Chemicals

Chromatography solvents

A comprehensive playbook for all your HPLC, LC/MS, GC, and UHPLC chemical needs.

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Pushing the limits of detection further to achieve success in chromatography.

Deliver the results you need, with our broad range of chromatography and mass spectrometry grade solvents, buffers, and reagents.

Here at Thermo Fisher Scientific Laboratory Chemicals, we understand the criticality of accuracy when running your samples for analysis. This is why you'll be able to find our dedicated range of solvents and reagents that come in various purities that can meet your preparative and analytical needs.

From off the shelf catalog products – to our custom and bulk offering, we supply the type of solvents, blends, mobile phases, and reagents, in the grade, specification, size and packaging that you require.

Our brands

thermo scientific

Our Thermo Scientific™ chemicals portfolio is built on a foundation of our legacy brands including Acros Organics, Alfa Aesar, and Maybridge brands. Our portfolio includes over 80,000 chemicals and biochemical reagents, such such as ultra-pure organics, heterocyclic building blocks, solvents, coupling reagents, screening libraries for drug discovery, organometallics, ligands, metal catalysts, precious metal compounds, and performance materials for electronics and nanotechnology.

As of 2023, Acros Organics, Alfa Aesar, and Maybridge have completed the brand transition to Thermo Scientific. Learn more about these changes with regards to packaging and labeling at **alfa.com/en/brand-message.**

fisher chemical

Find exactly what you need from our portfolio of more than 800 high-purity solvents formulated to suit applications for LC/MS, HPLC, UHPLC/MS, gas chromatography, and spectrometry.

Our solvents are manufactured in ISO 9001 certified facilities and undergo rigorous quality assurance testing to bring you the lot-to-lot and bottle-to-bottle consistency you rely on. Since our beginning, we've supported the science community's research chemical needs. With years of experience and a team of highly knowledgeable and dedicated people, the Fisher Chemical™ brand delivers the highest levels of customer service, technical assistance, and fast, accurate delivery.

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Grade selection guide

With multiple grades, come multiple choices. And sometimes, this can get confusing, especially at a scale of over 4,000 chemicals. Do not worry, for help is here. Refer to the table below on the grade of solvents you should be using with respect to the instrument of application.

If you require more assistance in ensuring you are getting the correct grade for the correct workflow, please get in touch with us at **chemicals.seatw@thermofisher.com** to schedule an appointment with one of our product experts today.

Instrument type and detector	Applicable solvent grade(s)				
	HPLC	Optima™ LCMS	UHPLC/MS	GC Distol™	GC headspace
Prep-LC (UV, fraction collection)	●	●	●	○	○
HPLC-UV, FLR, RI	●	●	●	○	○
HPLC-CAD	○	○	●	○	○
HPLC-MS	○	●	●	○	○
UHPLC-UV, FLR, RI, CAD	○	●	●	○	○
UHPLC-MS	○	○	●	○	○
GC-ECD, FID, NPD, TCD	○	○	○	●	○
GC-FPD, MS, SPME	○	○	○	●	○
GC-Headspace	○	○	○	○	●

If you are already an existing user of Thermo Scientific SureSTART™ chromatography consumables, we have done a similar concept of wave to grade-matching with our solvents to ease your solvent selection process, thus closing the gap to the final piece in the consumables aspect of your analytical application. You will find the corresponding chevrons in each of the product category pages throughout this brochure.

Performance Level 1: High throughput
when robustness and reproducibility are key

Performance Level 2: High performance
when high performing, sensitivity is a must

Performance Level 3: Ultimate silence
when peak noise is absolutely critical to be kept at minimum

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Solvent properties chart

Solvent	UV-cutoff (nm)	Boiling point (°C)	Density (g/mL) at 25 °C	Refractive index at 25°C	Melting point (°C)	Polarity index	Elutropic value on Silica (D°)	Viscosity at 20°C (cP)	Flash point (°C)	Molecular weight
1-Butanol	215	117.7	0.8098	1.3972	-88.6	3.9	-	2.98	35	74.12
2-Propanol	205	82.3	0.7855	1.3772	-90.0	3.9	0.63	2.40	-12	60.10
Acetone	330	56.1	0.7857	1.3568	-94.3	5.1	0.53	0.36	20	58.08
Acetonitrile	190	81.6	0.7780	1.3415	-50.0	5.8	0.52	0.36	2	41.05
Chloroform	245	61.7	1.4840	1.4445	-63.3	4.1	0.26	0.58	None	119.38
Cyclohexane	202	80.7	0.7740	1.4247	-6.5	0.2	0.03	0.90	-20	84.16
Dimethyl Sulfoxide	262	189.0	1.1014	1.4783	18.5	7.2	-	2.24	87.8	78.13
Ethyl Acetate	255	77.1	0.8940	1.3695	-83.9	4.4	0.38	0.45	-4	88.11
Ethyl Ether	218	34.6	0.7134	1.3500	-116.3	2.8	0.43	0.24	-45	74.12
Glycerol	205	290.0	1.2613	1.4746	18.2	-	-		193	92.09
Heptane	197	98.4	0.6838	1.3855	-90.6	0.2	0.01	0.40	-4	100.20
Hexanes	195	69.0	0.6630	1.3759	-95.3	0.1	0.01	0.31	-23	86.18
Isooctane	205	99.2	0.6919	1.3895	-109.5	0.1	0.01	0.50	28	114.23
Methanol	205	64.7	0.7915	1.3288	-97.8	5.1	0.73	0.55	12	32.04
Methylene Chloride	233	39.5	1.3180	1.4215	-96.7	3.1	0.32	0.30	N/A	84.93
N-Methylpyrrolidinone	275	202.2	1.03	1.469	-24.4	-	-	1.67	95	99.13
N,N-Dimethylformamide	268	153.0	0.9440	1.4280	-61.0	6.4	-	0.92	58	73.09
Pentane	190	36.1	0.6264	1.3555	-129.7	0.0	0.00	0.22	-49	72.15
Petroleum Ether	-	35-60	0.6400	1.3610	-	0.1	-	-	-18	-
Tetrahydrofuran	210	66.1	0.8892	1.4060	-108.3	4.0	0.35	0.55	-14	72.11
Toluene	285	110.6	0.8660	1.4940	-95.0	2.4	0.22	0.59	-4	92.14
Water	-	100.0	0.9982	1.3330	0.0	10.2	-	1.00	N/A	18.02

HPLC solvents

Achieve maximimum performance in all your LC analysis: when robustness and reproducibility are key.

We recommend the use of HPLC grade or above chemicals to allow you achieve the performance you need from your HPLC systems. This product range contains a broad range of high-purity solvents, mobile phase buffers, and additives due the advanced distillation process used to produce the products.

Features of our HPLC grade products:

- **Multi-purpose use:** with a broad range of products available, our HPLC grade is suitable for isocratic and gradient analyses, reversed phase and normal phase, size exclusion (SEC) and ion exchange HPLC.
- **Suitable for use with multiple routine detectors** such as UV, fluorescence, and refractive index detectors.
- **Reduce column blockages:** submicron filtration process ensures column blockages do not arise due to particulate content from the chemicals.
- **Reduce background interferences from your mobile phase:** Supplied in specially cleaned bottle or aluminium cans and blanketed with an inert gas to maintain product purity.
- **Save time and money:** use the QR code on the bottle so that you can find product certificates of analysis (CoA) and safety data sheets (SDS) quickly easily.
- Meet **ACS** specifications.

