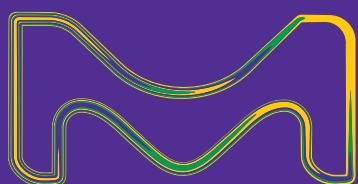


HPLC and UHPLC portfolio overview

Supelco® portfolio to meet
your HPLC and LC-MS needs

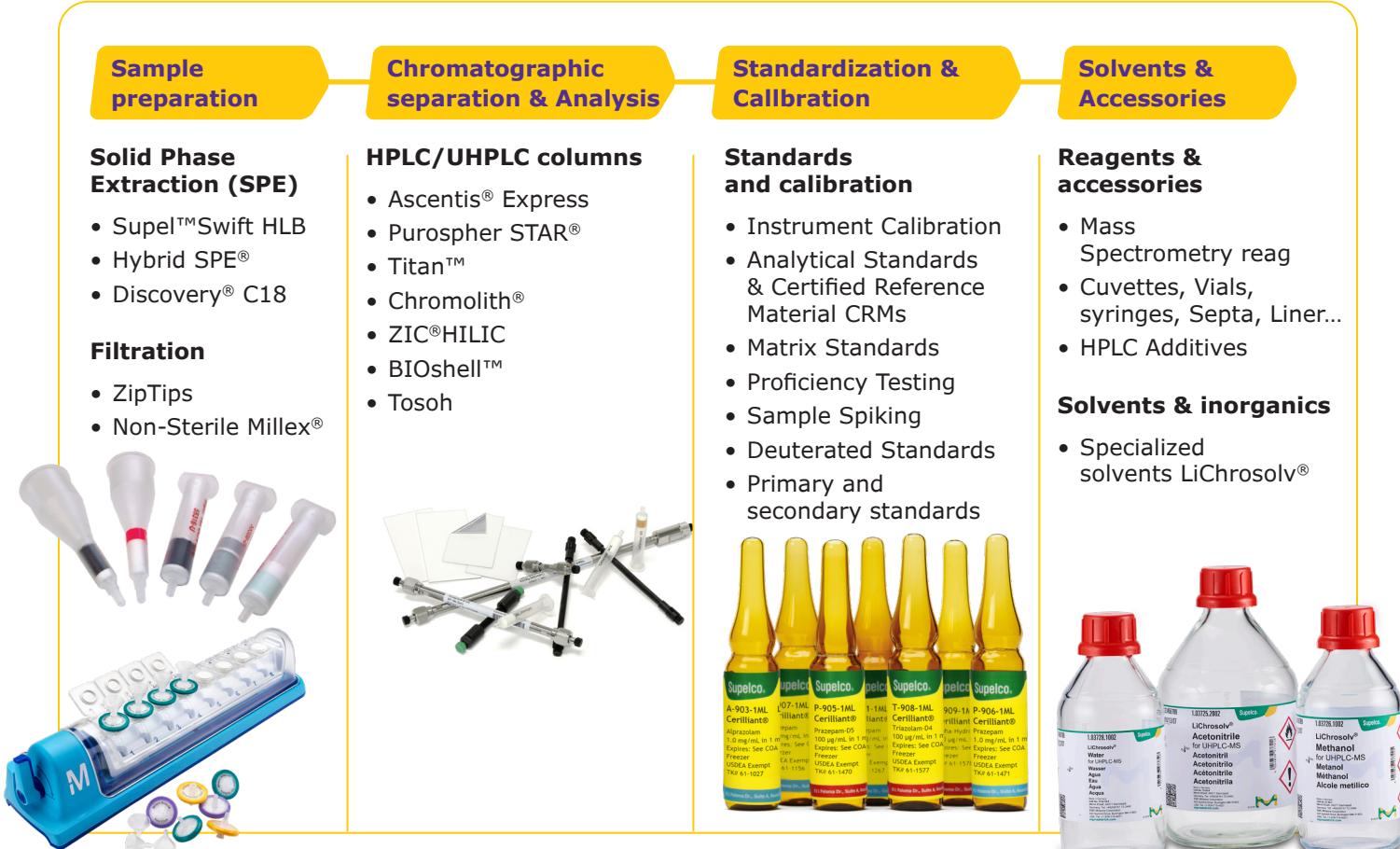


The life science business
of Merck operates as
MilliporeSigma in the
U.S. and Canada.

