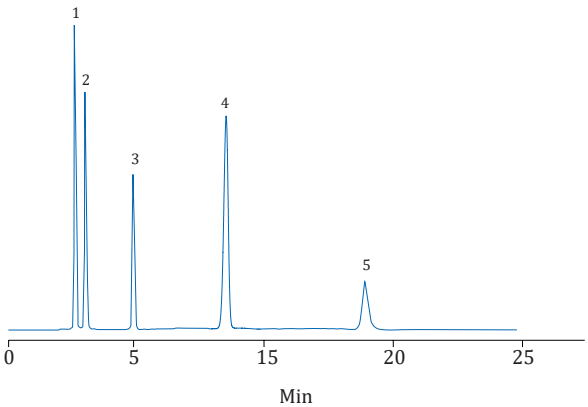
1. Sulfadiazine
2. Sulfamethazine
3. Sulfamonomethoxine
4. Sulfamethoxazole
5. Sulfachinoxalin



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	acetonitrile / water / acetic acid (25/75/0.3)
Flow rate:	1.0mL/min
Detection:	270 nm
Column temperature:	25 °C

Sulfa No.1209062

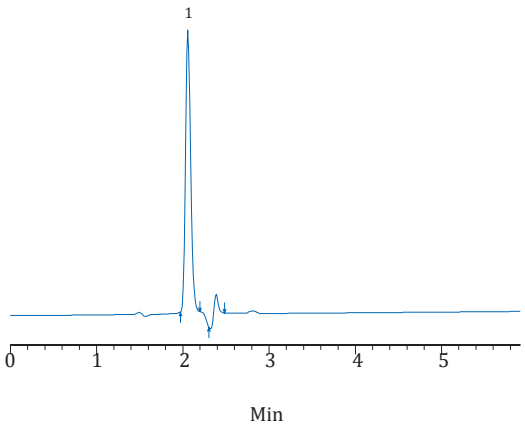
1. Sulfanilamide
2. Sulfisomidine
3. Sulfadiazine
4. Sulfamethazine
5. Sulfamonomethoxine



Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	acetonitrile / 10mM H3PO4 buffer (15/85)
Flow rate:	1.0 mL/min
Detection:	254 nm
Column temperature:	40°C

Clenbuterol No.1209064

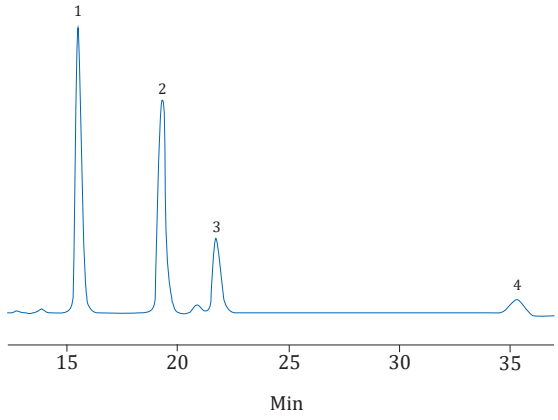
1. Clenbuterol



Column:	C18-WP 250mm * 4.6,5 um (HCA050U046X25072A)
Mobile phase:	water / acetonitrile (20/80)
Flow rate:	1.0mL/min
Detection:	240nm
Column temperature:	25 °C

Fluoroquinolones No.1209065

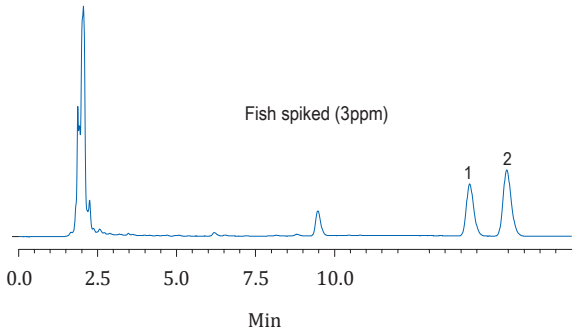
1. Ciprofloxacin
2. Danofloxacin
3 enrofloxacin
4 Sarafloxacin



Column:	C18-WP, 5um, 4.6 * 250mm (HCA050U046X25072A)
Mobile phase:	acetonitrile +0.05 moL / L phosphoric acid / triethylamine (18 +82)
Flow rate:	0.8mL/min
Detection:	280nm
Column temperature:	35°C

Malachite green and crystal violet aquatic No.1209067

1. malachite green
2. crystal violet

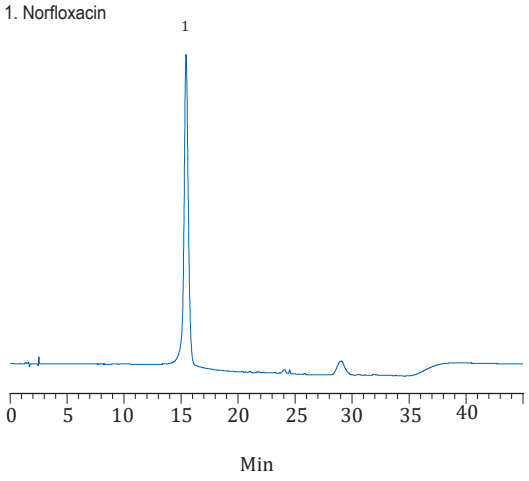


Column:	C18-WP, 5um, 4.6*250mm (HCA050U046X25072A)
Mobile phase:	acetonitrile +0.125 moL / L ammonium acetate pH = 4.5 (80 +20)
Flow rate:	1.3mL/min
Detection:	265nm
Column temperature:	35°C

Application: Environment

Norfloxaction No.1209066

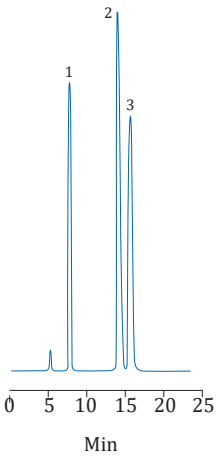
1. Norfloxacin



Column:	C18-WP 150mm * 4.6,5 um (HCA050U046X15072A)
Mobile phase:	0.025mol / L phosphoric acid solution (triethylamine adjusted to pH 3.0) / acetonitrile (87/13)
Flow rate:	1.0 mL/min
Detection:	278 nm
Column temperature:	40°C

Nitroaniline No.1209068

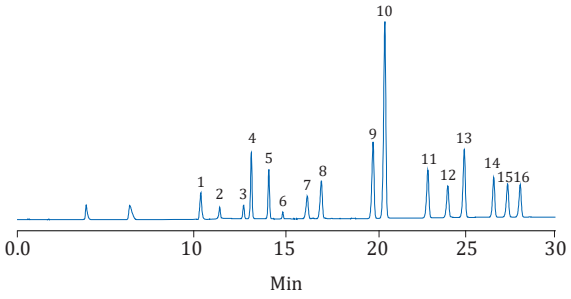
1. o-nitroaniline
2. m-nitroaniline
3. p-nitroaniline



Column:	Silica 4.6 × 150mm, 5μm (HCA050U046X15076A)
Mobile phase:	hexane / chloroform (40/60)
Flow rate:	0.7 mL/min
Detection:	254nm
Column temperature:	25°C

Polycyclic aromatic hydrocarbons (PAHs) No.1209069

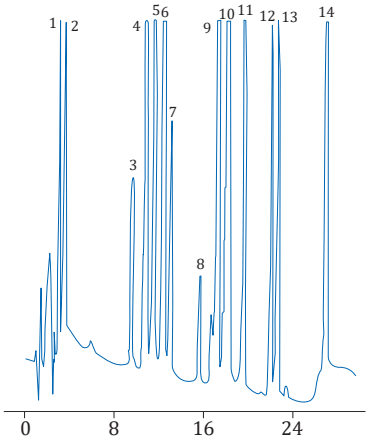
1. Naphthalene
2. Acenaphthylene
3. Acenaphthene
4. Fluorene
5. Phenanthrene
6. Anthracene
7. Fluoranthene
8. Pyrene
9. Benzo(a)anthracene
10. Chrysene
11. Benzo(b)fluoranthene
12. Benzo(k)fluoranthene
13. Benzo(a)pyrene
14. Dibenzo(a,h)anthracene
15. Benzo(g,h,i)perylene
16. Indeno(1,2,3-cd)pyrene



Column:	PAHs 4.6 × 250mm, 5μm(HCA050U046X25051A)
Column Temperature:	30 °C
Mobile phase:	gradient A: water B:acetonitrile 0min:40%B;25min 100%B;35min 100%B;45min 40%B
Flow rate:	2.0ml/min
Detection:	266nm
Inj volume:	5ul(10ppm)

Watery nonvolatile pesticides No.1209071

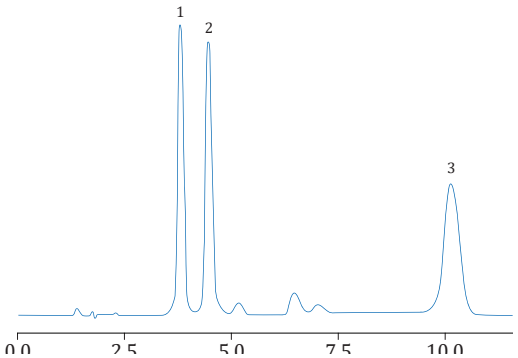
1. Oxamyl
2. Methomyl
3. Aldicarb
4. Simazine
5. Monuron
6. Cyanazine
7. Metribuzin
8. Carbofuran
9. Atrazine
10. Carbaryl
10. Fluometuron
11. Diuron
12. Propham
13. Propachlor
14. Linuron



Column:	C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)
Mobile phase:	A: water / acetonitrile (90/10); B: acetonitrile 0min B: 20%; 5min B: 20%; 30min B: 70%
Flow rate:	1.5 mL / min
Detection:	220nm
Column temperature:	25°C

Tetracyclines

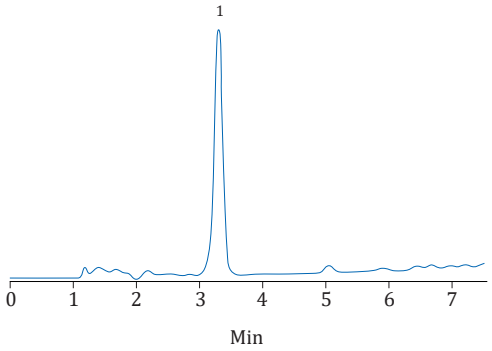
1. Oxytetracycline
2. Tetracycline
3. Chlortetracycline



Column:	C18-WP (4.6 × 250mm, 5μm (HCA050U046X25072A)
Mobile phase:	acetonitrile / methanol / 10mM oxalic acid solution (15/15/70)
Flow rate:	1.0 mL/min
Detection:	355nm
Column temperature:	25°C

Bisphenol A No.1209072

1. Bishphenol A

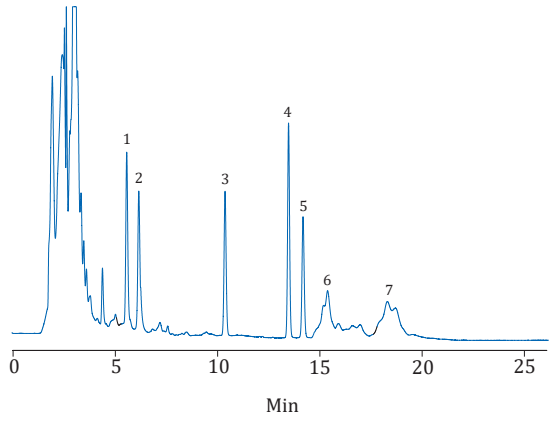


Column:	C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase:	A: Acetonitrile; B: Water 0min B: 40%; 7min B: 5%
Flow rate:	1.0mL/min
Detection:	216nm
Column temperature:	35°C

Application: Industrial parts

Leather's phthalates No.1209073

1. BBP
2. DBP
3. DNHP
4. DEHP
5. DNOP
6. DINP
7. DIDP



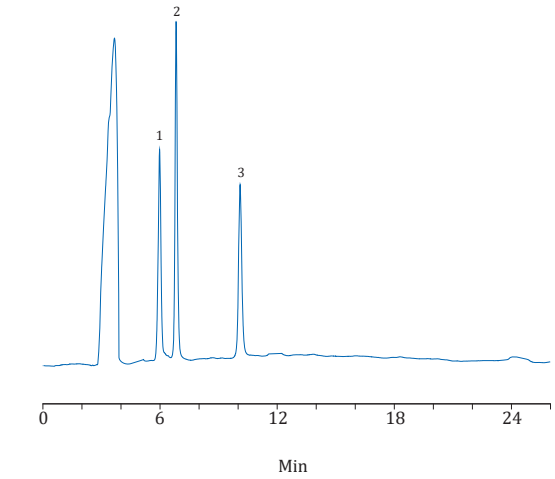
Column:	C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)
Mobile phase:	

t(min)	acetonitrile	water	flow rate(mL/min)
0	90	10	1
6.5	100	0	1.5
7.5	100	0	1.5

Flow rate:	1.0mL/min
Detection:	228 nm
Column temperature:	25 °C

Phthalate monoester No.1209075

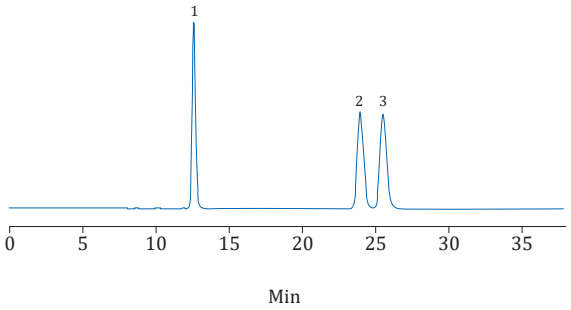
1. MMP
2. MEP
3. MBP



Column:	Phenyl 4.6 × 150mm, 5μm (HCA050U046X15037A)
Mobile phase:	acetonitrile / water / acetic acid (45/55/0.2)
Flow rate:	0.8 mL/min
Detection:	228 nm
Column temperature:	25 °C