Our HPLC grade solvents are processed and submicron filtered to fit general or everyday usage in the laboratory. These are our broadest selection of normal and reversed phase solvents, which makes it the most economical choice for routine HPLC applications.

Suitable for all applications and markets using HPLC and preparative chromatography.

Safecote PVC bottles

Designed for storing and dispensing solvents and acids, these tough bottles provide the purity of glass and most of the benefits of plastic. If they break, the design helps to limit and trap glass fragments and liquids, protecting the researcher and preserving chemical integrity.

The following products marked with an asterisk (*) in the next page indicate their availability in Safecote packaging.

Product list

Cat. No.	Description	Pack sizes
D/1756	1,2-Dichloroethane, for HPLC	1 L, 2.5 L
D/4556	1,4-Dioxane, 99.5+%, for HPLC, Unstabilised	1 L, 2.5 L
T/3606	2,2,4-Trimethylpentane (Isooctane), for HPLC	1 L, 2.5 L, 5 L
A/0406	Acetic Acid, Glacial (HPLC)	500 mL, 1 L
A/0606	Acetone (HPLC)	1 L, 2.5 L
A/0636	Acetonitrile, Certified, for HPLC-RMN with Low Propionitrile Level	1 L, 2.5 L
A/0626	Acetonitrile, for HPLC	1 L, 2.5 L, 5 L
A998	Acetonitrile, for HPLC *	4 L
A/0627	Acetonitrile, HPLC for Gradient Analysis, meets analytical specification of Ph.Eur	1 L, 2.5 L, 5 L
C606	Chloroform, for HPLC *	4 L
C/4966	Chloroform, Stabilized with Amylene, for HPLC	1 L, 2.5 L
C/8936	Cyclohexane, for HPLC	1 L, 2.5 L
C620	Cyclohexane, for HPLC *	4 L
D/1856	Dichloromethane, for HPLC, Stabilised with Amylene	1 L, 2.5 L, 5 L
D143	Dichloromethane, for HPLC, stabilized with Amylene	4 L
D/1857	Dichloromethane, for HPLC, Unstabilised	1 L, 2.5 L
D/2506	Diethyl Ether, for HPLC, Stabilised with Ethanol	1 L, 2.5 L
D/4125	Dimethyl Sulfoxide, for HPLC	250 mL, 500 mL, 2.5 L
D159	Dimethyl Sulfoxide, for HPLC *	4 L
D/3846	DimethylFormamide, for HPLC	1 L, 2.5 L
E/0665	Ethanol Absolute, for HPLC	1 L, 2.5 L
A995	Ethanol, for HPLC *	4 L
E/0906	Ethyl Acetate, for HPLC	1 L, 2.5 L
E195	Ethyl Acetate, for HPLC *	4 L
H/0106	Heptane, for HPLC, approx. 99% n-Heptane	1 L, 2.5 L
H350	Heptane, for HPLC	4 L
H/0107	Heptane, HPLC for fluorescence detection, approx. 99% n-Heptane	1 L, 2.5 L
H/302	Hexane, for HPLC *	4 L
H/0406	Hexanes, for HPLC, 95% n-Hexane approx.	1 L, 2.5 L, 5 L
H/0409	Hexanes, HPLC for fluorescence detection, 95% n-Hexane approx.	1 L, 2.5 L
H/0405	Isohexane, for HPLC, contains <5% n-Hexane	1 L, 2.5 L, 5 L, 25 L
A451	Isopropanol, for HPLC *	4 L
P/7507	Isopropanol, for HPLC	1 L, 2.5 L
A452	Methanol, for HPLC *	4 L
M/4056	Methanol, for HPLC	1 L, 2.5 L, 5 L
M/4058	Methanol, HPLC for Gradient Analysis	1 L, 2.5 L, 5 L
E127	Methyl T-Butyl Ether, for HPLC *	4 L
M/4496	Methyl-Tert-Butyl Ether, for HPLC	2.5 L
C/4756	n-Butyl Chloride (HPLC)	1 L, 2.5 L
P399	Pentane, for HPLC *	4 L
P/1006	Pentane, for HPLC, Mixed Isomers	1 L, 2.5 L
P/7486	Propan-1-ol, for HPLC	1 L, 2.5 L
T/0706	Tetrahydrofuran, for HPLC, Unstabilised	1 L, 2.5 L
T425	Tetrahydrofuran, for HPLC, Unstabilised *	4 L
T/2306	Toluene, for HPLC	1 L, 2.5 L
T290	Toluene, for HPLC *	4 L
W5	Water, for HPLC *	4 L
W/0106	Water, HPLC for Gradient Analysis	1 L, 2.5 L

Find our full portfolio of HPLC chemicals **here**

Optima LC/MS solvents

Delivering consistent, reproducible performance. Every. single. time.

As new regulatory limits and instrumentation innovation and developments lead to ever-lower analyte detection limits, there is an increased need to reduce noise, which can impact the overall performance of LC/MS applications and methods. This is where our Optima range of high-performing LC/MS chemicals come into play.

Our Optima solvents are suitable for all applications and markets using LC/MS and UHPLC/UV instrumentation, and for all chromatography systems running columns with smaller particle sizes (<3 µm).

Within our LC-MS grade, our products are manufactured using additional purification processes, quality control measures, and packaging innovations, to help reduce/ eliminate the presence of phthalates, PEG (and other contaminants) to provide low mass noise level, minimal organic contamination, and minimal metal content to meet the rigorous demands of LC/MS.

Our Optima LC/MS solvents:

- **See more analytes:** with very low background observed using MS and UV (compared to other lower grade solvents), you will be able to get better S/N from your analytical peaks, helping you better detect your analytes even at trace levels.
- **Enable your system to run more efficiently:** filtered at 0.1 µm performed with these products helps reduce instrument, column, and check valves cloggingcontent from the chemicals.
- **Reduce adduct formation:** up to 17 metals are specification tested and reported in our certificate and analysis.
- **Save time and money:** we offer pre-made mobile phases (such as acetonitrile + 0.1% formic acid) to allow you to focus on other priorities in the laboratory. We also have a QR code on the bottle so that you can find product certificates of analysis (CoA) and safety data sheets (SDS) quickly and easily.

Product list

Cat. No.	Description	Pack sizes
A955	Acetonitrile, Optima LC/MS grade	1 L, 2.5 L, 4 L
A456	Methanol, Optima LC/MS grade	1 L, 2.5 L, 4 L
W6	Water, Optima LC/MS grade	1 L, 2.5 L, 4 L
A461	Isopropanol, Optima LC/MS grade	1 L, 2.5 L, 4 L

Full product listing is available online at **thermofisher.com/chemicals**

1 L


2.5 L


4 L

Alternative packaging:
Depending on where you reside in asia pacific, you may encounter an alternative packaging like the one shown on the left for HPLC and Optima LC/MS grade solvents.