Supelco®
Analytical Products

We offer a wide selection of high-performance liquid chromatography (HPLC, UHPLC, and LC-MS) columns for small and large molecule (biomolecule) analysis and high-quality mobile phase solvents and buffers, HPLC calibration standards, autosampler vials, fittings, tubing, column heaters, injectors, and everything you need for your HPLC analysis

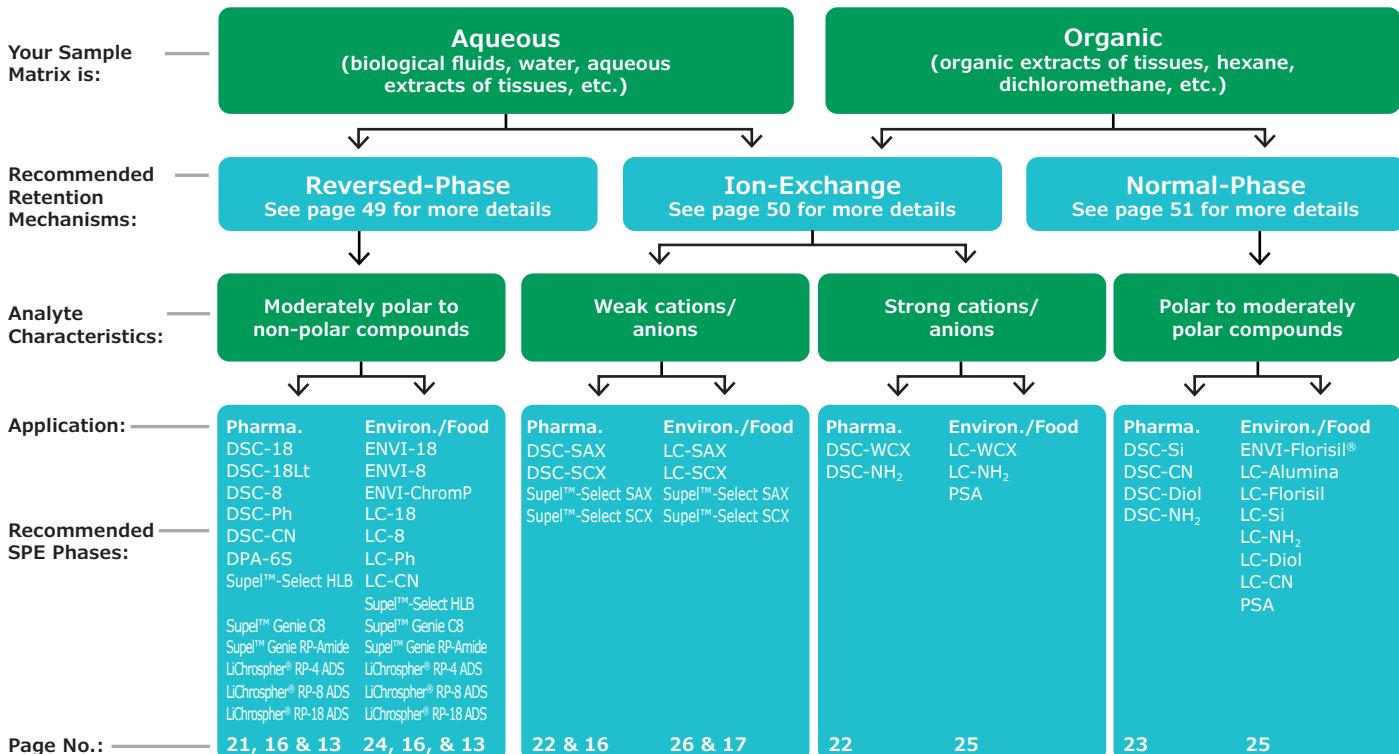
Our HPLC and LC-MS Workflow



Sample preparation

Our sample preparation and purification portfolio includes products for solid phase extraction (SPE), Ziptips and Filtration systems.