Parabens in cosmetics No.1209074

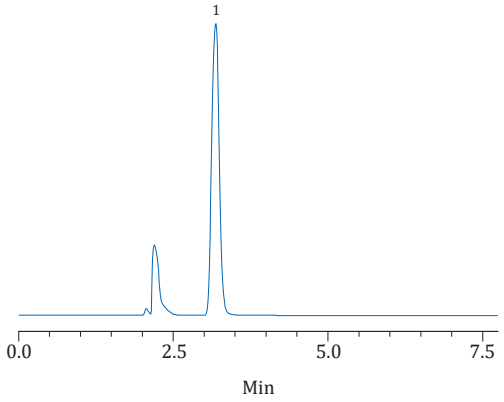
1. Iso-propyl paraben
2. Iso-butyl paraben
3. Iso-butylparaben



Column:	C18 (HCA050U046X25071A)
Mobile phase:	methanol / 20mM aqueous ammonium acetate = 58/42
Flow rate:	1.0 mL/min
Detection:	254 nm
Column temperature:	room temperature

Bromopyrene-C8 No.1209076

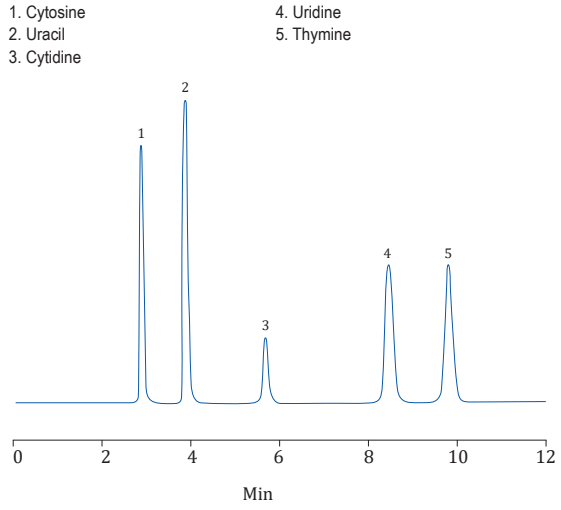
1. Bromopyrene



Column:	C8 4.6 × 150mm, 5um (HCA050U046X15075A)
Mobile phase:	100% methanol
Flow rate:	1.0mL/min
Detection:	254nm
Column temperature:	25 °C

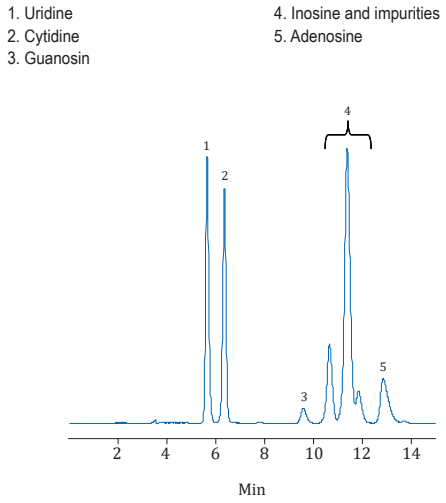
Application: Biochemistry

Nucleoside -1 No.1209077



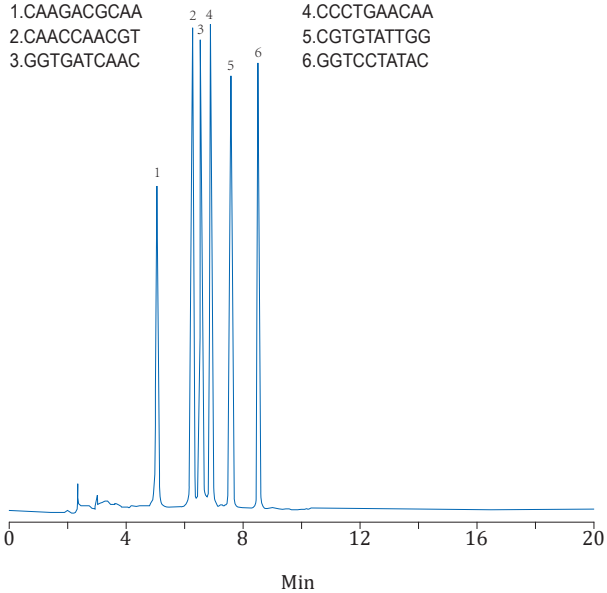
Column:	C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)
Mobile phase:	100% water
Flow rate:	1.0 mL / min
Detection:	254 nm
Column temperature:	40 °C

Nucleoside No.1209079



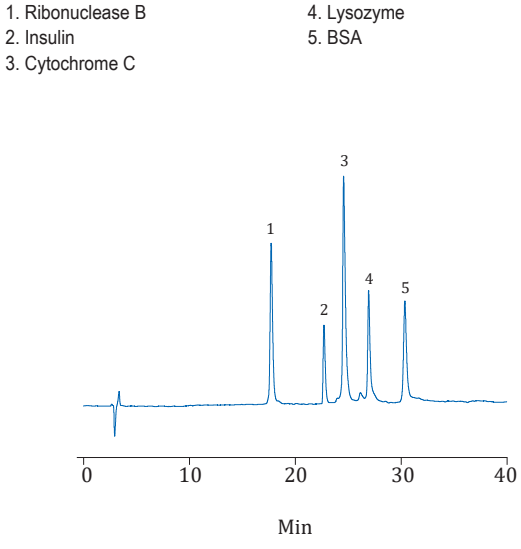
Column:	SCX 4.6 × 150mm, 5μm (HCA050U046X15023A)
Mobile phase:	50mM sodium phosphate buffer (pH 2.5)
Flow rate:	0.5 mL/min
Detection:	280 nm
Column temperature:	25 °C

Oligonucleotide No.1209078



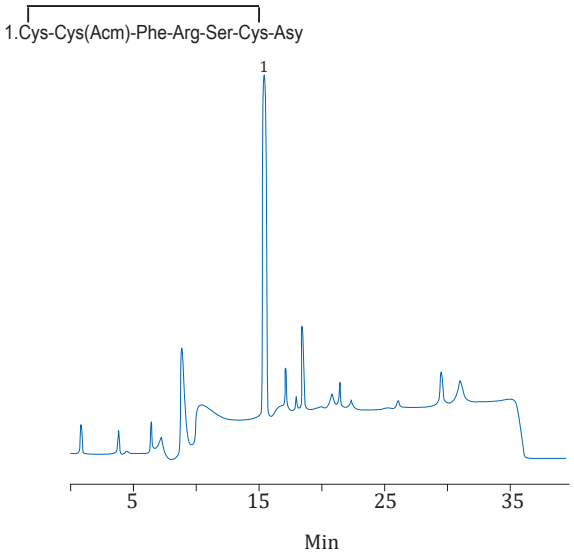
Column:	C18-BIO 4.6 × 150mm, 5μm (HCA050U046X15078A)
Mobile phase:	A: 50mM NaH2PO4 buffer solution (pH 7.0); B: Acetonitrile 0min B: 5%; 20min B: 15%
Flow rate:	1.0 mL/min
Detection:	260nm
Column temperature:	25 °C

Protein separation No.1209081



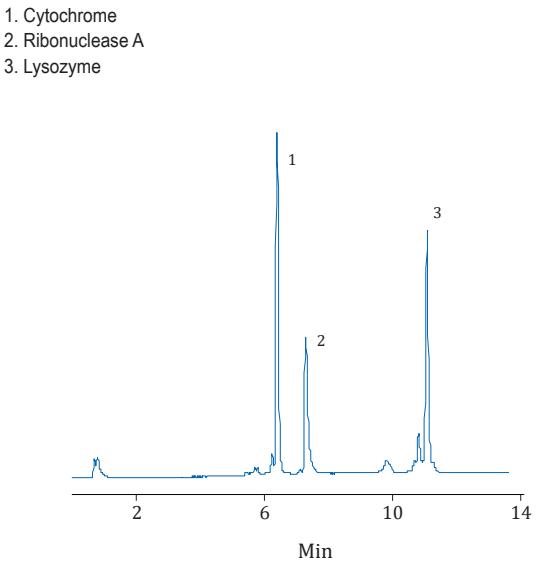
Column:	Sep RP3 4.6 × 150mm, 5μm (HCA050U046X150A3A)
Mobile phase:	A: 0.1% TFA aqueous solution B: 0.1% TFA in acetonitrile 0min 20%B 5min 60%B 45min 20%B
Flow rate:	1.0 mL / min
Detection:	214nm
Column temperature:	40°C

Synthetic peptide No.1209083



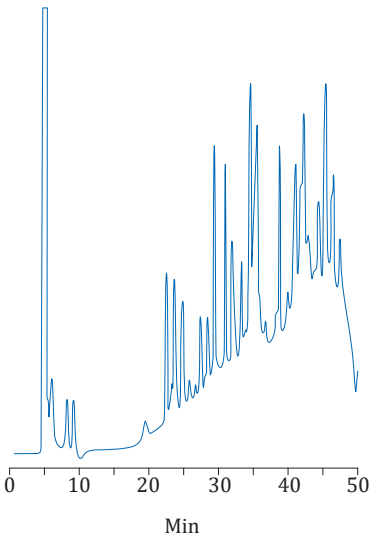
Column:	C18 4.6 × 150mm, 5μm (HCA050U046X15071A)
Mobile phase:	A: 10mM TFA; B: 10mM +60% acetonitrile 0min to 30min proportion of mobile phase B gradient from 0% to 100%
Flow rate:	1.0 mL / min
Detection:	214nm
Column temperature:	25°C

Protein sample No.1209084



Column:	Sep SAX 4.6 × 50mm, 3μm (HCA030U046X050G1A)
Mobile phase:	A: 10 mM phosphate buffer (pH 6.0); B: A + 1.0 M NaCl 0-15min, B: 0% -70%
Flow rate:	0.5mL/min
Detection:	280nm
Column temperature:	25°C

Hydrolysis of bovine serum albumin No.1209082



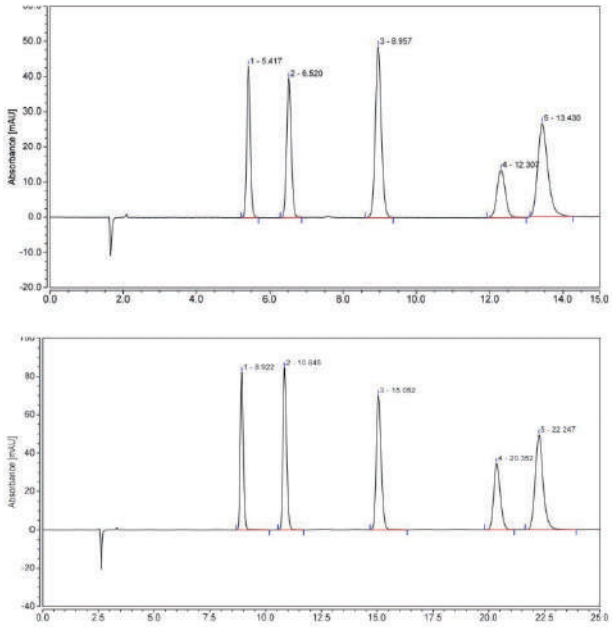
Column:	C4 4.6 × 250mm, 5μm (HCA050U046X25079A)
Mobile phase:	A: 0.09%TFA; B: 0.085% TFA +80% acetonitrile 0min B 5%; 5min B 5%; 35min B 50%; 45min B 100%
Flow rate:	1.0 mL/min
Detection:	214nm
Column temperature:	25°C

Specialized Chromatography Columns

Preservative Analysis Chromatography Column

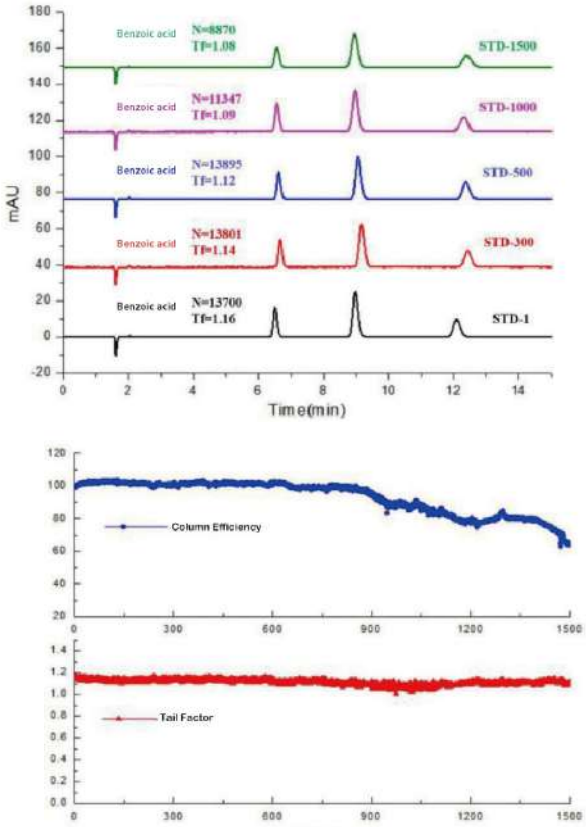
[GB 5009.28-2016 National Food Safety Standard Determination of Benzoic Acid, Sorbic Acid, and Sodium Saccharin in Foods]
[GB 5009.121-2016 National Food Safety Standard Determination of Dehydroacetic Acid in Foods]

BST-C18 is a newly developed chromatography column by , specifically designed for the detection of preservatives. It employs a polar small molecule end-capping technique to reduce the bonding density of C18, which enhances the hydrophilicity of the filler material and aims to slow down the rate of contamination in the chromatography column. This design extends the column's service life and improves its durability for preservative detection applications. Even after consecutive injections of over a thousand samples, the column still maintains outstanding peak shape and resolution.