HPLC GC LC/MS UHPLC

Click or scan to contact us

Testing specifications

Parameter	Unit of measure	A955 Acetonitrile	A456 Methanol	W6 Water	A461 Isopropanol
Appearance	N/A	Clear, colorless liquid			
Assay	%	≥ 99.9	≥ 99.9	N/A	≥ 99.90
Color	APHA	≤ 10	≤ 10	N/A	≤ 5
Evaporation Residue	ppm	≤ 0.8	≤ 1	≤ 1	N/A
Identification	Pass/Fail	Pass	Pass	N/A	Pass
Ionic Impurity - Aluminum (Al)	ppb	≤ 25	≤ 10	≤ 10	≤ 10
Ionic Impurity - Barium (Ba)	ppb	≤ 5	≤ 10	≤ 10	N/A
Ionic Impurity - Cadmium (Cd)	ppb	≤ 5	≤ 10	≤ 10	N/A
Ionic Impurity - Calcium (Ca)	ppb	≤ 25	≤ 50	≤ 20	≤ 5
Ionic Impurity - Chromium (Cr)	ppb	≤ 5	≤ 10	≤ 10	N/A
Ionic Impurity - Cobalt (Co)	ppb	≤ 5	≤ 10	≤ 10	N/A
Ionic Impurity - Copper (Cu)	ppb	≤ 5	≤ 10	≤ 10	≤ 5
Ionic Impurity - Iron (Fe)	ppb	≤ 5	≤ 10	≤ 10	≤ 5
Ionic Impurity - Lead (Pb)	ppb	≤ 5	≤ 10	≤ 10	≤ 5
Ionic Impurity - Magnesium (Mg)	ppb	≤ 10	≤ 10	≤ 10	≤ 5
Ionic Impurity - Manganese (Mn)	ppb	≤ 5	≤ 10	≤ 10	≤ 5
Ionic Impurity - Nickel (Ni)	ppb	≤ 5	≤ 10	≤ 10	≤ 5
Ionic Impurity - Potassium (K)	ppb	≤ 10	≤ 10	≤ 10	≤ 10
Ionic Impurity - Silver (Ag)	ppb	≤ 5	≤ 10	≤ 10	≤ 5
Ionic Impurity - Sodium (Na)	ppb	≤ 50	≤ 50	≤ 20	≤ 50
Ionic Impurity - Tin (Sn)	ppb	≤ 5	≤ 10	≤ 10	N/A
Ionic Impurity - Zinc (Zn)	ppb	≤ 10	≤ 10	≤ 10	≤ 10
LC Gradient Test With PDA (200- 400 nm)	mAU	≤ 2	≤ 2	≤ 2	N/A
LCMS Suitability - Pos.Mode (As Propazine)	ppb	≤ 50	≤ 100	≤ 50	≤ 200
LCMS Suitability - Neg.Mode (As Chloramphenicol)	ppb	≤ 50	≤ 200	≤ 50	≤ 200
Optical Abs At 190 nm	Abs.	≤ 1.00	N/A	N/A	N/A
Optical Abs At 195 nm	Abs.	≤ 0.15	N/A	N/A	N/A
Optical Abs At 200 nm	Abs.	≤ 0.05	N/A	N/A	N/A
Optical Abs At 205 nm	Abs.	≤ 0.04	N/A	N/A	N/A
Optical Abs At 210 nm	Abs.	≤ 0.03	≤ 0.5	≤ 0.01	≤ 1.0
Optical Abs At 215 nm	Abs.	≤ 0.025	≤ 0.4	≤ 0.01	N/A
Optical Abs At 220 nm	Abs.	≤ 0.015	≤ 0.2	≤ 0.01	≤ 0.20
Optical Abs At 225 nm	Abs.	≤ 0.015	≤ 0.1	≤ 0.01	N/A
Optical Abs At 230 nm	Abs.	≤ 0.01	≤ 0.01	≤ 0.005	≤ 0.10
Optical Abs At 254 nm	Abs.	≤ 0.005	≤ 0.005	≤ 0.005	N/A
Optical Abs At 280 nm	Abs.	≤ 0.005	≤ 0.005	≤ 0.005	N/A
Titratable Acid	MEQ/g	≤ 0.008	≤ 0.0003	N/A	N/A
Titratable Base	MEQ/g	≤ 0.0006	≤ 0.0002	N/A	N/A
Water (H_2O)	%	≤ 0.01	≤ 0.02	N/A	N/A
Protease	N/A	N/A	N/A	Not Detected	N/A
Total Halogen	N/A	N/A	N/A	Not Detected	N/A

UHPLC solvents

See only the peaks from your sample, when low background noise is a must.

Thermo Fisher Scientific has developed a new solvent grade for mobile phases targeting trace analysis by UHPLC-MS. These ultra-pure solvents provide an extremely low mass noise level in both positive and negative mode ionization, minimal metal ion content, and very low UHPLC/UV response using photo diode array detection.

Suitable for all applications and markets using UHPLC, micro-, and nano-LC systems using detectors such as UV, fluorescence, and refractive index detectors. This also applies for applications involving charged aerosol detection (CAD).

These high purity solvents are specifically qualified for UHPLC-MS and offered in Acetonitrile, Methanol, and Water.

Why choose Thermo Scientific UHPLC/MS solvents?

- **New solvent specification based on S/N ratio of the propazine product ion from MS/MS fragmentation.**
  Benefit: The solvent quality of UHPLC-MS Optima solvents is linked directly to the sensitivity of the detector (mass spectrometer); a unique specification for the chemical industry.
- **0.1 micron filtration for acetonitrile and Methanol, 0.03 micron filtration for water.**
  Benefit: Submicron filtration ensures minimal clogging of instrument, columns and check valves.
- **Reduces significantly the leaching of metal cations (Na^+ and K^+).**
  Benefit: Low metal content in mobile phase solvents minimizes formation of metal ion adducts.
- **Thermo Scientific UHPLC-MS solvents have an LC-UV gradient suitability specification which is tested in the full range of 200–400 nm.**
  Benefit: Mobile phase solvents have minimal UV-absorbing impurities providing customers with smooth baselines with minimal interference.
- **Convenient 1 L bottle borosilicate glass design accommodates mobile phase as bottle can sit on top of the UHPLC-MS instrument.**
  Benefit: Ease of use directly on instrument.
- **Eliminate leachables.**
  Benefit: No fluoropolymer liners used in the caps, so as to eliminate leachable background noise interferance with PFAS analysis.