SPE Phase Selection Quick Look-Up Guide



Supel™ Swift HLB SPE

- Directly load the sample without conditioning and equilibration steps
- Excellent recovery

Description	Cat. No.
Supel™ Swift HLB SPE Tubes bed wt. 60 mg, volume 3 mL, pk of 54	57492-U
Supel™ Swift 96-well SPE bed wt. 60 mg/well, pk of 1	57494-U

More phases and bed weights available [here](#)

Discovery® C18

- Polymerically bonded, octadecyl (C18), endcapped
- Higher % of C18 loading for increased binding capacities and higher recoveries

Description	Cat. No.
Discovery® DSC-18 PK/30 6ML TUBE 500MG	52604-U

More Discovery® SPE products available [here](#)

Ziptips

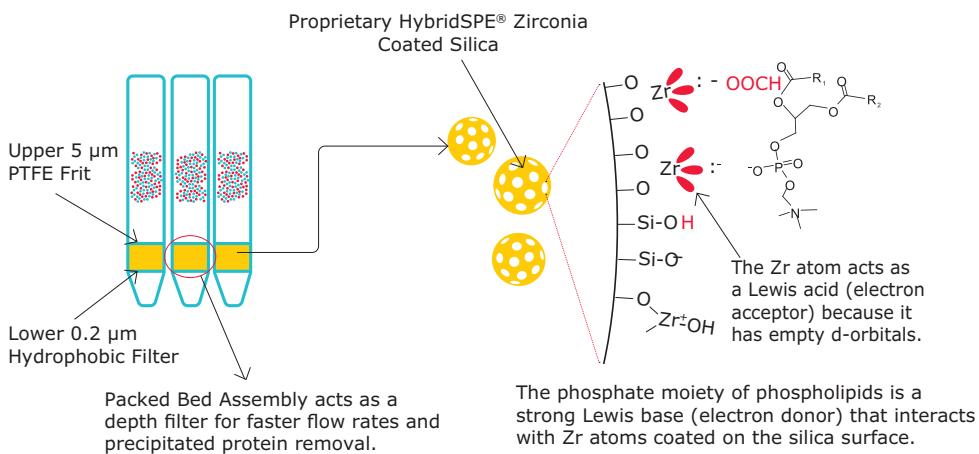
- Single-step desalting, concentration, and purification
- Ideal for peptides, proteins, nucleic acids, no sample loss

Description	Cat. No.
Ziptip® with 0.6 µL C18 resin	ZTC18S096

More choices available [here](#)



Interaction of Phospholipids with HybridSPE®-Phospholipid



HybridSPE®

- Merges both protein precipitation and SPE
- Typically >98% removal of phospholipids and precipitated proteins

Description	Qty.	Cat. No.
HybridSPE®-Plus Plate Essentials Kit		
Includes HybridSPE®-Plus 96-well plate (575659-U), plate cap mat (as in 575680-U), sealing film (as in Z721581) and collection plate (as in Z717266)	1	52818-U
HybridSPE®-Phospholipid Cartridges		
HybridSPE®-Phospholipid Ultra Cartridge, 30 mg/1 mL	100	55269-U

More phases and bed weights available [here](#)

Millex® LCR HPLC certified filtration unit

- Millex®-LG, LCR filters contain hydrophilic PTFE membranes and are HPLC-certified for low levels of UV-absorbing extractables
- Hydrophilic PTFE membranes have broad chemical compatibility, enabling filtration of aqueous and organic solvents

Diameter (mm)	Pore Size (μm)	Process Volume	50 units/pk	100 units/pk	250 units/pk	1000 units/pk
PTFE Hydrophilic Millipore® LCR membrane						
33	0.20	100 mL (< 100 μL)	SLLG033NS	—	SLLG033NB	SLLG033NK
33	0.45	100 mL (< 100 μL)	SLCR033NS	—	SLCR033NB	SLCR033NK

More membranes and sizes available [here](#)



HPLC Columns – silica particles

The Supelco® HPLC & UHPLC column portfolio meets today's challenging needs of Fast HPLC, LC-MS, biopolymer separation, high pH conditions, as well as traditional pharmacopeia and agency methods within pharmaceutical, environmental, clinical, and food industries etc.

Fused-Core® technology, monolithic silica, polymeric, monodisperse silica, ultra-pure silica, and zirconia are some of the particle platforms that make up the Supelco® HPLC product line so you can find the right column for your application.