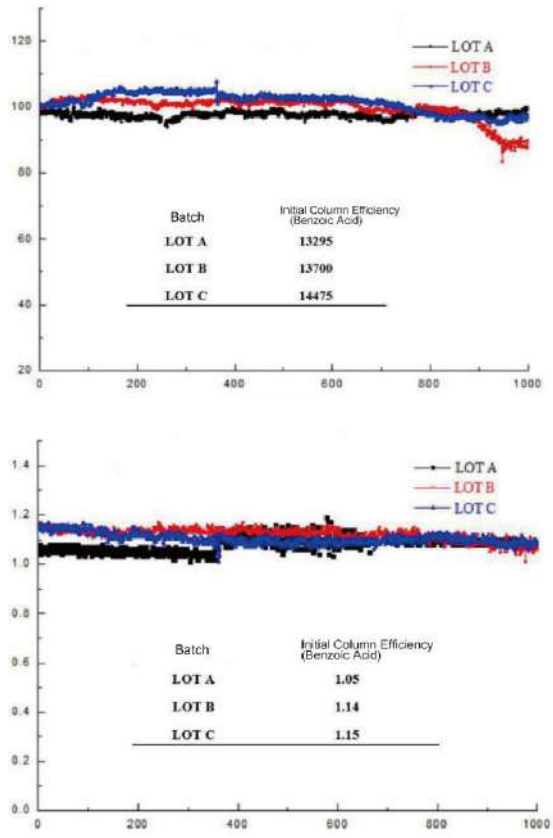


Column:	BST-C18 , 4.6 mm x 150 mm, 5μm BST-C18, 4.6 mm x 250 mm, 5μm
Mobile phase:	Methanol: 20 mM Ammonium Acetate (5:95)
Flow rate:	1.0 mL / min
Detection:	230 nm
Column temperature:	35°C

1.BST-C18 Batch Stability Test Initial Column



2. BST-C18 Batch Stability Test Initial Column

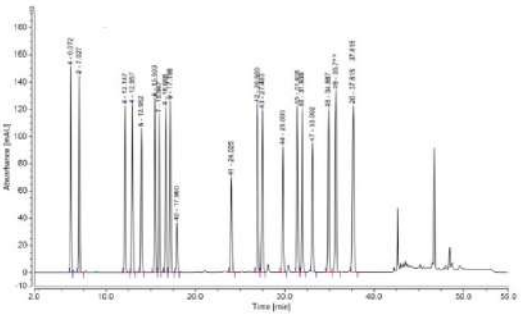


Ordering information

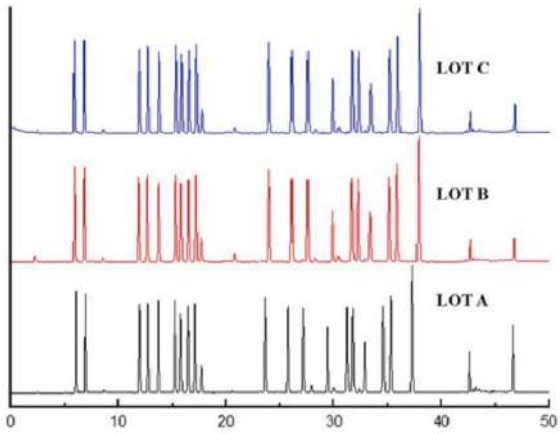
Packings	Product Code	Particle size	diameter ×length
BST-C18(II) HPLC	HCA050U046X15092A	5μm	4.6×150mm
BST-C18(II) HPLC	HCA050U046X25092A	5μm	4.6×250mm
BST-C18(II) Guard Cartridges	HCA050U040X02092A	5μm	4.0 * 20 mm
BST-C18(II) Guard Cartridge Kit, 1 Holder and 1 Cartridge	HCA050U040X02092KA	5μm	4.0 * 20 mm

AAA HPLC Column

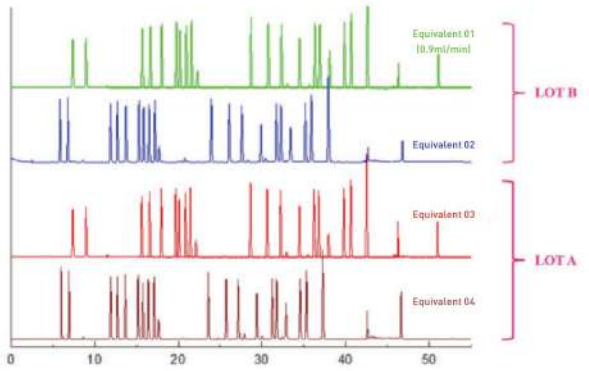
The Amino Acid Analysis Column is a chromatography column developed by , specifically designed for the detection of amino acids. Its accompanying method package utilizes the pre-column derivation method with phenylisothiocyanate (PITC), offering the following advantages: (1) PITC has good stability, can be stored for half a year at 2-8°C, and avoids the hassle of frequent replacement or preparation due to the expiration of the derivative reagent; (2) the mobile phase pH is 6.5 (±0.05), which is conducive to extending the life of the chromatography column and reducing costs. The AAA Method Package can be widely applied to the detection of amino acids in biological fermentation broth, feed, amino acid injections, food, and beverages.



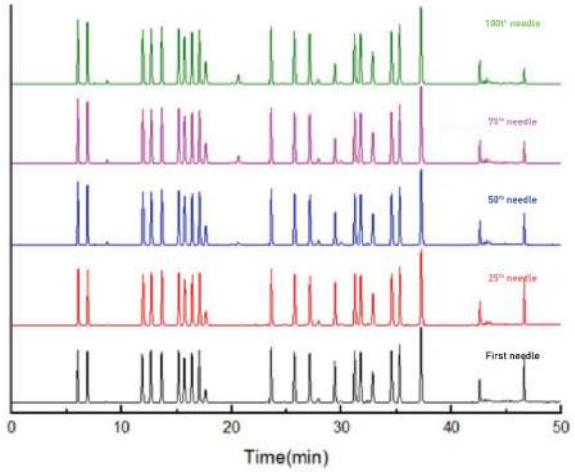
1.Amino Acid Analysis Column Batch Reproducibility Test

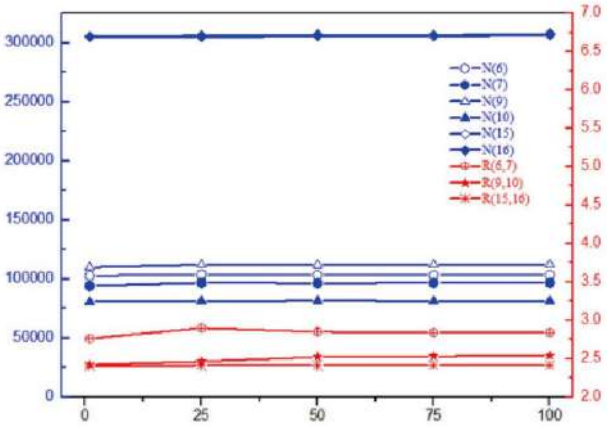


2.Amino Acid Analysis Column Instrument Universality Test



3.Amino Acid Analysis Column Injection Stability Test





Ordering information

Packings	Product Code	Particl size	diameter ×length
PAHs HPLC	HCA050U046X25087A	5μm	4.6×250mm

New Mobile Phase Filter

New Mobile Phase Filter

New Mobile Phase Filter is designed to solvent rapidfiltration and degassing, suitable for filtering anddegassing of the HPLC mobile phase solvent, Can prolong the service life of instrument and the chromatographic column, improve the detection accuracy; Used in gravimetric analysis, trace analysis, trace analysis, colloid separation and sterile in the laboratory.

Compare to traditional Solvent Filter, the new design solve following questions:
1.Larger filter cup capacity, avoid multiple adding;
2.Removes clamp, avoid potential leaking;
3.Substitute Frosted Seal to Thread fastening, avoid fusion after long time usage.
4.Substitute Quartz sand core to PTFE filter plate, avoid hard cleaning.
5.Substitute Conical flask to GL45 ISO Bottles, avoid solvent transfer after filter.

Description	Packaging	Product Code
PTFE Solvent filter assembly,with 1000mL glass reservoir	1 per carton	VHOLDERAPTFE1000A

Multi-Functional Purification Plates

24-Well Multi-Functional Purification Plates

Features

- High throughput: process 24 samples in one time, suitable for automated sample preparation workstations.
- High recovery rate: good purification effect, no background interference, high recoveries
- Good stability: reduce experimental errors, highly reproducible experimental data.
- Simple and fast: the purification can be finished within 30 seconds.
- Achieve selective adsorption of impurities such as pigments, lipids, and proteins in sample.

Procedures

24-Well HLB Lim Plates

1.Pipette the sample supernatant to a 24-Well Multi-FunctionalPurification Plates.

2.Filter with Positive Pressure 24 Processor.

3. Concentrate by 24-Well Plate Intelligent Nitrogen Evaporator

4. Filter by Syringe Filter and Sample Vials.

5. Liquid chromatography mass spectrometry analysis.

24-Well Multi-Functional Purification Plates

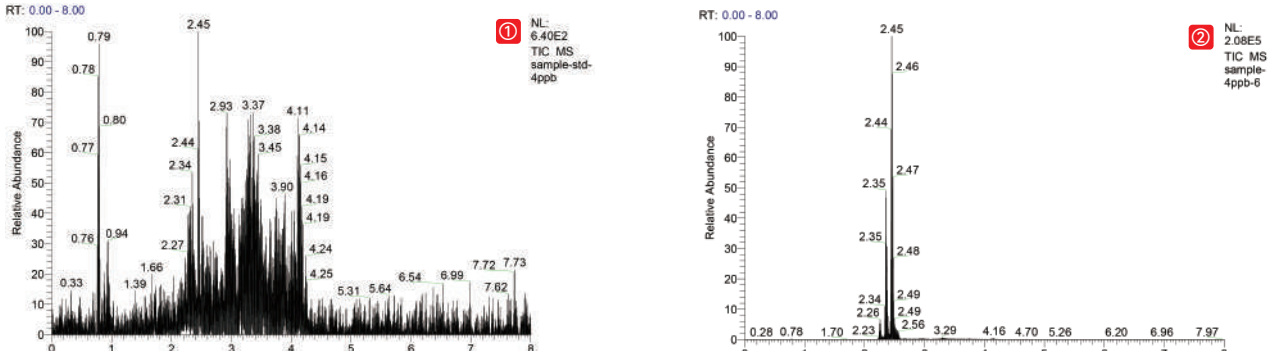


Figure 1 TIC Chromatograms of Corn Flour Sample
(① Before Purification ② After Purification by 226 Multifunctional Clean-Up Plate)

Test	Spike (ng/g)	226 Multifunctional Clean-Up Plate	
		Recovery (%, n=24)	CV (%)
AFT B1	0.5	105	3.92
	1	101	2.41
AFT B2	0.5	102	4.12
	1	95.8	4.15
AFT G1	0.5	105	2.69
	1	104	4.13
AFT G2	0.5	101	4.28
	1	95.4	3.75

Based on Figure 1, the impurities are obviously adsorbed, therefore miscellaneous peaks are fewer in the TIC chromatogram. As result, the purified sample is cleaner, and the purification effect is better.

Based on Table 1, the recovery rates of aflatoxin in the 24 wells are between 90-110%, and the CV value of the recovery rate between wells is less than 5%, which meet the standard of experimental requirements.

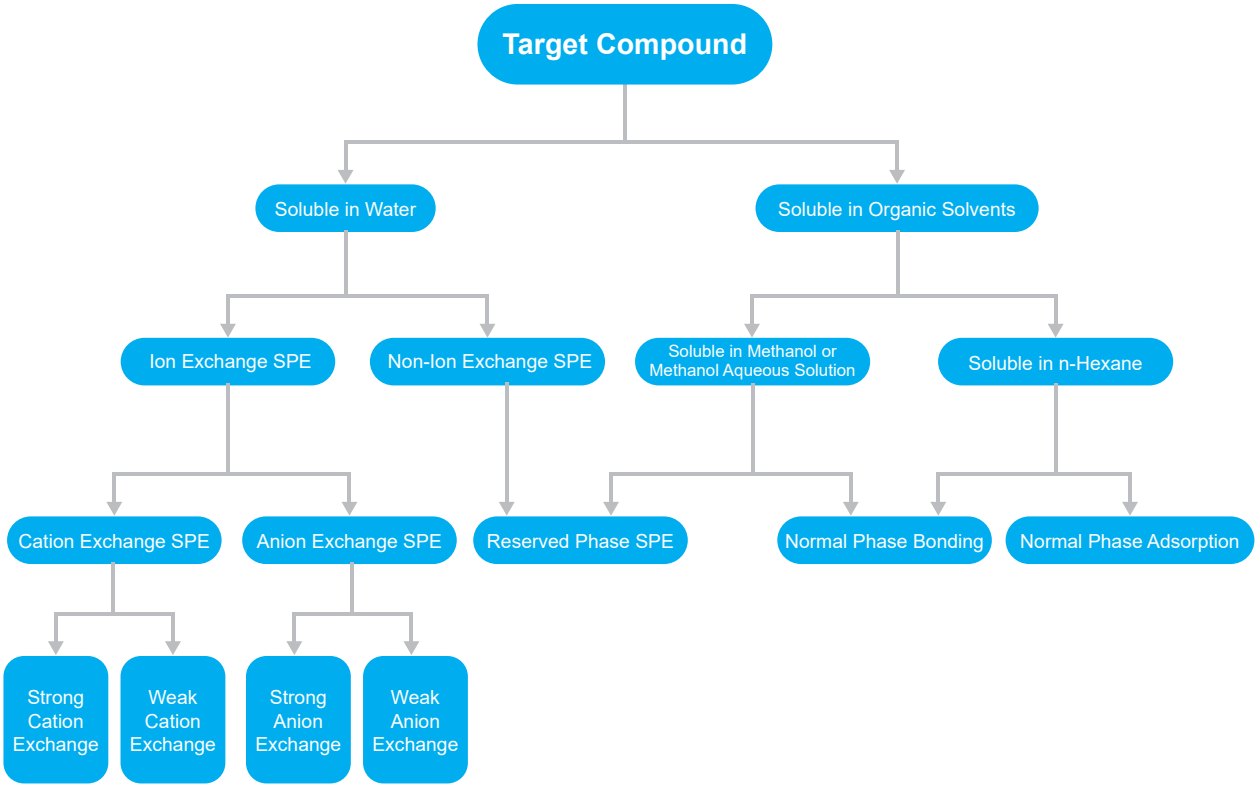
Conclusion

According to the results, the 24-Well Multi-Functional Purification Plates are more stable. The miscellaneous peaks are less on the chromatogram, and no interfering peaks next to the target peaks result in more accurate quantification.