UHPLC-MS solvents continued

Product list

Cat. No.	Description	Pack Sizes
A956	Acetonitrile, UHPLC-MS	1 L
A458	Methanol, UHPLC-MS	1 L
W8	Water, UHPLC-MS	1 L
T11110	ChromaCare LC-MS Instrument Flush Solution	1 L, 2.5 L
T00125	ChromaCare LC-MS Aqueous Rinse	2.5 L
MB124	ChromaCare LC-MS Biologics Flush Solution	1 L, 2.5 L
T00126	ChromaCare LC-MS Organic Rinse	2.5 L
MB122	Ammonium Formate in Methanol, 10 mM, with 0.05% Formic Acid, LC-MS	1 L
MB123	Ammonium Formate in Water, 10 mM, with 0.05% Formic Acid, LC-MS	1 L
UHPLCMSKIT	UHPLCMS installation kit: 1. A956-1 Acetonitrile (1 x 1 L) 2. A458-1 Methanol (2 x 1 L) 3. W8-1 Water (2 x 1 L) 4. T111101000 ChromaCare Flush Solution (1 × 1L)	1 set

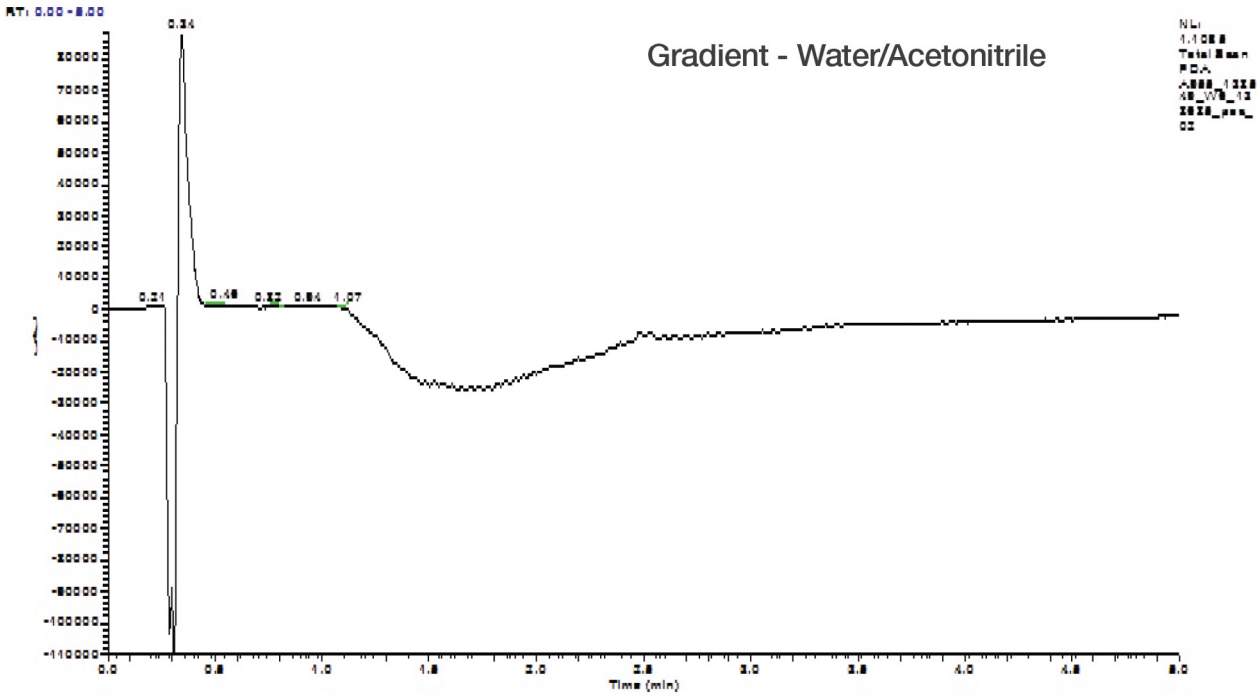
Full product listing is available online at **thermofisher.com/chemicals**

