Product Information

ROMIL PURE CHEMISTRY

LC-MS: Ultimate sensitivity demands exceptional purity

Liquid chromatography paired with mass spectrometry (LC-MS) is the technique of choice for numerous laboratories working across a wide range of sectors, including pharma, food and beverage, forensics and toxicology, environmental monitoring and R&D, as it supports both qualitative and quantitative analyses with low limits of detection. This state-of-the-art technology is continually advancing, offering increasingly enhanced sensitivity that enables analytes to be detected at concentrations that were previously considered undetectable. However, this presents analytical challenges to scientists striving to maintain the accuracy and reproducibility of their results. The systems are only as good as the solvents that are used with them, requiring not only exceptionally high purity, but also excellent batch-to-batch consistency.

ROMIL-UpS™ ultra lc solvents and eluant mixes have been developed to address this challenging requirement, offering the highest purity for today's sensitive instrumentation. Each ROMIL-UpS™ solvent is carefully produced using rigorous purification techniques, use-tested, and supplied in specially treated bottles that keep trace metal impurities at the same low levels as when freshly manufactured. By stringently controlling purity – both original and at the time of opening – problematic adduct formation can be avoided, ensuring the best possible performance for hyphenated techniques.

These same exceptional standards apply to ROMIL-UpS™ eluant mixes – a range of ready-to-use solutions that are ideal for hyphenated chromatography techniques. Every eluant mix – off-the-shelf or custom-made – is carefully formulated under controlled conditions from ROMIL-UpS™ ultra lc solvents, guaranteeing the most exacting purity standards. Combining a very clean UV transmission profile with extremely low background fluorescence, ROMIL-UpS™ ultra lc eluant mixes achieve the high ionisation efficiencies that ensure a reproducible and consistent analytical performance, giving a greater assurance of quality results, first time, every time.

Make ROMIL-UpS™ ultra lc solvents your first choice


When only the best
is good enough,
take a look at
ROMIL-UpS™
ultra lc solvents
and eluants.

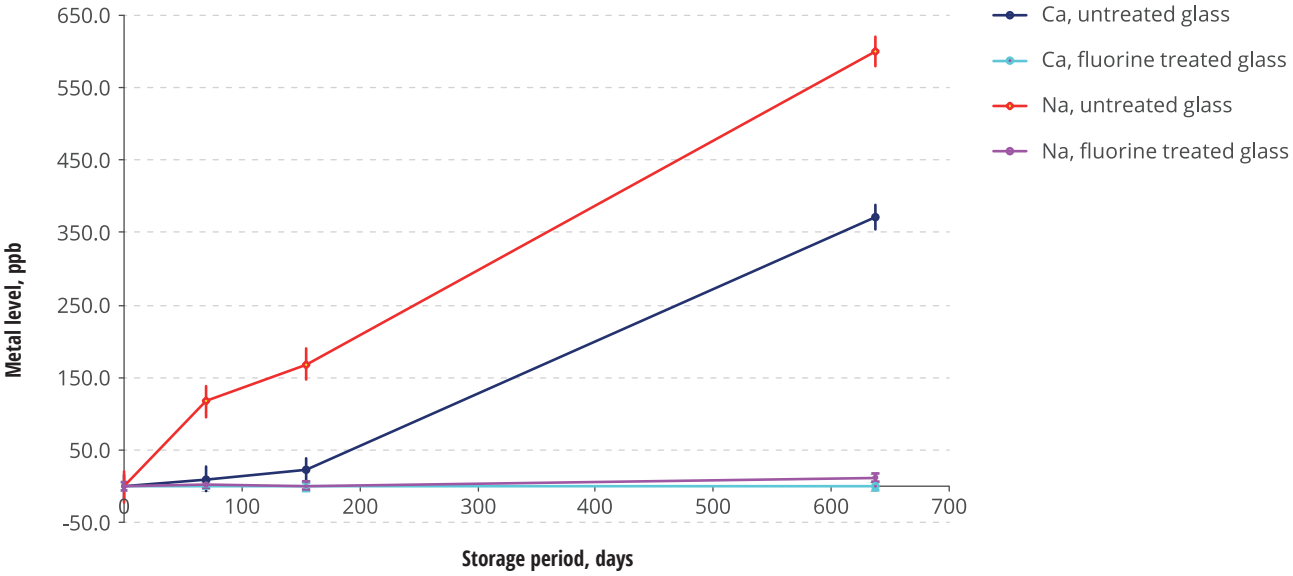
Aren't all solvents the same?