Maximum resolution for fast results in HPLC or UHPLC

Fused-Core® (Superficially porous silica particles, SPP)

- Analytical scale Micro / UHPLC / HPLC
- Highest efficiency (Resolution)



BEST Fused-Core UHPLC column!
1.2 µm
2.0 µm

Ascentis® Express
Fast on any System!
1.7 µm
2.7 µm

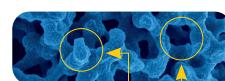
The Lab Work-horse column
3.3 µm
5.0 µm

Rapid, Robust and Cost-efficient results with high matrix-tolerance

Monolithic silica

- Scalable from Micro-LC to Semi-Preparative
- Outstanding matrix tolerance, extended lifetime
- Rapid separations at high flow rates and very low column backpressure

Type B Silica
Chromolith®

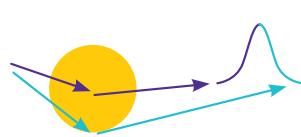


Average pore size	Mesopores	Macropores
Chromolith® Performance	13 nm (130 Å)	2 µm
Chromolith® 2 mm ID	13 nm (130 Å)	1.5 µm
Chromolith® HR	15 nm (150 Å)	1.15 µm

Outstanding reliability and performance in HPLC or UHPLC

Fully porous silica particles (FPP)

- Scalable from Micro-LC to Preparative LC
- High loadability



Type B Silica
Purospher® STAR
Discovery®/Ascentis®
Titan®



High pH stability

Fully porous polymeric particles

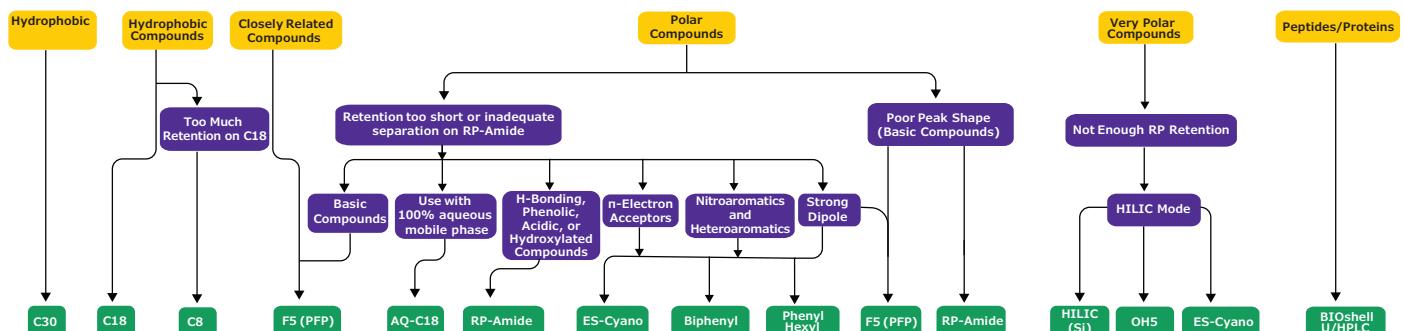
- Analytical HPLC
- pH stability from 0-14

New Supel™ Carbon LC Column



A broad range of column selectivities for all compound classes

Column selectivity has the highest influence on resolution in chromatography. Selection of the best column chemistry for your target analytes is therefore an important selection parameter. C18 column chemistries are typically the first choice. Nevertheless, when a C18 does not give the desired separation or the sample contains compounds that are known to be difficult to retain or resolve on a C18, consider changing stationary phase chemistry early in method development for more optimal applications. The range of selectivity provided by Ascentis® Express makes this easy.