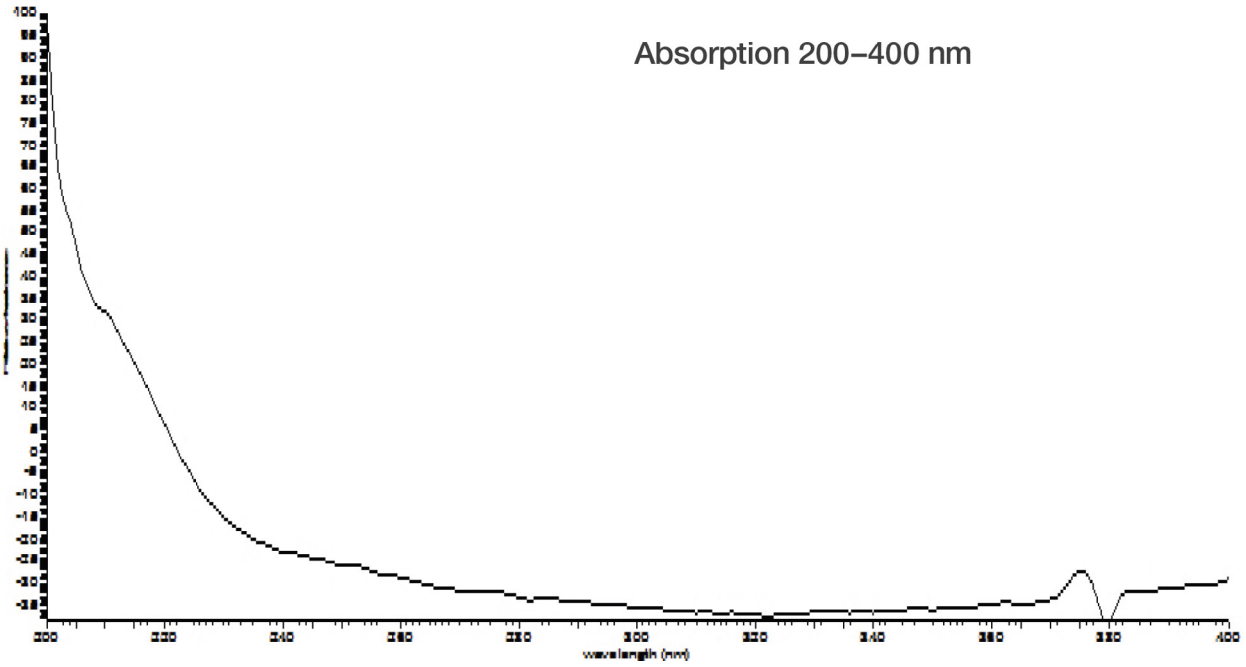
Testing specifications

Parameter	Unit of measure	A956 Acetonitrile	A458 Methanol	W8 Water
Appearance	N/A		Clear, colorless liquid	
Assay	%	≥ 99.9	≥ 99.9	N/A
Color	APHA	≤ 5	≤ 5	N/A
Evaporation Residue	ppm	≤ 0.8	≤ 1	≤ 1
Identification	Pass/Fail	Pass	Pass	N/A
Ionic Impurity - Aluminum (Al)	ppb	≤ 2	≤ 2	≤ 2
Ionic Impurity - Calcium (Ca)	ppb	≤ 10	≤ 20	≤ 5
Ionic Impurity - Chromium (Cr)	ppb	≤ 2	≤ 2	≤ 2
Ionic Impurity - Cobalt (Co)	ppb	≤ 5	≤ 5	≤ 5
Ionic Impurity - Copper (Cu)	ppb	≤ 5	≤ 2	≤ 2
Ionic Impurity - Iron (Fe)	ppb	≤ 2	≤ 2	≤ 2
Ionic Impurity - Lead (Pb)	ppb	≤ 2	≤ 2	≤ 2
Ionic Impurity - Magnesium (Mg)	ppb	≤ 2	≤ 2	≤ 2
Ionic Impurity - Manganese (Mn)	ppb	≤ 2	≤ 2	≤ 2
Ionic Impurity - Nickel (Ni)	ppb	≤ 2	≤ 5	≤ 5
Ionic Impurity - Potassium (K)	ppb	≤ 5	≤ 2	≤ 2
Ionic Impurity - Silver (Ag)	ppb	≤ 2	≤ 20	≤ 20
Ionic Impurity - Sodium (Na)	ppb	≤ 20	≤ 2	≤ 2
Ionic Impurity - Tin (Sn)	ppb	≤ 2	≤ 0.5	N/A
Ionic Impurity - Zinc (Zn)	ppb	≤ 2	≤ 0.4	≤ 0.01
Optical Abs At 190 nm	AU	≤ 1.00	N/A	N/A
Optical Abs At 195 nm	AU	≤ 0.15	N/A	N/A
Optical Abs At 200 nm	AU	≤ 0.05	N/A	N/A
Optical Abs At 205 nm	AU	≤ 0.04	N/A	N/A
Optical Abs At 210 nm	AU	≤ 0.03	≤ 0.2	≤ 0.01
Optical Abs At 215 nm	AU	≤ 0.025	≤ 0.1	N/A
Optical Abs At 220 nm	AU	≤ 0.015	≤ 0.01	≤ 0.01
Optical Abs At 225 nm	AU	≤ 0.015	≤ 0.005	≤ 0.01
Optical Abs At 230 nm	AU	≤ 0.01	≤ 0.005	≤ 0.005
Optical Abs At 254 nm	AU	≤ 0.005	≤ 0.0003	≤ 0.005
Optical Abs At 280 nm	AU	≤ 0.005	≤ 0.0002	≤ 0.005
Titratable Acid	MEQ/g	≤ 0.008	≤ 50	N/A
Titratable Base	MEQ/g	≤ 0.0006	≤ 25	N/A
UHPLC-MS Grad. Suit. Neg. (As Chloramphenicol)	ppb	≤ 25	≤ 2	≤ 25
UHPLC-MS Grad. Suit. Pos. (As Propazine)	ppb	≤ 25	≤ 0.02	≤ 25
UHPLC-UV Grad. Suit. Pda (200-400 nm)	mAU	≤ 2	N/A	≤ 2
Water (H_2O)	%	≤ 0.01	N/A	N/A

UHPLC-UV gradient suitability test

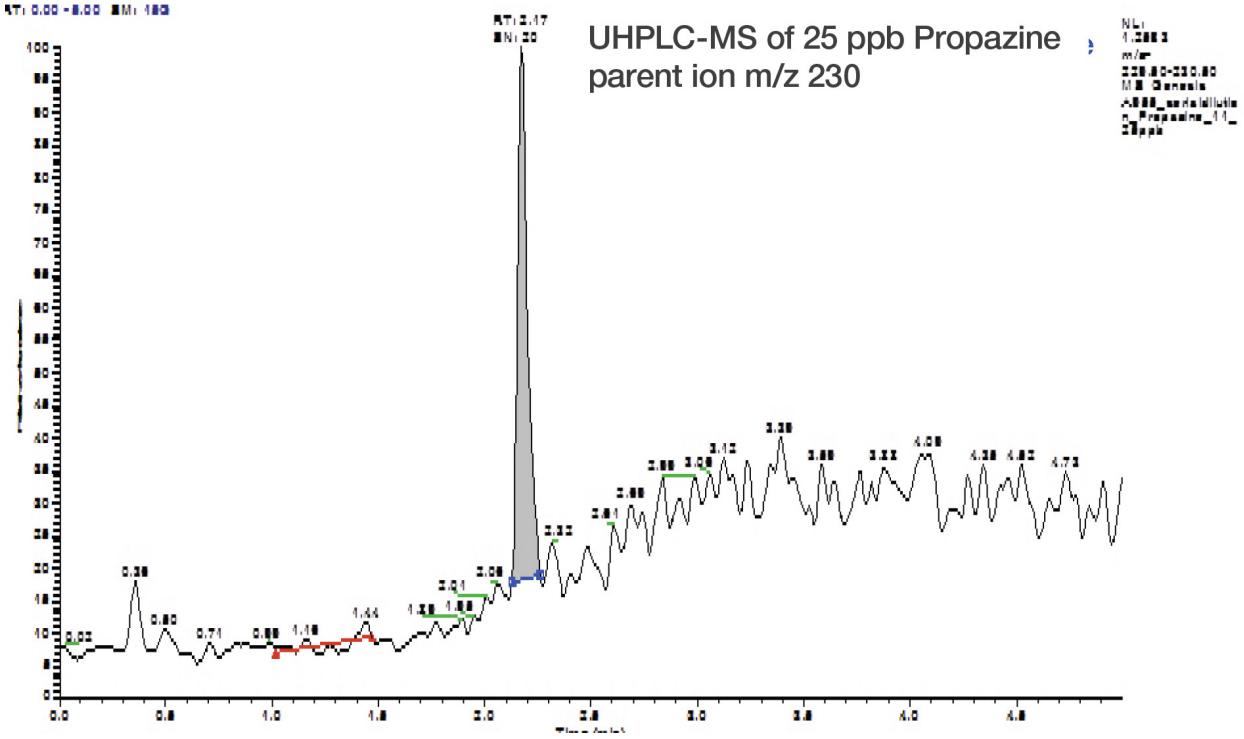
UHPLC-UV specification: peak height with PDA (200-400 nm) is < 2 mAU