Ordering information

Product Code	Description	Application	Qty.
CUCMFP1819A	228 Multifunctional Clean-Up Plate	Patulin, Aflatoxin B1, B2, G1, G2	1 Pc/Box
CUCMFP1820A	226 Multifunctional Clean-Up Plate	Zearalenone, Alatoxin B1, B2, G1, G2	1 Pc/Box
CUCMFP1821A	224 Multifunctional Clean-Up Plate	Zearalenone	1 Pc/Box
CUCMFP1823A	223 Multifunctional Clean-Up Plate	Aflatoxin M1, M2	1 Pc/Box
CUCMFP1824A	230 Multifunctional Clean-Up Plate	Deoxynivalenol	1 Pc/Box
CUCMFP1818A	229 Multifunctional Clean-Up Plate	Ochratoxin	1 Pc/Box
CUCMFP1822A	302 Multifunctional Clean-Up Plate	Multiple functions	1 Pc/Box
CHREQU2402EA	Positive Pressure 24 Processor		1 Set/Ctn
CHREQU24YYEA	24-Well Plate Intelligent Nitrogen Evaporator		1 Set/Ctn

SPE Cartridge Sorbent Selection Guide



Mechanism of Action

Type	Reversed Phase	Normal Phase	Ion Exchange	Other
Mechanism	The reversed phase column sorbent is less polar substance, which extract medium or less polar substances from the extract through hydrophobic interaction.	The normal phase column sorbent is a strong polar substance, which extract strong polar substance from the extract through hydrophilic interaction.	The ion exchange column sorbent is charged, which extract corresponding charged ions by interaction force.	Solid Supported Liquid-Liquid Extraction (SLE), Graphite-Carbon Black (GCB), etc.
Typical Application	Degreasing by reversed phase column in the detection of veterinary drug residues in foods of animal origin.	Remove organic acids from plant-based foods by normal phase column in pesticide residues test.	The MCX column adsorbs the target alkaline compounds such as melamine, ractopamine, etc., then rinse to remove impurities.	Extract aromatic amines in aqueous solution by SLE in azo dyes detection.

Solid Phase Extraction Cartridge Operation Procedures

Distinguish whether the SPE cartridge is used to adsorb the target compound or impurities before experiment. If the SPE cartridge adsorbs the target compound, process will be in 4 steps: activating, loading, washing and elution. If the SPE cartridge adsorbs the impurities, process will be in 3 steps: activating, loading and elution. 1-2 mL/min flow rate and Vacuum Manifolds with pressure control function are recommended.

General Procedures

① Activating

② Loading

③ Washing

④ Elution

⑤ Concentration

⑥ Filtration

⑦ Analysis

SPE Cartridge Directions


Gravity Method


Ion Exchange, Syringe Method


Positive Pressure Method


SPE Vacuum Manifold

Solvent Selection

SPE Cartridges	Category	Low Elution Strength Solvent (Weak Solvent)
Reversed Phase Cartridges	HLB, C18, C8	Water, Acetonitrile, Methanol
Normal Phase Cartridges	Florisil, ALN, Silica	n-Hexane, Cyclohexane
Cation Exchange Cartridges	MCX, SCX, WCX, PRS	Acidic or Neutral Solution
Anion Exchange Cartridges	MAX, SAX, WA X	Alkaline or Neutral Solution

The elution strength gradually increases during the experiments. In general, weak solvent is used during activating and loading . Weak solvent (might mixed with small amount of strong solvent) used during washing. Strong solvent (might mixed with small amount of weak solvent) during elution.

Analysis and Solutions of Low Recovery Rate

① Analyze the Solution Collected Each Step

When the absolute recovery of the target substance is low, detect the solution collected after each step, then optimize the filtration method.

Detected Target	Reason	Solution
Low recovery of blank spike	Improper SPE cartridge or improper operation	Replace the SPE cartridge or exclude improper solvent
Good recovery of blank spike, but low recovery of pre spike	Matrix effect interference	Optimize pretreatment method or use matrix standard for quantification
Good recovery of pre spike, but low recovery of matrix spike	Low extraction efficiency	Change the extraction solvent or the extraction method

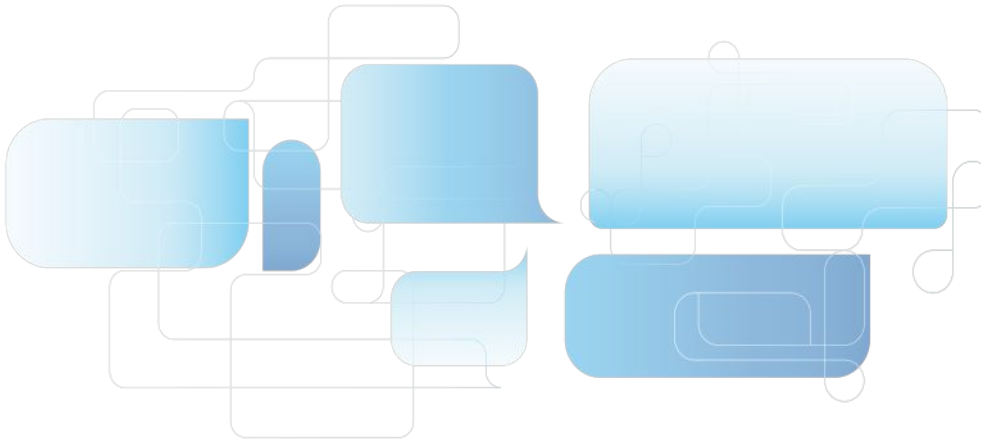
② Add Spike in Different Steps

Detected Target	Reason	Solution
Low recovery of blank spike	Improper SPE cartridge or improper operation	Replace the SPE cartridge or exclude improper solvent
Good recovery of blank spike, but low recovery of pre spike	Matrix effect interference	Optimize pretreatment method or use matrix standard for quantification
Good recovery of pre spike, but low recovery of matrix spike	Low extraction efficiency	Change the extraction solvent or the extraction method

Notes: ① Blank spike: add a spike to pure solvent. ② Pre spike: add a spike to blank matrix extract. ③ Matrix spiked: add a spike to blank matrix.

Solid Phase Extraction (SPE) Cartridge Product List

SorbentPhase	GVS	Waters	Agilent	Phenomenex	Supelco	Agela
C18	C18	Sep-pak tC18	Bond Elut C18	Strata C18-E	Sepelclean ENVI-18	Cleanert C18
C18-Ne	C18-n	Sep-pak C18	Bond Elut C18OH	Strata C18-U		Cleanert C18-N
C8	C8	Sep-pak C8	Bond Elut C8	Strata C8	Sepelclean ENVI-8	Cleanert C8
CN	CN	Sep-pak CN	Bond Elut CN-E	Strata CN	Sepelclean LC-CN	Cleanert CN
NH2	NH2	Sep-pak NH2	Bond Elut NH2	Strata NH2	Sepelclean LC-NH2	Cleanert NH2
PSA	PSA		Bond Elut PSA	Strata PSA	Sepelclean PSA	Cleanert PSA
SAX	SAX		Bond Elut SAX	Strata SAX	Sepelclean LC-SAX	Cleanert SAX
SCX	SCX		Bond Elut SCX	Strata SCX	Sepelclean LC-SI	Cleanert SCX
Silica	Silica	Sep-pak SI	Bond Elut SI	Strata SI-I	Sepelclean LC-SCX	Cleanert Silica
HLB	HLB	Oasis HLB	Bond Elut Plexa	Strata-X	Supel-Select HLB	Cleanert PEP
HLB	HLB-lim	Oasis PRIME HLB				
MCX	MCX	Oasis MCX	Bond Elut Plexa PCX	Strata-XC	Supel-Select SCX	Cleanert PCX
MAX	MAX	Oasis MAX	Bond Elut Plexa PAX	Strata-XA	Supel-Select SAX	Cleanert PAX
Florisil	Florisil	Sep-pak FI	Bond Elut FL	Strata FR-PR	Sepelclean LC-Florisil	Cleanert Florisil
Graphitized Bond	Carb-GCB		Bond Elut Carbon		Sepelclean ENVI Carb	Cleanert PestiCarb
Alumina-N	ALN	Sep-pak Alumina-N	Bond Elut Alumina-N	Strata Alumina-N	Sepelclean LC-Alumina-N	Cleanert AluminaN
Alumina-A	ALA	Sep-pak Alumina-A	Bond Elut Alumina-A	Strata Alumina-A	Sepelclean LC-Alumina-A	Cleanert AluminaA
Alumina-B	ALB	Sep-pak Alumina-B	Bond Elut Alumina-B	Strata Alumina-B	Sepelclean LC-Alumina-B	Cleanert AluminaB
GCB/NH2	Carb-GCB/NH2		Bond Elut Carb/NH2		Sepelclean ENVI Carb/NH2	Cleanert PestiCarb/NH2
GCB/PSA	Carb-GCB/PSA		Bond Elut Carb/PSA		Sepelclean ENVI Carb-II/PSA	



Polymer Sorbent

GVS provides various specifications and sorbents of polymeric SPE Cartridges. Each batch has passed performance verification to meet the pretreatment needs of various sample matrices. We provide excellent products of high recoveries and good stability to customers.

HLB Hydrophilic-Lipophilic Balanced

Extracting non-polar to moderately polar acidic, neutral and alkaline compounds

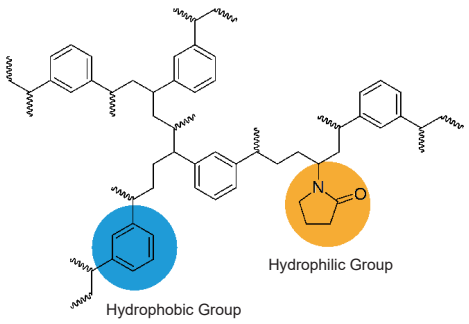
Specifications

Surface area: 600 m^2/g Particle size: 40 μm Pore size: 300 Å

Ordering information

Product Code	Description	Qty.
SPEB00HLB01030A	30mg/1mL	100 Pcs/Box
SPEB00HLB03060A	60mg/3mL	50 Pcs/Box
SPEB00HLB03200A	200mg/3mL	50 Pcs/Box
SPEB00HLB06150A	150mg/6mL	30 Pcs/Box
SPEB00HLB06200A	200mg/6mL	30 Pcs/Box
SPEB00HLB06500A	500mg/6mL	30 Pcs/Box
SPEB00HLB12500A	500mg/12mL	20 Pcs/Box
SPEB00HLB01060A	60mg/1ml	100 Pcs/Box
SPEB00HLB01100A	100mg/1ml	100 Pcs/Box
SPEB00HLB03030A	30mg/3ml	50 Pcs/Box
SPEB00HLB061000A	1g/6ml	30 Pcs/Box

Note: equivalent to Waters Oasis HLB



MAX Mixed-mode Anion Exchange

Extracting acidic compounds

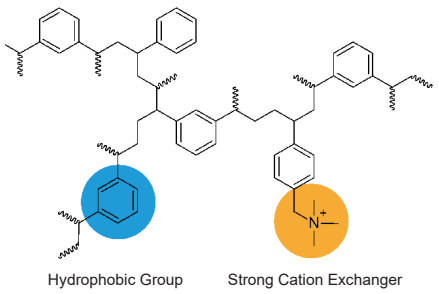
Specifications

Surface area: 600 m^2/g

Ordering information

Product Code	Description	Qty.
SPEB00MAX01030A	30mg/1mL	100 Pcs/Box
SPEB00MAX01060A	60mg/1ml	100 Pcs/Box
SPEB00MAX03030A	30mg/3ml	50 Pcs/Box
SPEB00MAX03060A	60mg/3mL	50 Pcs/Box
SPEB00MAX03200A	200mg/3mL	50 Pcs/Box
SPEB00MAX03500A	500mg/3ml	50 Pcs/Box
SPEB00MAX06150A	150mg/6mL	30 Pcs/Box
SPEB00MAX06200A	200mg/6mL	30 Pcs/Box
SPEB00MAX06500A	500mg/6mL	30 Pcs/Boxx
SPEB00MAX12500A	500mg/12mL	20 Pcs/Box
SPEB00MAX121000A	1g/12ml	20 Pcs/Box

Note: equivalent to Waters Oasis MAX



MCX Mixed-mode Cation Exchange

Extracting alkaline compounds

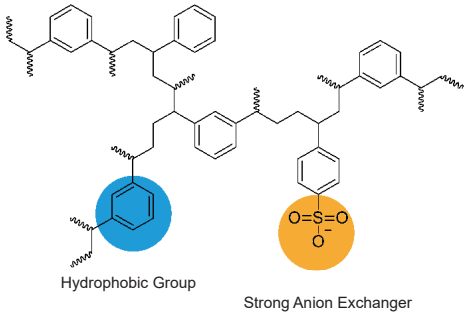
Specifications

Surface area: 600 m^2/g Particle size:40 μm Pore size: 300 Å

Ordering information

Product Code	Description	Qty.
SPEB00MCX01030A	30mg/1mL	100 Pcs/Box
SPEB00MCX01060A	60mg/1ml	100 Pcs/Box
SPEB00MCX03030A	30mg/3ml	50 Pcs/Box
SPEB00MCX03060A	60mg/3mL	50 Pcs/Box
SPEB00MCX03500A	500mg/3ml	50 Pcs/Box
SPEB00MCX06150A	150mg/6mL	30 Pcs/Box
SPEB00MCX06200A	200mg/6mL	30 Pcs/Box
SPEB00MCX06500A	500mg/6mL	30 Pcs/Box
SPEB00MCX12500A	500mg/12mL	20 Pcs/Box
SPEB00MCX121000A	1g/12ml	20 Pcs/Box

Note: equivalent to Waters Oasis MCX



WCX Weak Cation Exchange

Extracting strong bases

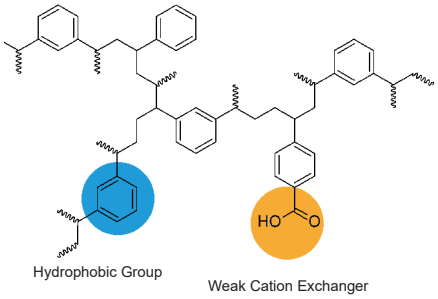
Specifications

Surface area: 600 m^2/g Particle size:40 μm Pore size:300 Å

Ordering information

Product Code	Description	Qty.
SPEB00WCX01030A	30mg/1mL	100 Pcs/Box
SPEB00WCX01060A	60mg/1ml	100 Pcs/Box
SPEB00WCX03030A	30mg/3ml	50 Pcs/Box
SPEB00WCX03060A	60mg/3mL	50 Pcs/Box
SPEB00WCX03500A	500mg/3mL	50 Pcs/Box
SPEB00WCX06150A	150mg/6mL	30 Pcs/Box
SPEB00WCX06200A	200mg/6mL	30 Pcs/Box
SPEB00WCX06500A	500mg/6mL	30 Pcs/Box
SPEB00WCX12500A	500mg/12ml	20 Pcs/Box
SPEB00WCX121000A	1g/12ml	20 Pcs/Box

Note: equivalent to Waters Oasis WCX



WAX Weak Anion Exchange

Extracting strong acids

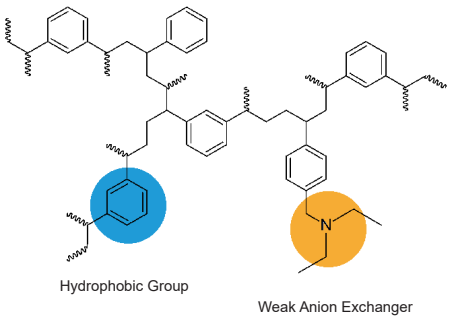
Specifications

Surface area: 600 m^2/g Particle size: 40 μm Pore size: 300 Å

Ordering information

Product Code	Description	Qty.
SPEB00WAX01030A	30mg/1mL	100 Pcs/Box
SPEB00WAX01060A	60mg/1ml	100 Pcs/Box
SPEB00WAX03030A	30mg/3ml	50 Pcs/Box
SPEB00WAX03060A	60mg/3mL	50 Pcs/Box
SPEB00WAX03500A	500mg/3mL	50 Pcs/Box
SPEB00WAX06150A	150mg/6mL	30 Pcs/Box
SPEB00WAX06200A	200mg/6mL	30 Pcs/Box
SPEB00WAX06500A	500mg/6mL	30 Pcs/Box
SPEB00WAX12500A	500mg/12ml	20 Pcs/Box
SPEB00WAX121000A	1g/12ml	20 Pcs/Box

Note: equivalent to Waters Oasis WAX



HLB Lim Cartridges for Multi-Residue Analysis of Veterinary Drug

HLB Lim cartridge is a new type of solid phase extraction column packed with special sorbent. Comparing to traditional SPE cartridges, it removes interfering substances such as fat, phospholipid and pigment faster to reduce matrix effect.