Ascentis® Express	Phase Bonding	USP Designation	Bonding Chemistry	Chromatographic Properties / Use
	C18	L1	Dimethyloctadecyl	Outstanding performance for a broad range of analytes. Excellent peak shape for acids, bases and neutral compounds. Compatible with 100% aqueous mobile phase.
	AQ-C18	L1	Polar modified Octadecyl	Resistant to dewetting; compatible with 100% aqueous mobile phase. Suitable for the separation of polar compounds in RP-mode.
	Peptide ES-C18	L1	Diisobutyloctadecyl	Fast separation of peptides and polypeptides with high peak capacity. Ideal for Pharmaceutical/therapeutic peptide separation, Peptide mapping, Natural and synthetic peptide analysis and Oligonucleotide analysis.
	C30	L62	Triacontydimethyl	Excellent selectivity for hydrophobic, long chain and structurally related isomers.
	C8	L7	Dimethyloctyl	Enhanced retention for less hydrophobic compounds or faster separation if retention on C18 is too long
	Phenyl-Hexyl	L11	Dimethylphenyl-hexyl	Enhanced selectivity for aromatic compounds; strong pi-pi donor. Ideal for the separation of ketones, nitriles and alkenes. Compatible with 100% aqueous mobile phase.
	Biphenyl	L11	Dimethylbiphenyl	High selectivity for aromatic compounds with enhanced pi-pi and mild steric interactions due to the two sequential phenyl groups. Ideal for rapid, efficient drug and metabolite analysis using conditions that are compatible with MS detection. Compatible with 100% aqueous mobile phase.
	F5 (PFP)	L43	Pentafluorophenylpropyl	Outstanding selectivity for stereoisomers, strong pi-pi acceptor. Enhanced selectivity for aromatic and electron-rich compounds. Can be used in Reversed-phase and HILIC mode. In comparison with the C18 phases, the F5 phase shows longer retention time of basic analytes and less retention of hydrophobic analytes.
	ES-Cyano	L10	Diisopropylcyanopropyl	Enhanced retention for polar compounds and much less retention for hydrophobic compounds. Ideal for the separation of non-polar bases in HILIC mode (Ion-exchange mechanism). Compatible to 100% aqueous mobile phase and stable at low pH and high temperature.
	RP-Amide	L60	C16-Amide	Complementary selectivity to alkyl phases with improved peak shape for basic compounds. Ideal for the separation of basic compounds such as alcohols, acids, phenols and catechins. Compatible to 100% aqueous mobile phase.
	HILIC	L3	Bare silica	Enhanced separation of polar compounds. Can be used in HILIC and normal-phase mode. Offers both ion-exchange and partition mechanisms of separation in HILIC mode.
	OH5	L95	Penta-hydroxy	Ideal for the HILIC separation of very polar compounds with a LogP value close to 0 or less than 0. Exhibits predominantly HILIC partitioning retention, limited silanol anionic character, and is relatively insensitive to ionic strength.

U/HPLC Columns for small molecules analysis

Ascentis® Express

- Fused-Core® technology (Superficially Porous Particles; SPP)
- Maximum speed and efficiency on both UHPLC and HPLC systems (particle sizes: 2 µm, 2.7 µm and 5 µm)
- 40% more efficiency in comparison to Fully Porous Particles (FPP) of same particle size

Ascentis® Express C18 (2.7 µm)

Outstanding performance for a broad range of analytes

Length (mm)	I.D. (mm)	C18
50	2.1	50509-U
100	2.1	50517-U
150	2.1	50518-U
50	2.0	50523-U
100	3.0	50526-U
150	3.0	50527-U
50	4.6	50530-U
100	4.6	50536-U
150	4.6	50537-U

More choices available [here](#)

Ascentis® Express AQ-C18

U/HPLC columns resistant to de-wetting; compatible with 100% aqueous mobile phase

Length (mm)	I.D. (mm)	AQ-C18
50	2.1	577322-U
100	2.1	577324-U
150	2.1	577325-U
50	2.0	577328-U
100	3.0	577330-U
150	3.0	577331-U
50	4.6	577334-U
100	4.6	577336-U
150	4.6	577337-U

More choices available [here](#)

Supel™ Carbon LC column

- Porous Graphitic Carbon (PGC) particle packed column for separating poorly retained, polar compounds

Product	I.D. (mm)	Length (cm)	Cat. No.
Supel™ Carbon LC column	2.1	10	59986-U
Supel™ Carbon LC column	3.0	10	59993-U
Supel™ Carbon LC column	4.6	10	59998-U
Supel™ Carbon LC column	2.1	15	59987-U
Supel™ Carbon LC column	3.0	15	59994-U
Supel™ Carbon LC column	2.1	5.0	59984-U
Supel™ Carbon LC column	3.0	5.0	59991-U
Supel™ Carbon LC column	4.6	5.0	59997-U

More choices available [here](#)

SeQuant® ZIC® HILIC

- Straightforward separation of polar and hydrophilic compounds
- Orthogonal selectivity compared to reversed-phase
- Permanent zwitterionic functional groups covalently bonded to porous silica
- Low cost per analysis due to robust bonded stationary phase