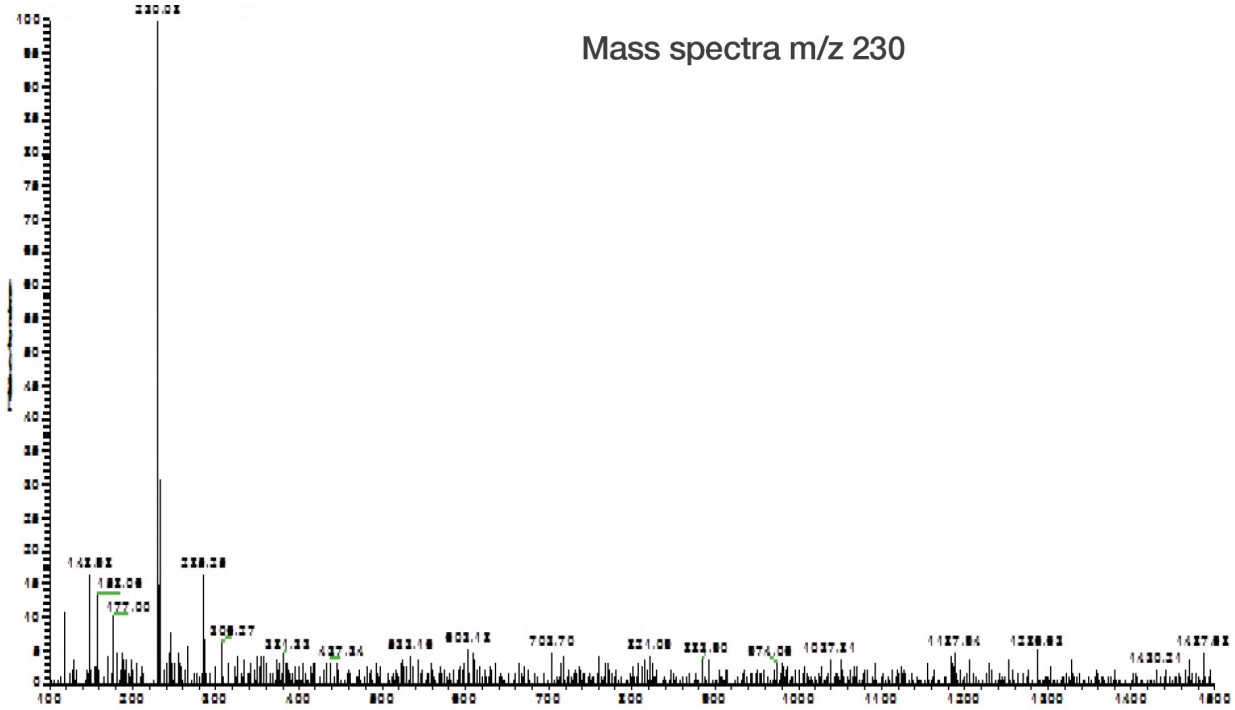


UHPLC-MS/MS of 250 ppt Propazine

UHPLC-UV specification: signal-to-noise ratio of Propazine ion peak m/z 188 is > 10.



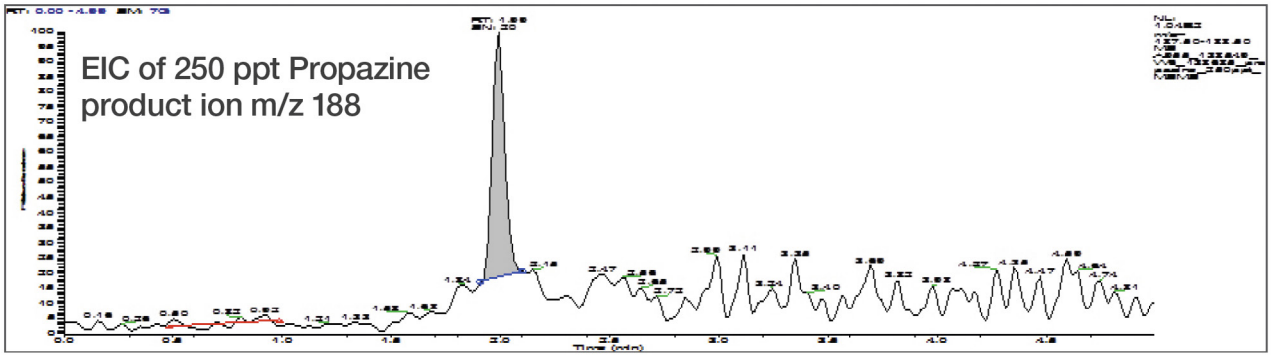
UHPLC-MS of 25 ppb Propazine parent ion m/z 230

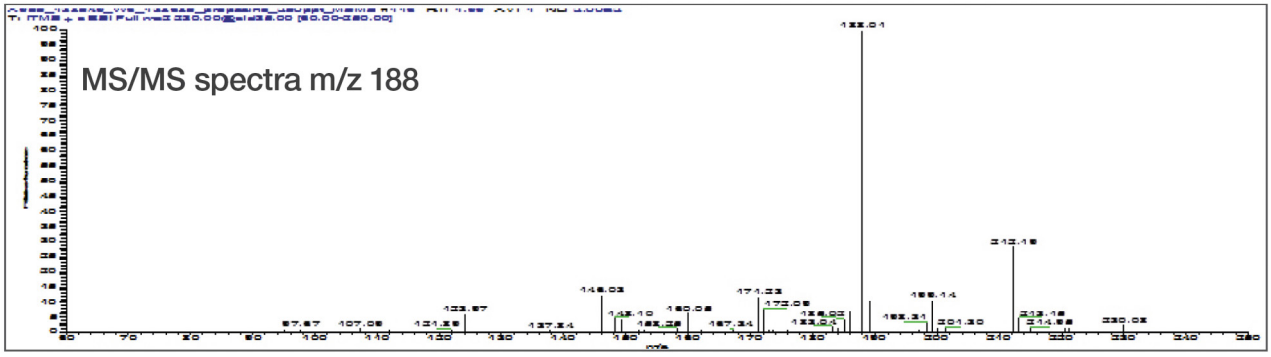


Mass spectra m/z 230

UHPLC-MS/MS of 250 ppt Propazine

UHPLC-UV specification: in positive mode ionization, any eluted peak height is < 25 ppb Propazine parent ion m/z 230 in full scale TIC and EIC.





Did you know?

Ultra High Performance Liquid Chromatography (UHPLC) performs separations 5 to 10 times faster than conventional HPLC by employing sub-2 µm diameter particles?

The 1-2 second peak widths and relatively high separation efficiency of UHPLC are more competitive with capillary GC, making UHPLC/MS an attractive method for applications where you need maximum sensitivity and for complex matrices where peak separation is essential.

GC solvents

Distol™ solvents and reagents for residue analysis via GC-ECD and GC-FID

Industries such as food and beverage commonly conduct gas chromatography (GC) analysis to detect flavors and fragrances, and to determine contaminants like pesticide residues. The Fisher Chemical Distol grade of solvents and reagents are suitable for extraction and sample preparation prior to analysis by GC-ECD and GC-FID.

Product list

Cat. No.	Description	Pack Sizes
A/0603	Acetone, 99.8+%, for residue analysis, Distol	1 L, 2.5 L
A/0623	Acetonitrile, 99.8+%, for residue analysis, Distol	1 L, 2.5 L
C/8933	Cyclohexane, 99.5+%, for residue analysis, Distol	1 L, 2.5 L
D/1853	Dichloromethane, 99.8+%, for residue analysis, Distol, stabilized with amylene	1 L, 2.5 L
D/2503	Diethyl ether, 99.5+%, for residue analysis, Distol, stabilized with copper gauze	1 L, 2.5 L
D1424	Methylene Chloride, Pesticide grade	4 L
E/0903	Ethyl acetate, 99.8+%, for residue analysis, Distol	1 L, 2.5 L
H/0403	Hexanes, for residue analysis, Distol, contains 95% n-Hexane	1 L, 2.5 L
M/4053	Methanol, 99.8+%, for residue analysis, Distol	1 L, 2.5 L
P/2092	Petroleum ether 40-60°C, for residue analysis, Distol	1 L, 2.5 L
P4004	Pentane, Pesticide grade	4 L
P4804	Petroleum Ether, pesticide grade	4 L
S/6660	Sodium sulfate anhydrous, for residue analysis, Distol	1 kg
T/3608	2,2,4-Trimethylpentane, for residue analysis, Distol	1 L, 2.5 L

GC headspace solvents

To achieve optimum laboratory testing conditions, solvents must be free of interference. By using solvents that are not routinely tested for the absence of low-boiling organics, the accuracy of the analysis will be compromised.