The HLB Lim Cartridge greatly simplifies the process of sample preparation. Activation and equilibration steps can be skipped. Filtering the sample directly after extraction saves a lot of time and reagents so that the sample preparation is simpler and more efficient.

Features

- One step purification and shorter pretreatment time
- High recovery rate and good reproducibility
- Suitable for multi-matrix and multi-residue analysis of veterinary drug
- Save solvent and cost

Typical Recovery

Compound	Recovery (%)
Tetracycline	97.7
Chlortetracycline	87.9
Oxytetracycline	87.7
Ractopamine	95.8
Salbutamol	108
Clenbuterol	91.6

Ordering information

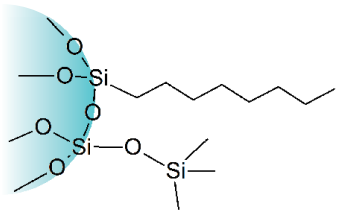
Product Code	Description	Qty.
SPEB00HLB03200A	HLB Lim Cartridges,3 mL	50 Pcs/Box

SPE Cartridges

SPE cartridges generally include traditional silica-based SPE cartridges and inorganic chemical based SPE cartridges. GVS independently researches and develops sorbents to ensure its stability and performance. Normal phase, reverse phase, and ion exchange phase are available to improve sample preparation efficiency.

C8 Octyl

Extracting non-polar compounds



Specifications

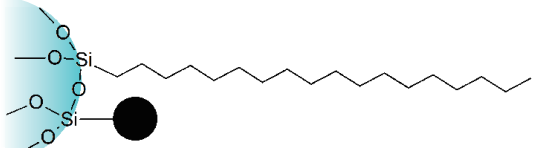
Carbon content: 9%
Surface area: 280 m^2/g
Particle size: 40 - 75 μm
Pore size: 70 Å

Ordering information

Product Code	Description	Qty.
SPEB000C801100A	100mg/1mL	100 Pcs/Box
SPEB000C803200A	200mg/3mL	50 Pcs/Box
SPEB000C803500A	500mg/3mL	50 Pcs/Box
SPEB000C806500A	500mg/6mL	30 Pcs/Box
SPEB000C8061000A	1000mg/6mL	30 Pcs/Box
SPEB000C8122000A	2000mg/12mL	20 Pcs/Box

C18 A Unendcapped Octadecyl

Extracting non-polar compounds



Specifications

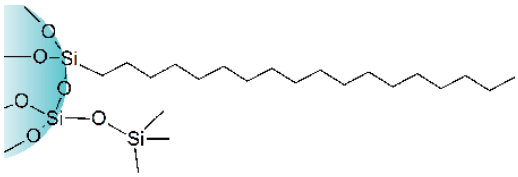
Carbon content: 12%
Surface area: 300 m^2/g
Particle size: 40 - 75 μm
Pore size: 70 Å

C18 A Ordering information

Product Code	Description	Qty.
SPEB0C18A01100A	100mg/1mL	100 Pcs/Box
SPEB0C18A03200A	200mg/3mL	50 Pcs/Box
SPEB0C18A03500A	500mg/3mL	50 Pcs/Box
SPEB0C18A06500A	500mg/6mL	30 Pcs/Box
SPEB0C18A061000A	1000mg/6mL	30 Pcs/Box
SPEB0C18A121000A	1000mg/12mL	20 Pcs/Box
SPEB0C18A122000A	2000mg/12mL	20 Pcs/Box

C18 Endcapped Octadecyl

Extracting non-polar compounds



Specifications

Carbon content: 17.6%
Surface area: 300 m^2/g
Particle size: 40 - 60 μm
Pore size: 70 Å

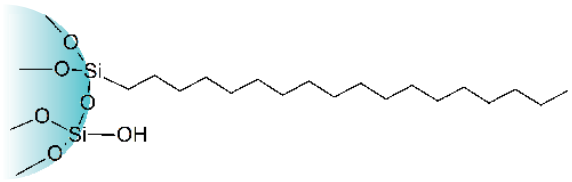
Ordering information

Product Code	Description	Qty.
SPEB00C1801100A	100mg/1mL	100 Pcs/Box
SPEB00C1803060A	60mg/3mL	50 Pcs/Box
SPEB00C1803200A	200mg/3mL	50 Pcs/Box
SPEB00C1803500A	500mg/3mL	50 Pcs/Box
SPEB00C1806500A	500mg/6mL	30 Pcs/Box
SPEB00C18061000A	1000mg/6mL	30 Pcs/Box
SPEB00C18121000A	1000mg/12mL	20 Pcs/Box
SPEB00C18122000A	2000mg/12mL	20 Pcs/Box
SPEB00C1803250A	250mg/3ml	50 Pcs/box
SPEB00C1803300A	300mg/3ml	50 Pcs/Box
SPEB00C1806200A	200mg/6ml	30 Pcs/Box
SPEB00C1806300A	300mg/6ml	30 Pcs/Box
SPEB00C18065000A	5g/60ml	12 Pcs/Box

Note: equivalent to Waters Sep-Pak tC18/C18, Agilent Bond Elut C18, Supelco Supelclean ENVI-18

C18N Unendcapped Octadecyl

Extracting polar and non-polar compounds



Specifications

Carbon content: 17%
Surface area: 300 m^2/g
Particle size: 40 - 75 µm
Pore size: 70 Å

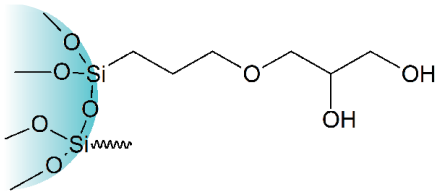
Ordering information

Product Code	Description	Qty.
SPEB0C18N01100A	100mg/1mL	100 Pcs/Box
SPEB0C18N03200A	200mg/3mL	50 Pcs/Box
SPEB0C18N03500A	500mg/3mL	50 Pcs/Box
SPEB0C18N06500A	500mg/6mL	30 Pcs/Box
SPEB0C18N061000A	1000mg/6mL	30 Pcs/Box
SPEB0C18N121000A	1000mg/12mL	20 Pcs/Box
SPEB0C18N122000A	2000mg/12mL	20 Pcs/Box
SPEB0C18N06200A	200mg/6ml	30 Pcs/Box
SPEB0C18N06300A	300mg/6ml	30 Pcs/Box
SPEB0C18N605000A	5g/60ml	12 Pcs/Box

Note: equivalent to Agilent Bond Elut C18-OH

Diol Dihydroxy

Extracting polar compounds



Specifications

Surface area: 290 m^2/g
Carbon content:5.5%
Particle size: 40-75 µm
Pore size: 70 Å

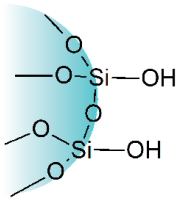
Ordering information

Product Code	Description	Qty.
SPEB0DIOL01100A	100mg/1mL	100 Pcs/Box
SPEB0DIOL03200A	200mg/3mL	50 Pcs/Box
SPEB0DIOL03500A	500mg/3mL	50 Pcs/Box
SPEB0DIOL06500A	500mg/6mL	30 Pcs/Box
SPEB0DIOL061000A	1000mg/6mL	30 Pcs/Box
SPEB0DIOL121000A	1000mg/12mL	20 Pcs/Box
SPEB0DIOL122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Waters Sep-Pak Diol & Agilent Bond Elut 20H

Silica Unbounded Silica Gel

Extracting polar compounds



Specifications

Surface area: 480 m^2/g
Particle size: 40 - 75 µm
Pore size: 70 Å

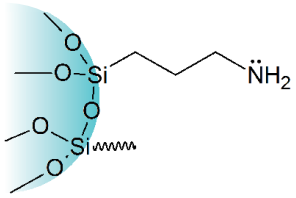
Ordering information

Product Code	Description	Qty.
SPEBSILIC01100A	100mg/1mL	100 Pcs/Box
SPEBSILIC03100A	100mg/3ml	50 Pcs/Box
SPEBSILIC03200A	200mg/3mL	50 Pcs/Box
SPEBSILIC03500A	500mg/3mL	50 Pcs/Box
SPEBSILIC06500A	500mg/6mL	30 Pcs/Box
SPEBSILIC061000A	1000mg/6mL	30 Pcs/Box
SPEBSILIC062000A	2g/6ml	30 Pcs/Box
SPEBSILIC121000A	1000mg/12mL	20 Pcs/Box
SPEBSILIC122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Agilent Bond Elut Silica & Waters Sep-Pak Silica

NH_2 Aminopropyl

Extracting moderately polar and acidic compounds



Specifications

Surface area: 200 m^2/g
Carbon content: 4.5%
Particle size: 40-75 µm
Pore size: 70 Å

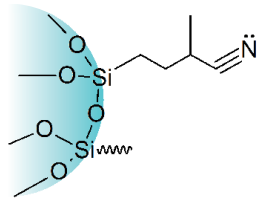
Ordering information

Product Code	Description	Qty.
SPEB00NH201100A	100mg/1mL	100 Pcs/Box
SPEB00NH203200A	200mg/3mL	50 Pcs/Box
SPEB00NH203250A	250mg/3ml	50 Pcs/box
SPEB00NH203500A	500mg/3mL	50 Pcs/Box
SPEB00NH206500A	500mg/6mL	30 Pcs/Box
SPEB00NH2061000A	1000mg/6mL	30 Pcs/Box
SPEB00NH2121000A	1000mg/12mL	20 Pcs/Box
SPEB00NH2122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Waters Sep-Pak NH2 & Agilent Bond Elut NH_2

CN Cyanopropyl

Extracting polar and non-polar compounds, enriching metal ions



Specifications

Surface area: 280 m^2/g Carbon content: 5.8%

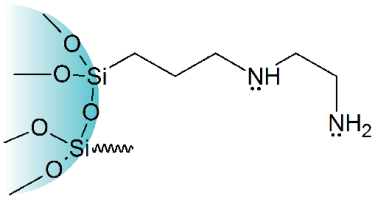
Particle size: 40 - 75 μm Pore size: 70 Å

Ordering information

Product Code	Description	Qty.
SPEB000CN01100A	100mg/1mL	100 Pcs/Box
SPEB000CN03200A	200mg/3mL	50 Pcs/Box
SPEB000CN03500A	500mg/3mL	50 Pcs/Box
SPEB000CN06500A	500mg/6mL	30 Pcs/Box
SPEB000CN061000A	1000mg/6mL	30 Pcs/Box
SPEB000CN122000A	2000mg/12mL	20 Pcs/Box

PSA Primary-Secondary Amine

Extracting strong acids, polar compounds and metal ions



Specifications

Surface area: 500 m^2/g Carbon content: 8%

Particle size: 50-75 μm Pore size: 70 Å

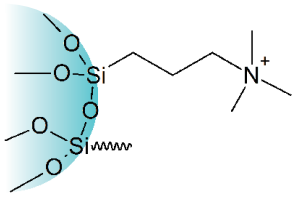
Ordering information

Product Code	Description	Qty.
SPEB00PSA01100A	100mg/1mL	100 Pcs/Box
SPEB00PSA03200A	200mg/3mL	50 Pcs/Box
SPEB00PSA03500A	500mg/3mL	50 Pcs/Box
SPEB00PSA06500A	500mg/6mL	30 Pcs/Box
SPEB00PSA061000A	1000mg/6mL	30 Pcs/Box
SPEB00PSA121000A	1000mg/12mL	20 Pcs/Box
SPEB00PSA122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Agilent Bond Elut PSA

SAX Strong Anion Exchange

Extracting acidic compounds



Specifications

Surface area: 510 m^2/g Particle size: 40-75 μm

Pore size: 70 Å

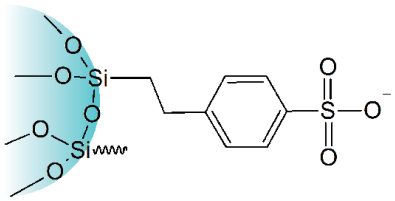
Ordering information

Product Code	Description	Qty.
SPEB00SAX01030A	30mg/1mL	100 Pcs/Box
SPEB00SAX01060A	60mg/1ml	100 Pcs/Box
SPEB00SAX01100A	100mg/1mL	100 Pcs/Box
SPEB00SAX03060A	60mg/3ml	50 Pcs/Box
SPEB00SAX03200A	200mg/3mL	50 Pcs/Box
SPEB00SAX03500A	500mg/3mL	50 Pcs/Box
SPEB00SAX06200A	200mg/6mL	30 Pcs/Box
SPEB00SAX06500A	500mg/6mL	30 Pcs/Box
SPEB00SAX061000A	1000mg/6mL	30 Pcs/Box
SPEB00SAX121000A	1000mg/12mL	20 Pcs/Box
SPEB00SAX122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Supelco Supelclean LC-SAX