SeQuant	Particle size	ID	Length	Cat. No.
HPLC Column	3.5 µm	4.6 mm	150 mm	1504440001
HPLC Column	3.5 µm	2.1 mm	150 mm	1504420001
HPLC Column	5 µm	4.6 mm	150 mm	1504550001
HPLC Column	5 µm	2.1 mm	150 mm	1504540001
Capillary column	3.5 µm	300 µm	150 mm	1504790001
Nano column	3.5 µm	100 µm	100 mm	1504660001

More choices available [here](#)

U/HPLC columns for large molecules analysis

BIOshell™ columns

- BIOshell™ columns deliver maximum speed and efficiency for the separation of biomolecules.
- Fused-Core® superficially porous silica particles ranging from 90 Å up to 1000 Å allows superior separation of glycans as well as very large proteins.

Description	Cat. No.
BIOshell™ Glycan, 15 cm x 2.1 mm, 2.7 µm	50994-U
BIOshell™ A160 Peptide , 15 cm x 2.1 mm, 2.7 µm	66905-U
BIOSHELL A400 PROTEIN C4, 3.4UM, 15CM X&	66826-U
BIOSHELL 1000A IGG C4 2.7UM 5CM X 2.1MM&	63283-U

More choices available [here](#)



Chromolith® columns

- Completely bioinert column hardware
- Very low column backpressure and high-speed separations

Description	Cat. No.
Chromolith® WidePore 300 10 cm x 4,6 mm	1522700001

More choices available [here](#)

Chromolith® CapRod® Capillary columns

enables superior productivity for high throughput, highly sensitive proteomics-LC applications

Description	Cat. No.
Chromolith® CapRod® RP-18e 0.1 mm 150 mm 1 analytical column	1.50402.0001
Chromolith® CapRod® RP-18e 0.1 mm 150 mm 1 analytical column	1.50402.0001

More choices available [here](#)

Mobile Phases - HPLC solvent grades

Our HPLC family of high-purity solvents and additives delivers superior purity, stability and lot-to-lot consistency making them ideal for a variety of analytical separations utilizing U/HPLC and LC-MS

Applications

- U/HPLC-MS
- LC-MS
- HPLC plus
- HPLC Gradient
- HPLC Isocratic
- HPLC Blends

U/HPLC & LC-MS Solvents

A Higher Level of Sensitivity

New high-purity UHPLC-MS LiChrosolv® solvents for rapid and reliable results

UHPLC-MS NEW Grade

Description	Cat. No.
Acetonitrile for UHPLC-MS LiChrosolv®	1037252002
Methanol for UHPLC-MS LiChrosolv®	1037261002
Water for UHPLC-MS LiChrosolv®	1037281002

LC-MS Grade Solvents

Description	Cat. No.
Acetonitrile LC-MS Hypergrade	1000292500
Methanol LC-MS Hypergrade	1060352500
Water LC-MS Hypergrade	1153332500
Isopropanol LC-MS Hypergrade	1027812500
Water with 0.1% Formic Acid LC-MS	1590132500

HPLC Grade Solvents

Description	Cat. No.
Acetonitrile HPLC Grade	34851-2.5L
Methanol HPLC Grade	34885-2.5L-M
Water HPLC Grade	34877-2.5L-M
Isopropanol HPLC Grade	34863-2.5L

More choices available [here](#)



LC-MS Buffers & Reagents

- Optimized to improve ionization and resolution
- Extremely low levels of inorganic and organic impurities

Cat. No.	Substance	Description	Package Size
5.33001.0050	Acetic acid	100% for LC-MS LiChropur®	50 mL
5.33002.0050	Formic acid	98-100% for LC-MS LiChropur®	50 mL
5.33003.0050	Ammonia solution	25% for LC-MS LiChropur®	50 mL
5.33004.0050	Ammonium acetate	for LC-MS LiChropur®	50 g
80457	Trifluoroacetic acid	Eluent additive for LC-MS LiChropur®	10x1 mL, 10 mL, 50 mL

More choices available [here](#)