The solution therefore, is simple: Use the clean and reliable Fisher Chemical GC headspace grade solvents to ensure your analyses are successfully conducted each time.

Our headspace solvents are also made to high purity for accurate and repeatable determination of trace levels of Class 1, Class 2, and Class 3 residual solvents, and are tested by UV absorbance to ensure low traces of organic contamination.

Product list

Cat. No.	Description	Pack Sizes
D1391	Dimethyl sulfoxide (DMSO), GC headspace	1 L
D1331	N,N-Dimethylformamide (DMF), GC Headspace	1 L
D1601	N,N-Dimethylacetamide (DMAC), GC Headspace	1 L
N1401	1-Methyl-2-pyrrolidone (NMP), GC headspace	1 L

Full product listing is available online at **thermofisher.com/chemicals**

Ion-pairing solvents, mobile-phase blends, and additives

Ion-pairing reagents

Cat. No.	Description	Pack Sizes
C/3961/46	Cetyl trimethylammonium bromide, Ion pair chromatography	25 g
D/0030/46	1-Decanesulfonic acid sodium salt, Ion pair chromatography	25 g
D/5296/44	1-Dodecanesulfonic acid sodium salt, Ion pair chromatography	5 g
D/5311/46	Dodecyl trimethyl ammonium bromide, Ion pair chromatography	25 g
H/0166/07	1-Heptane sulfonic acid sodium salt, Ion pair chromatography, solution 0.1M	250 mL
H/0168/46	1-Heptane sulfonic acid, sodium salt, Ion pair chromatography	25 g, 100 g
H/0438/46	1-Hexane sulfonic acid, sodium salt, 98+%, Ion pair chromatography	25 g, 100 g
H/0439/46	1-Hexane sulfonic acid, sodium salt, 98+%, Ion pair chromatography, for electrochemical detection	25 g
M/3876/46	Methanesulfonic acid, sodium salt, Ion pair chromatography	25 g
N/0216/46	Naphthalene-2-sulfonic acid sodium salt, Ion pair chromatography	25 g
O/0026/07	1-Octanesulfonic acid sodium salt, Ion pair chromatography, solution 0.1M	250 mL
O/0028/44	1-Octane sulfonic acid sodium salt, Ion pair chromatography	5 g, 25 g, 100 g
O/0029/46	1-Octane sulfonic acid sodium salt, Ion pair chromatography, for electrochemical detection	25 g
P/1036/07	1-Pentanesulfonic acid sodium salt, Ion pair chromatography, solution 0.1M	250 mL
P/1038/46	1-Pentanesulfonic acid sodium salt, Ion pair chromatography	25 g, 100 g
P/1039/46	1-Pentanesulfonic acid sodium salt, Ion pair chromatography, Certified	25 g

Additives

Cat. No.	Description	Pack Sizes
A117	Formic acid, 99.0+%, Optima LC/MS grade	0.5 mL, 1 mL, 2 mL, 50 mL, 10 x 1 mL ampules
A116	Trifluoroacetic acid, 99.5+%, Optima LC/MS grade	0.5 mL, 1 mL, 2 mL, 50 mL, 10 x 1 mL ampules
A113	Acetic acid, 99.7+%, Optima LC/MS grade	1 mL, 50 mL, 10 x 1 mL ampules
A115	Ammonium formate, Optima LC/MS grade, 50g	50 g
A114	Ammonium acetate, Optima LC/MS grade, 50g	50 g

Mobile-phase blends

The Fisher Chemical Optima and the Thermo Scientific branded LC/MS grade mobile phase solutions are precisely blended with consistency.

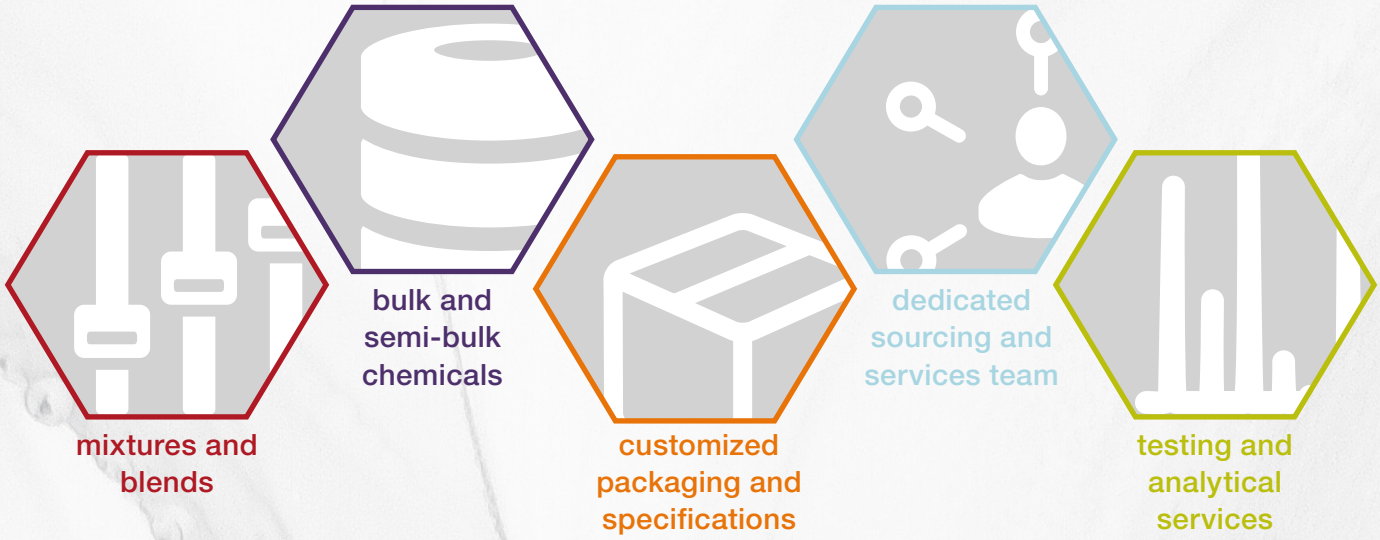
These pre-made blends are ideal and convenient for routine LC/MS analysis in QC and production processes. All blends are fully tested with HPLC-UV/MS suitability for organic impurities and ICP-MS for trace metal impurities, and each lot will come with a certificate of analysis.

Cat. No.	Description	Pack Sizes
LS120	Acetonitrile with 0.1% FA	500 mL, 1 L, 2.5 L and 4 L
LS121	Acetonitrile with 0.05% TFA	500 mL, 1 L, 2.5 L and 4 L
LS117	Acetonitrile with 0.1% TFA	4 L
LS118	Water with 0.1% FA	500 mL, 1 L, 2.5 L and 4 L
LS115	Water with 0.05% TFA	4 L
LS119	Water with 0.1% TFA	500 mL, 1 L, 2.5 L and 4 L
LS122	80% Acetonitrile with 0.1% FA	500 mL

Full product listing is available online at **thermofisher.com/chemicals**

Custom synthesis and bulk chemicals

For every step of your journey, we've got you covered. Applicable in all industries from bench to production.