SCX Strong Cation Exchange

Extracting basic compounds



Specifications

Surface area: 510 m^2/g Particle size: 40 - 75 μm

Pore size: 70 Å

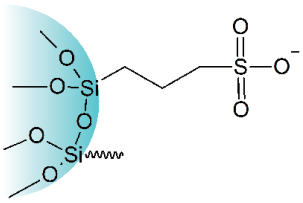
Ordering information

Product Code	Description	Qty.
SPEB00SCX01030A	30mg/1mL	100 Pcs/Box
SPEB00SCX01100A	100mg/1mL	100 Pcs/Box
SPEB00SCX03060A	60mg/3ml	50 Pcs/Box
SPEB00SCX03200A	200mg/3mL	50 Pcs/Box
SPEB00SCX03500A	500mg/3mL	50 Pcs/Box
SPEB00SCX06200A	200mg/6mL	30 Pcs/Box
SPEB00SCX06500A	500mg/6mL	30 Pcs/Box
SPEB00SCX061000A	1000mg/6mL	30 Pcs/Box
SPEB00SCX121000A	1000mg/12mL	20 Pcs/Box
SPEB00SCX122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Waters Sep-Pak CN

PRS Propylsulfonic Acid

Extracting weak bases in biological fluids



Specifications

Surface area: 310 m^2/g Carbon content: 4.5%

Particle size: 40-75 µm Pore size: 70 Å

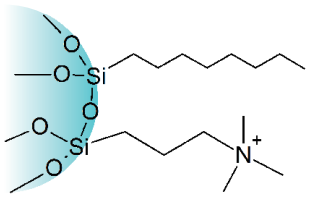
Ordering information

Product Code	Description	Qty.
SPEB00PRS01100A	100mg/1mL	100 Pcs/Box
SPEB00PRS03200A	200mg/3mL	50 Pcs/Box
SPEB00PRS03500A	500mg/3mL	50 Pcs/Box
SPEB00PRS06500A	500mg/6mL	30 Pcs/Box
SPEB00PRS061000A	1000mg/6mL	30 Pcs/Box
SPEB00PRS121000A	1000mg/12mL	20 Pcs/Box
SPEB00PRS122000A	2g/12ml	20 Pcs/Box

Note: equivalent to Agilent Bond Elut PRS

C8/SAX Octyl/Strong Anion Exchange

Extracting acidic drugs in biological fluids



Specifications

Surface area: 510 m^2/g Particle

size: 40-75 µm

Pore size: 70 Å

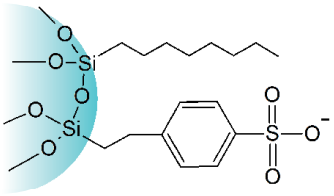
Ordering information

Product Code	Description	Qty.
SPEBC8SAX01100A	100mg/1mL	100 Pcs/Box
SPEBC8SAX01030A	30mg/1ml	100 Pcs/Box
SPEBC8SAX03200A	200mg/3mL	50 Pcs/Box
SPEBC8SAX03500A	500mg/3mL	50 Pcs/Box
SPEBC8SAX06200A	200mg/6ml	30 Pcs/Box
SPEBC8SAX06500A	500mg/6mL	30 Pcs/Box
SPEBC8SAX061000A	1000mg/6mL	30 Pcs/Box
SPEBC8SAX121000A	1000mg/12mL	20 Pcs/Box
SPEBC8SAX122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Agilent Bond Elut Certify II & Phenomenex Screen-A

C8/SAX Octyl/Strong Anion Exchange

Extracting acidic drugs in biological fluids



Specifications

Surface area: 510 m^2/g Particle size: 40-75 µm

Pore size: 70 Å

Ordering information

Product Code	Description	Qty.
SPEBC8SCX01030A	30mg/1ml	100 Pcs/Box
SPEBC8SCX01100A	100mg/1mL	100 Pcs/Box
SPEBC8SCX03200A	200mg/3mL	50 Pcs/Box
SPEBC8SCX03500A	500mg/3mL	50 Pcs/Box
SPEBC8SCX06200A	200mg/6ml	30 Pcs/Box
SPEBC8SCX06500A	500mg/6mL	30 Pcs/Box
SPEBC8SCX061000A	1000mg/6mL	30 Pcs/Box
SPEBC8SCX121000A	1000mg/12mL	20 Pcs/Box
SPEBC8SCX122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Agilent Bond Elut Certify & Phenomenex Screen-C

Carb-GCB Graphitized Carbon Black

Extracting herbicides in drinking water

Specifications

Surface area: 100 m^2/g Particle

size: 100-300 mesh

Ordering information

Product Code	Description	Qty.
SPEB00GCB03500A	500mg/3mL	50 Pcs/Box
SPEB00GCB03250A	250mg/3ml	50 Pcs/box
SPEB00GCB06500A	500mg/6mL	30 Pcs/Box
SPEB00GCB061000A	1000mg/6mL	30 Pcs/Box

Note: equivalent to Agilent Bond Elut Carbon

Carb-GCB/PSA

Graphitized Carbon Black/ Primary- Secondary Amine Bilayer

Cleanup of samples in multiresidual pesticide analysis

Specifications

Surface area: 100 m^2/g Particle size: 100-300 mesh

PSA Specifications

Surface area: 500 m2/g Carbon content: 8%

Particle size: 40-75 µm Pore size: 70 Å

Ordering information

Product Code	Description	Qty.
SPEB0PSGC065X5A	500mg/500mg/6mL	30 Pcs/Box

Carb-GCB/NH_2

Graphitized Carbon Black/Aminopropyl Bilayer

Cleanup of samples in multiresidual pesticide analysis

GCB Specifications

Surface area: 100 m2/g Particle size: 100-300 mesh

NH_2 Specifications

Carbon content: 4.5% Surface area: 200 m^2/g

Particle size: 40 - 75 μm Pore size: 70 Å

Ordering information

Product Code	Description	Qty.
SPEB0NHGC065X5A	500mg/500mg/6mL	30 Pcs/Box
SPEB0NHGC065X2A	500mg/250mg/6ml	30 Pcs/Box
SPEB0NHGC065X5A	500mg/500mg/6ml	30 Pcs/Box
SPEB0NHGC121X1A	1g/1g/12ml	20 Pcs/Box

Florisil Pesticide Grade

Extracting multiresidual pesticides

Specifications

Particle size: 150 - 250 μm

Ordering information

Product Code	Description	Qty.
SPEBFLORI01100A	100mg/1mL	100 Pcs/Box
SPEBFLORI03200A	200mg/3mL	50 Pcs/Box
SPEBFLORI03500A	500mg/3mL	50 Pcs/Box
SPEBFLORI06500A	500mg/6mL	30 Pcs/Box
SPEBFLORI061000A	1000mg/6mL	30 Pcs/Box
SPEBFLORI121000A	1000mg/12mL	20 Pcs/Box
SPEBFLORI122000A	2000mg/12mL	20 Pcs/Box

ALA, ALN, ALB, Alumina

Extracting aromatic amines

Specifications

Surface area >150 m^2/g

pH: Acidic Alumina pH 4.0

Neutral Alumina pH 7.0

Basic Alumina pH 9.5

Ordering information

① Acidic Alumina (ALA)

Product Code	Description	Qty.
SPEB00ALA01100A	100mg/1ml	100 Pcs/Box
SPEB00ALA03200A	200mg/3ml	50 Pcs/Box
SPEB00ALA03500A	500mg/3ml	50 Pcs/Box
SPEB00ALA06500A	500mg/6ml	30 Pcs/Boxx
SPEB00ALA061000A	1g/6ml	30 Pcs/Boxx
SPEB00ALA062000A	2g/6ml	30 Pcs/Boxx
SPEB00ALA121000A	1g/12ml	20 Pcs/Box
SPEB00ALA122000A	2g/12ml	20 Pcs/Box

Note: equivalent to Waters Sep-Pak Alumina-A

② Neutral Alumina(ALN)

Product Code	Description	Qty.
SPEB00ALN01100A	100mg/1mL	100 Pcs/Box
SPEB00ALN03200A	200mg/3mL	50 Pcs/Box
SPEB00ALN03500A	500mg/3mL	50 Pcs/Box
SPEB00ALN06500A	500mg/6mL	30 Pcs/Box
SPEB00ALN061000A	1000mg/6mL	30 Pcs/Box
SPEB00ALN062000A	2g/6ml	20 Pcs/Box
SPEB00ALN121000A	1000mg/12mL	20 Pcs/Box
SPEB00ALN122000A	2000mg/12mL	20 Pcs/Box
SPEB00ALN124000A	4g/12ml	20 Pcs/Box
SPEB00ALN125000A	5g/12ml	20 Pcs/Box

Note: equivalent to Waters Sep-Pak Alumina-N

③ Basic Alumina(ALB)

Product Code	Description	Qty.
SPEB00ALB01100A	100mg/1mL	100 Pcs/Box
SPEB00ALB03200A	200mg/3mL	50 Pcs/Box
SPEB00ALB03500A	500mg/3mL	50 Pcs/Box
SPEB00ALB06500A	500mg/6mL	30 Pcs/Box
SPEB00ALB061000A	1000mg/6mL	30 Pcs/Box
SPEB00ALB062000A	2g/6ml	30 Pcs/Box
SPEB00ALB121000A	1000mg/12mL	20 Pcs/Box
SPEB00ALB122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Waters Sep-Pak Alumina-B

Mycotoxin Clean-up Columns

Mycotoxin Rapid Testing Solutions

Mycotoxin immunoaffinity column is an affinity chromatography column made by the principle of immunoaffinity chromatography for the analysis of antigens. After extraction, dilution, and column passing, most impurities can be removed.

General Procedures of Mycotoxin Clean-Up Columns

① Activating ② Washing & Eluting ③ Concentration ④ Filtration ⑤ Analysis

Aflatoxin Immunoaffinity Columns

Aflatoxin is a highly toxic substance, which is harmful to human and animal liver tissues. Aflatoxin Immunoaffinity Columns are based on the antigen-antibody specific reaction, binding the antibody to the gel to combine with aflatoxin specificity, thereby achieving the effect of separation and purification.

Ordering information

Product Code	Description	Qty.
IMMBAFLT0001A	Aflatoxin B1,B2,G1,G2 , 1mL	25 Pcs/Box
IMMBAFLT0003A	Aflatoxin B1,B2,G1,G2 , 3mL	20 Pcs/Box
IMMBAFLB1001A	Aflatoxin B1, 1mL	25 Pcs/Box
IMMBAFLB1003A	Aflatoxin B1, 3mL	20 Pcs/Box
IMMBAFLM1001A	Aflatoxin M1, 1mL	25 Pcs/Box
IMMBAFLM1003A	Aflatoxin M1, 3mL	20 Pcs/Box

Zearalenone Immunoaffinity Columns

Zearalenone is widely found in moldy corn, sorghum, wheat, oats, barley and other cereal crops and milk, and is the most widely contaminated Fusarium toxin in the world. It has estrogenic effects, mainly acts on the reproductive system, and is very harmful to humans and animals. Zearalenone Immunoaffinity Columns can be used to extract and enrich zearalenone from samples ,which makes high targeted purification performance come true.

Ordering information

Product Code	Description	Qty.
IMMBZEARA001A	Zearalenone, 1mL	25 Pcs/Box
IMMBZEARA003A	Zearalenone, 3mL	20 Pcs/Box

Four-in-one (ADOZ) Immunoaffinity Columns

ADOZ immunoaffinity column is suitable for the purification of aflatoxin B1, B2, G1, G2, zearalenone, DON, ochratoxin A in samples of grain, food, feed, nuts, peanuts, soy sauce, etc. This method can treat four toxins at one time, greatly improving the pretreatment efficiency, and the recoveries of the four toxins can reach more than 80%.

Ordering information

Product Code	Description	Qty.
IMMBFIOAD003A	3mL	10 Pcs/Box

Deoxynivalenol Immunoaffinity Columns

DON, also known as deoxynivalenol, is mostly distributed in wheat, barley, corn and other grains, and has a certain harmful effect on the human body. It is three-level carcinogen in the EU classification standard. DON Immunoaffinity Columns can selectively separate deoxynivalenol from the sample by the specific binding of antibody and antigen to achieve good purification effect.

Ordering information

Product Code	Description	Qty.
IMMBDEOXY001A	Deoxynivalenol, 1mL	25 Pcs/Box
IMMBDEOXY003A	Deoxynivalenol, 3mL	20 Pcs/Box

Ochratoxin AImmunoaffinity Columns

Ochratoxin A is very common in moldy grains and feed. It comes from the aspergillus and penicillium on various crops (wheat, corn, barley, oats, rye, rice and millet), peanuts, vegetables (beans), etc., which cause enormous harm to the kidneys and livers of human and animal. Ochratoxin A immunoaffinity column can selectively adsorb ochratoxin A in the sample extract, so as to have a very targeted purification effect on ochratoxin A in the sample solution.

Ordering Information

Product Code	Description	Qty.
IMMBORCRA001A	Ochratoxin A, 1mL	25 Pcs/Box
IMMBORCRA003A	Ochratoxin A, 3mL	20 Pcs/Box

T-2 Toxin Immunoaffinity Columns

T-2 toxin is a mycotoxin produced by a variety of Fusarium species. It mainly pollutes wheat, barley, corn and other food crops and their products, and poses great harm to human health and animal husbandry. T-2 toxin immunoaffinity column can selectively adsorb the T-2 toxin in the sample solution to specifically purify T-2 toxin. The purified sample solution can be directly used in the liquid phase test.

Ordering information

Product Code	Description	Qty.
IMMBT2TOX001A	T-2 toxin, 1mL	25 Pcs/Box
IMMBT2TOX003A	T-2 toxin, 3mL	20 Pcs/Box

Fumonisin FB Immunoaffinity Column

Fumonisin FB is a mycotoxin, which is a watersoluble metabolite produced by Fusarium moniliforme. It is a kind of diester compound composed by different polyhydric alcohols and glycerol tricarboxylic acid. Fumonisin has FA1, FA2, FB1, FB2, FB3 etc. FB1 is the main component.