LC-MS Solvent Blends

- Reduces the risk of contamination
- Saves time

Description	Cat. No.
Acetonitrile + 0.1% Formic acid (v/v)	159002.2500
Acetonitrile + 0.1% Trifluoroacetic acid (v/v)	159014.2500
Water + 0.1% Formic acid (v/v)	159013.2500
Water + 0.1% Trifluoroacetic acid (v/v)	480112.2500

More choices available [here](#)

U/HPLC buffers & Reagents

Description	Cat. No.
Ammonium acetate for HPLC LiChropur®	5438340250
Formic acid 98 - 100% for HPLC LiChropur®	5438040250
Acetic acid 100% for HPLC LiChropur®	5438080100

More choices available [here](#)

Supelco® HPLC Accessories is a select group of products and recommendations to maximize the performance of your HPLC system

Screw Thread (Certified kits glass, screw thread vials and cap)

Description	Cat. No.
0.3 mL, clear glass vial, PTFE/silicone septum (bonded), thread for 9 mm	29391-U
2 mL, clear glass vial, PTFE/silicone septum	29378-U
2 mL, clear glass vial, PTFE/silicone septum (with slit)	29379-U
2 mL, amber glass vial, PTFE/silicone septum	29385-U
2 mL, amber glass vial, graduated, PTFE/silicone pre-slit septum	29387-U

Crimp (Crimp vial kits with cap/septa)

Description	Cat. No.
2 mL, clear glass vial, wide opening, crimp top PTFE/silicone septum	29125-U
2 mL, amber glass vial, wide opening, crimp top PTFE/silicone septum	29128-U



Snap (Kit of vials and caps)

Description	Cat. No.
2 mL, clear glass vial, PTFE/silicone septum, black PP cap	29142-U
2 mL, amber glass vial, PTFE/silicone septum, black PP cap	29145-U

More choices available [here](#)

Hamilton syringes

Manufacturer Model Number	Volume	Needle Length in./mm	Gauge	OD mm	Point Style	Manufacturer Part No.	Pkg. Size	Cat. No.
Fixed Needle								
75N	5 µL	2/51	26s	0.47	Bevel (2)	87900	1	26200-U
701N	10 µL	2/51	26s	0.47	Bevel (2)	80300	1	20734
701N	10 µL	2/51	26s	0.47	Bevel (2)	80366	6	20779
702N	25 µL	2/51	22s	0.72	Bevel (2)	80400	1	20735
705N	50 µL	2/51	22s	0.72	Bevel (2)	80500	1	20736
710N	100 µL	2/51	22s	0.72	Bevel (2)	80600	1	20737
725N	250 µL	2/51	22s	0.72	Bevel (2)	80700	1	20738

More choices available [here](#)



Analytical Standards & Certified Reference Materials

Our portfolio of over 20,000 products includes standards for pharmaceutical (compendial, secondary...), environmental, toxicology, forensic, OMICs applications, veterinary and much more, as well as OEM and custom products and services. All standards manufacturing sites are at a minimum double accredited to ISO/IEC 17025, ISO Guide 34 and ISO 17034, which is the highest achievable quality level for reference material producers.

Amino Acids,
Peptides & Proteins

Matrix Materials

Pharmacopeia &
Metrological Institutes

Biomarkers & Metabolomics

Microbiology

Physical Properties

Carbohydrates

Organic Pollutants

Phytochemicals

Elemental, Ions & Water (KF)

Pesticides

Proficiency Testing

Food &
Cosmetics Components

Petrochemicals

Vitamins

Lipids & Fatty Acids

Pharmaceuticals, Illicit
Drugs & Alcohol

Additional Standards

More choices available [here](#)

accuracy is our
STRENGTH

Pharmacopeia & Metrological Institutes Standards



We distribute Chemical Reference Substances and Reference Standards from the world's three leading pharmacopoeias: the United States Pharmacopeia (USP), the European Pharmacopoeia (EP), and the British Pharmacopoeia (BP). Also available are the internationally recognized National Metrology Institute standards including BAM, NIST, NMI Australia and IRMM/BCR. These analytical standards can be used for a variety of method verification practices including instrument qualification and calibration, analytical method validation, system suitability testing, assays and quality control checks.

- USP Standards
- Ph. Eur (EP) Standards
- BP Standards
- NIST Standards
- JRC
- NRC Canada
- NMI Australia
- BAM
- Secondary Pharmaceutical Standards

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07/2021

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