Chemicals services – for every step of your journey

As a trusted global chemicals' provider, we can facilitate all your bulk and custom purchases through timely provision of necessary documentation such as:

- Synthesis route
- Country of origin
- Details of the manufacturer
- Supplier qualification and audits
- Change control
- Document control

Sourcing support

Availability of raw materials is critical to business success—lengthy lead times and shortened supply of raw materials cannot stand in your way. Accessing our broad portfolio allows you to choose your desired chemicals that help you successfully fulfil your sourcing needs.

Our team has the global reach to provide support for your chemical sourcing decisions and strategies—primary, secondary, and multi-sources—for your projects in R&D stages through to commercialization.

Supplier and order management

Our expertise of supply chain management helps to ensure the right chemicals are accessible for your applications. Helping to consolidate your supply chain so you can focus on other critical elements within your processes.

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Our custom and bulk chemicals (which include high purity solvents and blends) are suitable for:

- **Laboratory solutions:** synthesis, sample preparation, purification and extraction applications, and for use as part of laboratory instrumentation workflows (such as mobile phases)
- **Pilot/Manufacturing:** our chemicals can also be used in pilot, scale -up or production/ manufacturing environments, and as cleaning chemicals.

Returnable drums and containers

Improve efficiency & safety with our environmentally friendly returnable container program

Bulk solutions: returnable drums and containers

If you are routinely using more than 4 L of solvents and blends, then it might be time to learn more about our returnable drums service. Returnable drums and containers are an ideal choice for handling larger quantities of high purity solvents and blends.

Our returnable drums are available in 19 L to 1,350 L sizes.

Space limited. If you are space limited but would still like to take advantage of our larger volume options, our 19 L returnable drum options would be the ideal choice to consider.

Not space limited. If you require a large volume and have the space, our largest returnable drum size we offer is 1,350 L.

From bench to production

Our returnable drums service delivers solvents and blends that provide you with enhanced safety and improved productivity, whilst still maintaining a high-quality product inside.

1. Ensuring product purity:

- Returnable drums and containers are made from high quality stainless steel that is inert and is not prone to interacting with the chemicals –helping maintain product purity.
- Using returnable drums helps to protect the chemical from external environmental factors.
- Protects chemicals from moisture sensitivity which help maintain and keep solvents and blends with low water content.

2. A safer and more healthy way to manage and work with solvents and blends.

- Safety – reduce the risk of solvent / chemical spillage. As the returnable drums and containers are made from stainless steel, there is no risk of broken glass in the working environment.
- Health – The unique design of the drums and containers reduce the risk of flammable or toxic solvent liquids and vapors being released into the surrounding air.

3. Less waste and less disposal costs

Our returnable drum system can help reduce the amount of liquid waste generated in your laboratory, thereby reducing environmental impact.

- A reusable 200 L returnable drum replaces fifty 4 L bottle and associated packing materials. Almost 200 lbs of glass and cardboard are eliminated by each 200 L returnable drum system – helping to support you meet your corporate sustainability goals
- Empty returnable drums are cleaned, maintained, and refilled by Thermo Fisher Scientific – saving you time and money.




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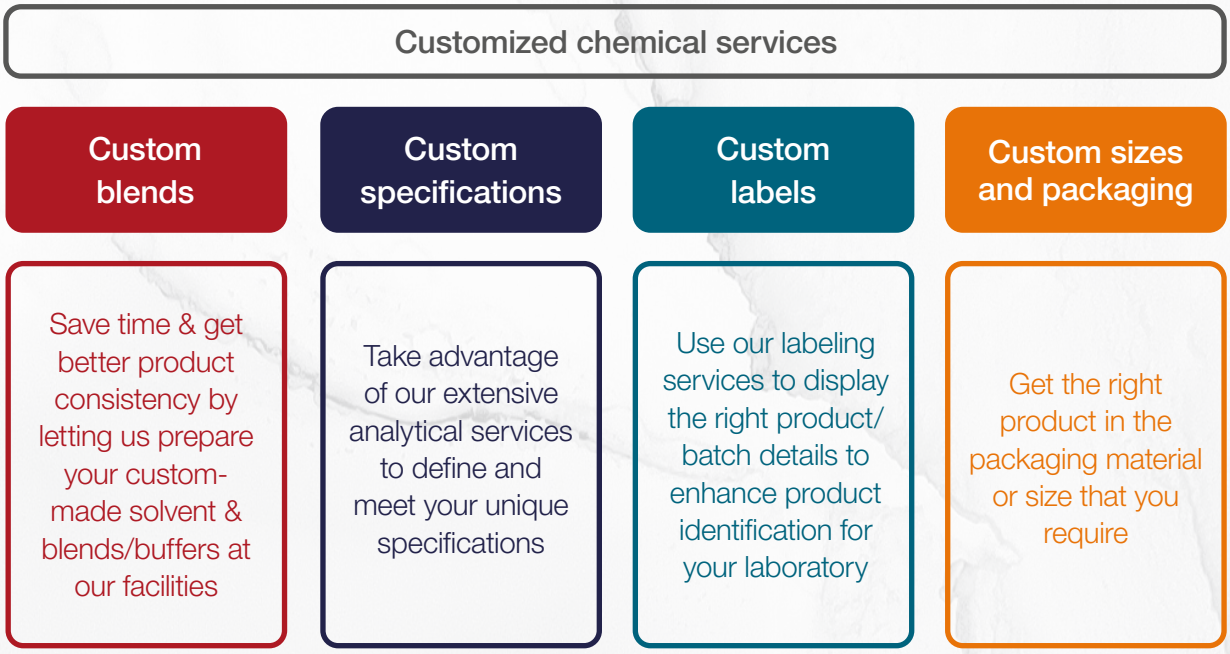

Custom chemicals

The chemical or reagent itself is only a part of the total package. If your needs differ to our catalog product offerings why not take advantage of our custom chemicals service.

As a global chemicals business, we operate a Quality and Environmental Management System which complies with the requirements of ISO 9001 and ISO 14001, ensuring that our products and services meet our customers' expectations.

Custom blends

If you are looking for ways to streamline your routine laboratory tasks, let us help. We can provide pre-made mobile phases for LC and LC-MS analyses, at the concentrations and specifications you need for your methods/ assays. Allowing you to focus more on the science.

Custom specifications

If you are performing an analysis, and require specifications not available within our catalog range, get in touch with our experts to learn more.

Custom pack size, packaging and labels

Have you seen the right catalog product but struggling to find it in the size or packaging that is suitable for your laboratory? Or do you need extra information adding to the chemicals label? We have the capability to adapt our catalog products to your specific requirements.

Learn more about our full capabilities **here**, or e-mail us at **chemicals.seatw@thermofisher.com** to speak with a product representative today.

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