Ordering information

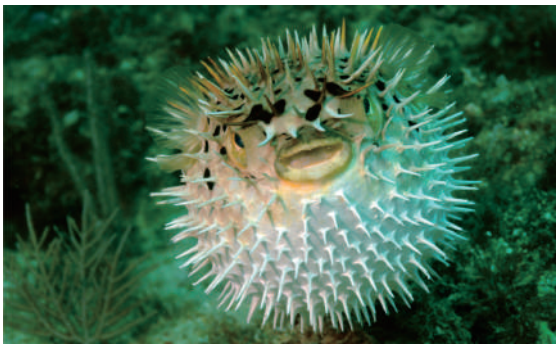
Product Code	Description	Qty.
IMMBFUMFB003A	Fumonisin FB, 3mL	20 Pcs/Box

Tetrodotoxin Immunoaffinity Column

Tetrodotoxin is an amino perhydro quinazolin compound, which is one of the most toxic neurotoxins found in nature. It was once considered to be the most toxic non-protein toxin in nature. The toxin has a local stimulating effect on the intestinal tract. After absorption, it acts on nerve endings and nerve centers rapidly. It can block sodium ion channels on nerve excitation membrane with high selectivity and affinity, and block nerve conduction, thus causing nerve paralysis and death. Tetrodotoxin immunoaffinity column has a strong targeted purification effect on the extraction and enrichment of tetrodotoxin.

Ordering information

Product Code	Description	Qty.
IMMBTETRO003A	Tetrodotoxin, 3mL	20 Pcs/Box



Multi-Functional Purification Column

Multi-Functional Purification Column contains multiple adsorption matrices to adsorb quickly and selectively of lipids, organic acids, proteins, pigments and other impurities. The matrices do not absorb the target to realize fast purification.

Features

- Complete purification in 30s
- Easy operation and high efficiency
- Stored at room temperature for more than 18 months
- Recovery rate ⩾ 90%, RSD ⩽ 5%

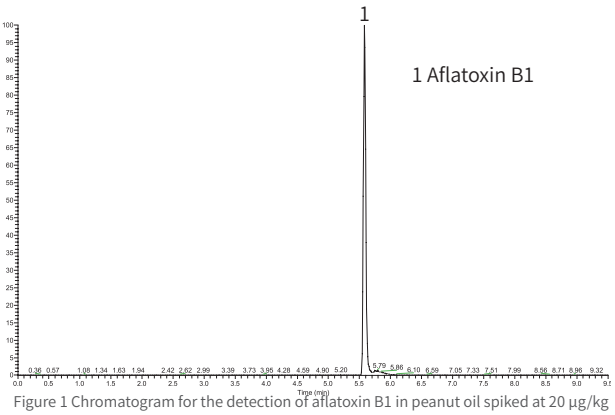


Figure 1 Chromatogram for the detection of aflatoxin B1 in peanut oil spiked at 20 μg/kg

Procedures

1. Extract sample.
2. Add the extracted sample to the test tube and insert the rubber-tipped end of the purification column into the test tube.
3. Push the purification column to the bottom of the test tube.
4. The purified sample passes through sorbent to the top of the purification column.
5. The purified sample can be analyzed after concentrate.

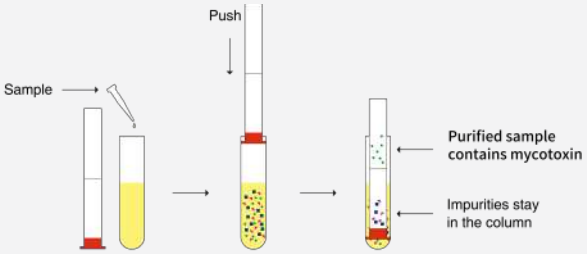


Table 1 Recovery of aflatoxin B1 in 20 μg/kg peanut oil

Compound	Recovery (%)	Average recoveries (%)	RSD (%)	Average recoveries (%)	RSD (%)
	1	2	3		
Aflatoxin B1	81.9	84.5	82.4	82.9	1.7

Ordering information

Product Code	Description	Application	Qty.
CUCMFP1819A	228 Multi-Functional Purification Column	Patulin, Aflatoxin B1 B2 G1 G2	25 Pcs/Box
CUCMFP1820A	226 Multi-Functional Purification Column	Zearalenone, Aflatoxin B1 B2 G1 G2	25 Pcs/Box
CUCMFP1821A	224 Multi-Functional Purification Column	Zearalenone	25 Pcs/Box
CUCMFP1823A	223 Multi-Functional Purification Column	Aflatoxin M1 M2	25 Pcs/Box
CUCMFP1824A	230 Multi-Functional Purification Column	Deoxynivalenol	25 Pcs/Box
CUCMFP1818A	229 Multi-Functional Purification Column	Ochratoxin A	25 Pcs/Box
CUCMFP1822A	302 Multi-Functional Purification Column	Multiple functions	25 Pcs/Box

Special SPE Cartridges

Cartridges for Ion chromatography Preparation

In ion chromatography, organic, metal and other interfering ions may affect the analysis of target compounds. The pretreatment columns are based on the principle of reversed phase adsorption or ion exchange, can effectively remove interferences and ensure the accuracy of the results.

Ordering information

Product Code	Description	Format	Qty.
SPEB0IC18001A	C18 catridge	300mg	50 Pcs/Box
SPEB0IC0H001A	H catridge	1mL	50 Pcs/Box
SPEB0ICNA001A	Na catridge	1mL	50 Pcs/Box

Destaining Cartridges for Chrome (VI) Testing

Chrome (VI) in leather articles are converted from Chrome (III) in the process of leather production. The toxic substance has been banned by China and EU. To determine Chrome (VI), pigments in leather should be removed firstly.

Destaining cartridges for Chrome (VI) testing are dedicatedly optimized, capable of helping you remove pigments.

Features

- Optimized for destaining leather samples
- Improved recovery and repeatability
- Complying with official methods

Applications

- Determination of Chrome (VI) in leather

Ordering information

Product Code	Description	Qty.
SPEB0PACR121000A	1000mg/12mL	20 Pcs/Box

Polyamide(PA) SPE Cartridges

For Testing Artificial Color in Extraction Samples

PA is a macromolecule substance polymerized by Amide monomer(hexanolactam, adipamide, Oxalic acid), its amido linkage is easily to bring Hydrogen bond with other Polar bond groups, this enables to remove interferents such as artificial color from samples, this is used for testing artificial color.

PA SPE cartridges are filled with special optimized PA sorbent
which enables its good decoloring and high recovery.

Specifications

- Particle Size: 100-200 mesh

Ordering information

Product Code	Description	Qty.
SPEB0PACR03500A	500mg/3mL	50 Pcs/Box
SPEB0PACR06500A	500mg/6mL	30 Pcs/Box
SPEB0PACR061000A	1000mg/6mL	30 Pcs/Box

Cartridges for Plasticizer Testing

Determination of phthalate esters

Plasticizers are currently used in plastic and packaging food contact materials and their products are mostly phthalate esters (PAEs), some of which are carcinogenic and reproductively toxic. As toxic PAEs leached into food cause health risks for human beings, their use is strictly limited in EU, the U.S., China, Japan, etc.

GVS cartridges for plasticizer testing are made of glass tubes and PTFE frits that prevent impurities from being introduced into the sample. Dedicatedly optimized PSA sorbent also enables thorough cleanup and satisfactory recoveries for official methods.

Features

- Chemically inert glass tubes
- High purity PTFE frits
- Satisfactory recoveries for official methods

Applications

- Determination of phthalate esters in foods

Ordering information

Product Code	Description	Qty.
SPEB00PAE065X5A	500mg/500mg/6mL	30 Pcs/Box

QuEChERS

QuEChERS

In 2003, Michelangelo Anastassiades and Steven J. Lehotay developed a dispersive SPE (dSPE) method called QuEChERS (Quick, Easy, Cheap, Effective, Rugged, and Safe) to simplify the preparation of food samples pesticide analysis. The groundbreaking preparation method is widely applied to pollution tests in food safety, environmental water samples and soil pollutants.

GVS offers various centrifuge tubes, extraction tubes, purification tubes in different specifications to help you establish standard detection quickly.

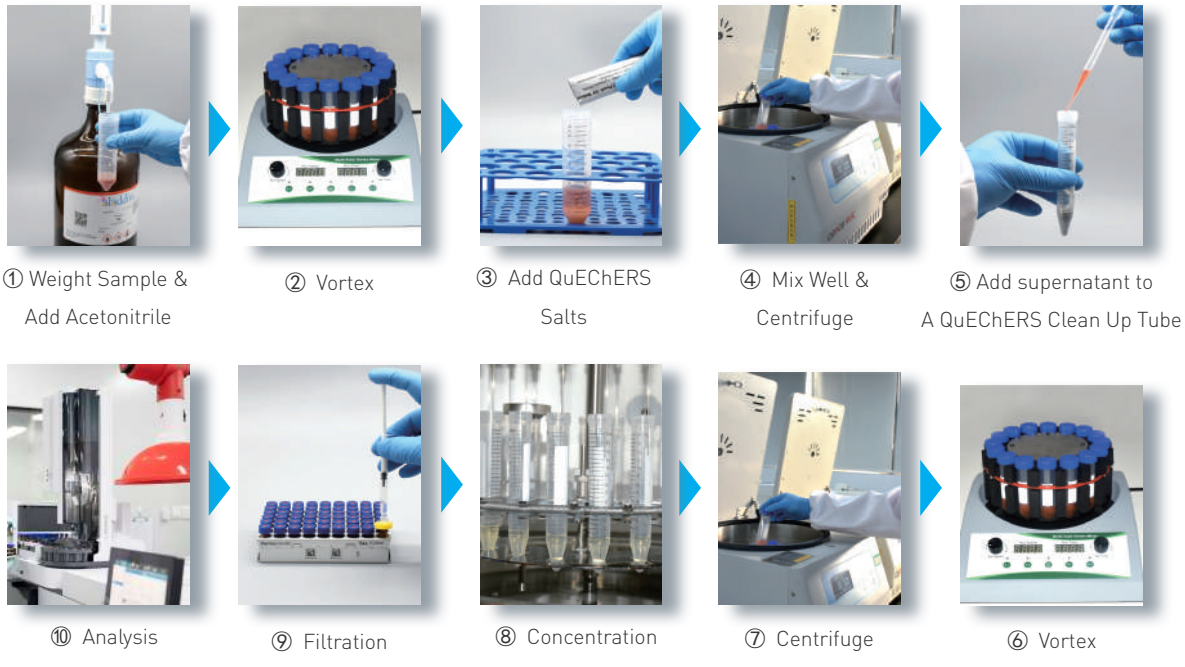
Features

- Good recovery rate for most pesticides, veterinary drugs and additives
- Fewer steps to limit manual error
- More friendly to the operators and environment
- Simple, quick and inexpensive

Standards

- EN 15662 Foods of Plant Origin - Determination of pesticide residues using GC-MS and/or LC-MS/MS following acetonitrile extraction/partitioning and clean-up by dispersive SPE - QuEChERS-method
- AOAC Official Method 2007.01 Pesticide Residues in Foods by Aceton

General Procedures of Mycotoxin Clean-Up Columns



QuEChERS Extraction Kits

QuEChERS Extraction Kits include extraction pouches and 50 mL centrifuge tubes, ceramic homogenizers are optional as well.The pouches contain anhydrous extraction salts. Among the mixture, MgSO4 is responsible for removing water from samples, while other components are responsible for maintaining appropriate pH to ensure the recoveries of alkaline-sensitive pesticides.

Directly adding water-abundant samples into tubes containing extraction salts may cause local overheating which compromise the resulting recoveries. To avoid such situations, GVS provides separate extraction salt pouches that the operator can add extraction salts after the addition of organic solvents.

Features

- The salts are sealed in aluminum foil bags to avoid leakage.
- The compositions are printed on the bag for handy choice. The easy-tear package is very convenient for use.
- Automated powder dispensing & packaging assembly line promise the accuracy and repeatability.

Ordering information

AOAC 2007.01 Kits

Product Code	Description	Sorbents	Qty.
QUEB50X20YHA	Extraction Salts+50 mL Tube	6 g MgSO4 1.5 g NaOAc	50 Pcs/Box
QUEB50X20CHA	Extraction Salts+50 mL Tube+Ceramic Homogenizers		50 Pcs/Box

EN 15662 Kits

Product Code	Description	Sorbents	Qty.
QUEB50X10YHA	Extraction Salts+50 mL Tube	4 g MgSO4 1 g NaCl	50 Pcs/Box
QUEB50X10CHA	Extraction Salts+50 mL Tube+Ceramic Homogenizers	1 g Trisodium Citrate 0.5 g Disodium Citrate	50 Pcs/Box

Clean-Up Kits

QuEChERS Clean-Up Kits include sorbents and anhydrous MgSO4, 2 mL and 15 mL centrifuge tubes, ceramic homogenizers are optional as well.

Features

- Supply 2 mL or 15 mL clean-up tubes

Ordering information

BS EN 15662: 2018 Kits

Product Code	Format	Application	Sorbents	Qty.
QUEB15X22YHA	15 mL	General fruits and vegetables	150 mg PSA, 900 mg MgSO4	50 Pcs/Box
QUEB15X32YHA	15 mL	General fruits and vegetables with fats and waxes	150 mg PSA, 150 mg C18, 900 mg MgSO4	50 Pcs/Box

Ceramic Homogenizers

Product Code	Description	Qty.
QUEBCER15YYA	Ceramic Homogenizers, 15 mL	100/Bottle
QUEBCER02YYA	Ceramic Homogenizers, 2 mL	200/Bottle

QuEChERS Bulk Sorbents

GVS provides superior quality QuEChERS bulk sorbents which have been verified by our lab. You can choose the ratio according to the needs of the experiment.

Features

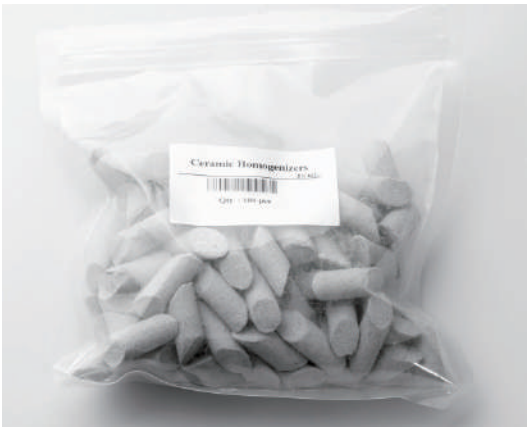
- Supply 2 mL or 15 mL clean-up tubes
- Suitable for AOAC 2007, EN 15662 standards, etc.

Ordering information

Product Code	Sorbent	Specification	Qty.
SPESORB00PSA2100A	PSA	Carbon Content: 8%, Suface area: 480 m2 /g, Particle size: 50-75 μm, Pore size: 70 Å	100 g
SPESORB00C181100A	C18	Carbon Content: 17.6%, Suface area: 300 m2 /g, Particle size: 40-75 μm, Pore size: 70 Å	100 g
SPESORB00GCB1050A	Carb-GCB	Suface area: 100 m2 /g, Particle size: 100-300 mesh	50 g

QuEChERS Ceramic Homogenizers

GVS Ceramic Homogenizers can be used in QuEChERS extraction kit and clean-up kit to improve extraction recovery and reproducibility.



Features

- Inert ceramic material, no impurities dissolution
- Shorten sample extraction time and reduce labor cost
- Improve recovery rate and reproducibility of sample extraction

Ordering information

Product Code	Description	Qty.
QUEBCER02YYA	Ceramic Homogenizers, 50 mL	100 Pcs/Box
QUEBCER15YYA	Ceramic Homogenizers, 15 mL	100 Pcs/Box
QUEBCER50YYA	Ceramic Homogenizers, 2 mL	200 Pcs/Box

Empty Spin Columns with Filters

Ordering information

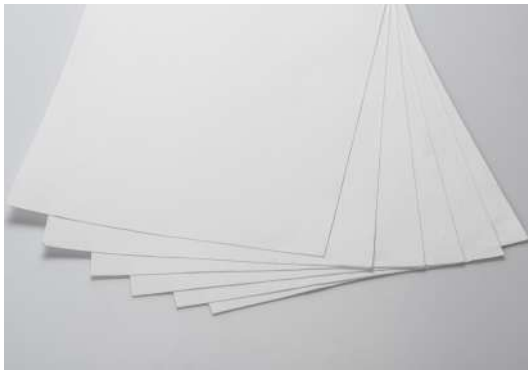
Product Code	Description	Qty.
SCB020C17400A	2 mL Empty Spin Columns, outer tubes, capped inner tubes, UHMW-PE frits and fixing rings	1000 Pcs /PK
SCB020C17410A	2 mL Empty Spin Columns, capped outer tubes, inner tubes, UHMW-PE frits and fixing rings	1000 Pcs /PK
SCB020C17700A	2 mL Empty Micro Spin Columns, capped outer tubes, Inner Tubes, UHMW-PE frits and fixing rings	1000 Pcs /PK
SCB015C17600A	15mL Empty Spin Columns, outer tubes, inner tubes, UHMW-PE frits and fixing rings"	50 Pcs /PK
SCB500C17500A	50 mL Empty Spin Columns, outer tubes, inner tubes, UHMW-PE frits and fixing rings	10 Pcs /PK

Lysis-Filtration Columns

Ordering information

Product Code	Description	Qty.
SCB015B1001A	1.5 mL Lysis-filtration column, cappless spin column	500 Pcs/PK
SCB015B10011SA	1.5 mL Lysis-filtration column, cappless spin column, sterile	100 Pcs/PK
SCB020B1002A	2.0 mL Lysis-filtration column, cappless spin column	500 Pcs/PK
SCB020B10021SSA	2.0 mL Lysis-filtration column, cappless spin column, sterile	50 Pcs/PK
SCB020B10022A	2.0 mL Lysis-filtration column, capped spin column	100 Pcs/PK
SCB020B10022SA	2.0 mL Lysis-filtration column, capped spin column, sterile	100 Pcs/PK

Silica Membrane



GVS Silica membrane is a key component in spin columnbased nucleic acid purification technology. Under low pH and chaotropic conditions, nucleic acids specifically bind to silica membrane while polysaccharides and proteins pass through. Impurities are further removed by washing. Finally, under low-salt conditions, nucleic acids are desorbed and eluted from the membrane.

Features

- High quality with high yield and good reproducibility
- Suitable for spin columns or plates

Ordering information

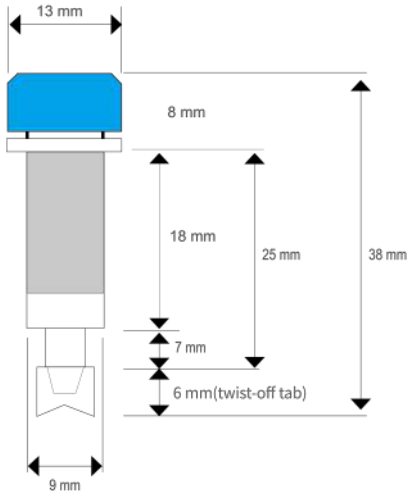
Product Code	Description	Qty.
NAEB181828A	Silica Membrane, 210*297 mm/Sheet	100 Sheet/PK

Empty Screw Cap Spin Columns

GVS Empty Screw Cap Spin Columns are designed for small volume protein purification, which can be filled with different chromatography media such as agarose, dextran, ion exchange resin, biogel and etc. The principle is centrifugation to purify protein quickly.

Direction

Load affinity resin and other fillers into the spin column. After the filler deposit automatically, gently remove the twists off bottom and allow the excess buffer flow out. Load the sample to combine, then, centrifuge to remove unbound impurities. Finally, elute purified products.



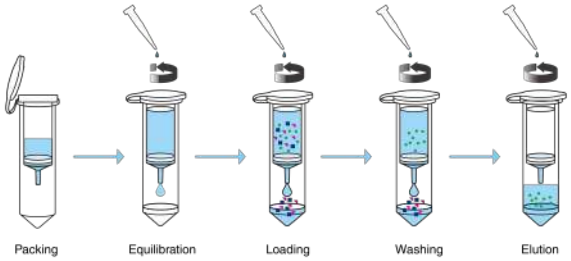
Features

- Columns are made of medical polypropylene with polyethylene frits, ensuring minimal protein-binding properties
- Compatible with 1.5 mL and 2.0 mL centrifuge tubes
- Capacity: 800 µL
- Resin volume: 40-400 µL
- O-ring screw top caps and twist-off bottom

Ordering information

Product Code	Description	Qty.
SCB008A5001A	800 µL Empty Screw Cap Spin Columns, Hydrophilic	50 Pcs/Box
SCB008A5002A	800 µL Empty Screw Cap Spin Columns, Hydrophobic	50 Pcs/Box

Empty Micro-spin Chromatography Columns



GVS Empty Micro-spin Chromatography Columns are designed for easy and efficient small-scale protein purification. Researchers can pack a wide range of chromatography resins to purify proteins of interest using a microcentrifuge.

Researchers can pack columns with their own chromatographic media using different separation mechanisms (e.g., immunoaffinity, ion exchange, size exclusion, reverse phase) to realize various applications.

Features

- Tubes are made of high quality medical-grade polypropylene
- Sintered UHMW-PE Frits with excellent solvent compatibility
- Suitable for 1.5 mL and 2.0 mL microcentrifuge tubes
- Volume of spin column: 800 µL
- Volume of resin: 20-500 µL

Applications

Affinity chromatography, desalting, IP, co-IP

Ordering information

Product Code	Description	Qty.
SCB020A1001A	2 mL Empty Micro-spin Chromatography Columns, including Collection Tubes (2.0 mL),Spin Columns (800 µL, with lids), Frits and Bottom Caps	100 Pcs/PK
SCB020A1101A	2 mL Empty Micro-spin Chromatography Columns, including Collection Tubes (2.0 mL),Spin Columns (800 µL, without lids), Frits and Bottom Caps	100 Pcs/PK
SCB015A1102A	1.5 mL Empty Micro-spin Chromatography Columns, including Collection Tubes (1.5 mL),Spin Columns (800 µL, without lids), Frits and Bottom Caps	100 Pcs/PK

Empty Spin Chromatography Columns

GVS Empty Spin Chromatography Columns are designed for easy and efficient large-scale protein purification.

Features

- Tubes are made of high quality medical-grade polypropylene
- Sintered UHMW-PE Frits with excellent solvent compatibility
- Suitable for 15 mL and 50 mL centrifuge tubes
- Volume of spin column: 4 mL/22 mL

Application

Affinity chromatography, desalting, IP, co-IP

Ordering information

Product Code	Description	Qty.
SCB150A300A	15 mL Empty Spin Chromatography Columns, including Collection Tubes (15 mL),Spin Columns (4 mL), Frits and Bottom Caps	50 Pcs/PK
SCB500A200A	50 mL Empty Spin Chromatography Columns, including Collection Tubes (50 mL),Spin Columns (22 mL), Frits and Bottom Caps	20 Pcs/PK

Solid Phase Extraction Vacuum Manifolds

12-Port SPE Vacuum Manifold

24-Port SPE Vacuum Manifold

The SPE Vacuum Manifolds realize activating, loading, rinsing, eluting and other processes in SPE sample pretreatment by controlling the pressure.

Features

- Accuracy: individual valves control the flow rate independently
- Compatibility: the height of the test tube rack is adjustable

Parameters

Model	SPEMF12G	SPEMF24G-S
Ports	12	24
Lid	Polyoxymethylene	Polyoxymethylene
Glass Vacuum Chamber	Quartz	Quartz
Pressure Resistance	-80 Kpa	-80 Kpa
Stable Pressure	0~80 Kpa	0~80 Kpa
Test Tubes	≤ 105 mm, Φ10/Φ13/ Φ15	≤ 105 mm, Φ10/Φ13/ Φ15

Ordering information

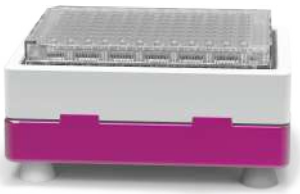
Product Code	Description	Qty.
SPEMANIB12GEA	12-Port SPE Vacuum Manifold, square shape, individual flow valve, transparent glass	1 Set/Carton
SPEMANIB24GSEA	24-Port SPE Vacuum Manifold, square shape, individual flow valve, transparent glass	1 Set/Carton

Vacuum Manifolds

The manifolds are adapted to 48/96/384 well plates and Luer-inlet columns to eliminate repetition of pipetting and centrifugation in traditional nucleic acid extraction methods.

Universal Vacuum Manifolds

Double-Layer



Micro-Filter Plate Vacuum Manifolds

Features

- Reliability: made of anti-corrosion and durable material
- Uniformity: the compact design ensures uniform flow rate duringextraction at negative pressure
- Convenience: eliminate repeated operations of centrifugation and pipetting in traditional methods to improve efficiency

Applications

Universal Vacuum Manifolds	Nucleic acid extraction, solid phase extraction, protein precipitation, QuEChERS, phospholipids removal, Oligo synthesis of deprotection, ammonolysis and other processes etc.
Double-Layer Vacuum Manifolds	Enable filtration and extraction at same time for nucleic acid extraction, solid phase extraction, protein precipitation, phospholipids removal, etc.
Micro-Filter Plate Vacuum Manifolds	Protein kinase and phosphatase assays, protein purification, receptor interaction assays, protein binding assays, ELISPOT assays, mass spectrometry, fluorescent dye removal

Ordering information

Product Code	Description	Qty.
MANIFBZZNE03RA	Universal Vacuum Manifolds (rose red)	1 Set/Carton
MANIFBZZNE03BA	Universal Vacuum Manifolds (sapphire blue)	1 Set/Carton
MANIFBZZNE04RA	Double-Layer Vacuum Manifolds (rose red)	1 Set/Carton
MANIFBZZNE04BA	Double-Layer Vacuum Manifolds (sapphire blue)	1 Set/Carton
MANIFBZZNE07RA	Micro-Filter Plate Vacuum Manifolds (rose red)	1 Set/Carton
MANIFBZZNE07BA	Micro-Filter Plate Vacuum Manifolds (sapphire blue)	1 Set/Carton

Vacuum Pump

GVS Vacuum Pumps are designed to work with vacuum manifolds. Utilizing diaphragm vacuum technology without oil to eliminate contamination of media that occurs in rotary vane pumps.

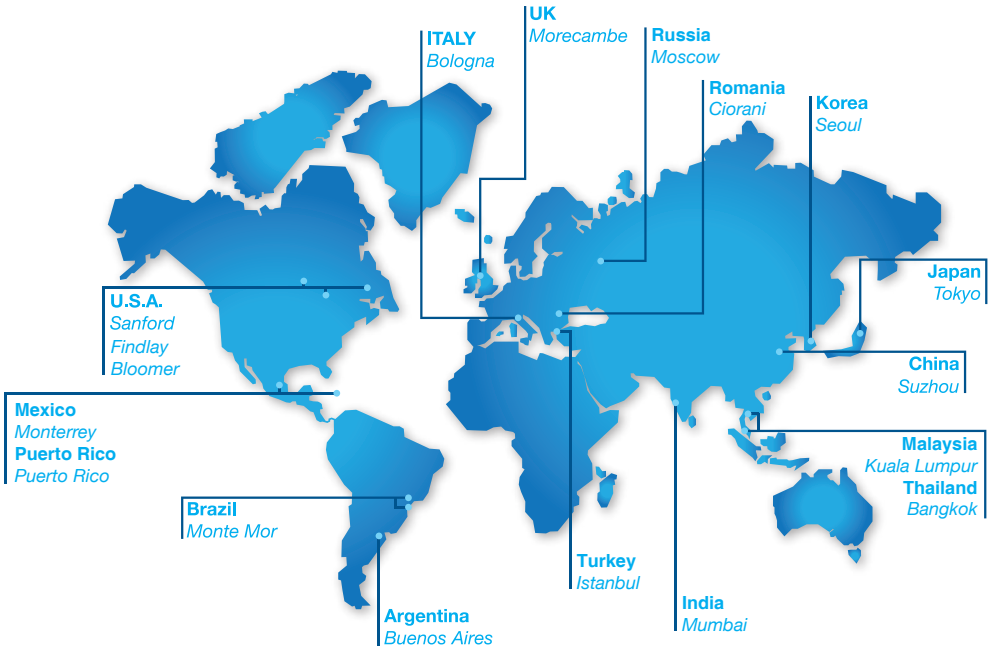
Adjustable

Parameters

Oil-Free Vacuum Pump	Adjustable
Model	SPEPUMPB02EA
Ultimate Pressure	0.02~0.08
Max. Flow	5~30 L/min
Power	90 W
Power Supply	A.C. 220 V, 50/60 Hz
Weight	3.8 Kg

Ordering information

Product Code	Description	Qty.
SPEPUMPB02EA	Adjustable Oil-Free Vacuum Pump, adjustable pressure: 0.02~0.08, waste collection bottle included	1 Set/Carton



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PRODUCT COLLECTION - Chromatography

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