Quite simply, no. Purification methods and testing parameters will vary between manufacturers, and some will be more effective than others. Often, solvents are batch selected, with suppliers testing each batch for suitability on delivery before repackaging it into smaller containers for laboratory use. While a solvent may be optically pure and appear clean to the naked eye, it is likely that a considerable non-volatile residue will have accrued in the distribution pipeline, which can cause, for example, blockages in HPLC lines, pumps and columns. In contrast, ROMIL-UpS™ ultra lc solvents have undergone extensive purification by chemical treatment and glass distillation. This significantly reduces impurities and enhances batch-to-batch consistency, minimising unnecessary downtime and the need to troubleshoot ghost peaks.

Why choose ROMIL solvents?

- Consistent batch-to-batch purity for reproducible results
- Low metal ion content to minimise adduct formation and increase ionisation of analytes
- Long shelf life; packed in specially treated amber glass bottles designed to prevent leaching of ionic impurities over time
- Superior solvent quality for low background noise

Metal levels in Water ROMIL-UpS™ ultra lc (H949) standard glass vs. treated glass



LC-MS solvents

Benefits of ROMIL-UpS™ ultra lc solvents

- Suitability tested for LC-MS applications
- Extremely low levels of ionic impurities, controlled to low ppb
- Minimal baseline drift
- Batch-to-batch consistency
- No ghost peaks

ROMIL-UpS™ Ultra Purity Solvents

Product description	Product code	Available packs
Acetonitrile UpS ultra lc	H050	1LT, 2½LT
Dichloromethane UpS stabilised with amylene ultra lc	H204	2½LT
Ethanol absolute UpS ultra lc	H317	2½LT
Ethyl Acetate UpS ultra lc	H347	2½LT
n-Heptane 99% UpS ultra lc	H363	1LT, 2½LT
n-Hexane 95% UpS ultra lc	H391	2½LT
n-Hexane 99% UpS ultra lc	H395	1LT, 2½LT
Methanol UpS ultra lc	H411	1LT, 2½LT
Propan-2-ol UpS ultra lc	H626	1LT, 2½LT
Tetrahydrofuran UpS ultra lc	H720	1LT, 2½LT
Water UpS ultra lc	H949	1LT, 2½LT

Acetonitrile UpS
ultra lc — *H050*

(Methyl Cyanide)
CH3CN MW 41.05 BP 81.6°C d 0.78 CAS [75-05-8]
Assay >99.9% Water <0.005% Residue <0.0001%
UV: 190nm >18%; 193nm >50%; 197nm >80%; 215nm >95%; 230-400nm >99%
Acidity <0.0005 meq/g
Alkalinity <0.00006 meq/g
Gradient Use Test: 205nm <0.002 AU; 254nm <0.0005 AU
Baseline drift <0.02 AU @ 205nm
Fluorescence (as quinine): 254nm <1 ppb; 365nm <1 ppb
Suitability for LC-MS passes test
Trace ionic impurities:
Ag, Cu, Fe, K, Mg, Mn, Ni, Pb, Zn <10 ppb each
Al, Ca <25 ppb each
Na <50 ppb
Application: HPLC critical gradient applications, LC-MS, UHPLC

Methanol UpS
ultra lc — *H411*

(Methyl Alcohol)
CH3OH MW 32.04 BP 64.5°C d 0.79 CAS [67-56-1]
Assay >99.9% Water <0.02% Residue <0.0001%
UV: 205nm >10%; 210nm >50%; 225nm >80%; 240nm >95%; 265-400nm >99%
Acidity <0.0003 meq/g
Alkalinity <0.0002 meq/g
Gradient Use Test: 230nm <0.002 AU; 254nm <0.002 AU
Baseline drift <0.02 @ 230nm
Fluorescence (as quinine): 254nm <1 ppb; 365nm <1 ppb
Suitability for LC-MS passes test
Trace ionic impurities:
Ag, Cu, Fe, K, Mg, Mn, Ni, Pb, Zn <10 ppb each
Al, Ca <25 ppb each
Na <50 ppb
Application: HPLC critical gradient applications, LC-MS, UHPLC

Eluant mixes

Benefits of ROMIL-UpS™ eluant mixes

- Blended from ROMIL-UpS™ ultra lc solvents under controlled conditions
- Manufactured to exacting tolerances
- Batch-to-batch consistency
- Manual preparation errors eliminated
- Exposure to hazardous chemicals minimised
- Less risk of introducing contamination
- Saves time
- Custom mixes available

ROMIL-UpS™ Ultra Purity Solvent Mixes

Product description	Product code	Available packs
LC Eluant mix AA2 UpS acetonitrile with acetic acid 0.1% ultra lc	R8445	1LT, 2½LT
LC Eluant mix AF2 UpS acetonitrile with formic acid 0.1% ultra lc	R5803	1LT, 2½LT
LC Eluant mix AT4 UpS acetonitrile with trifluoroacetic acid 0.1% ultra lc	R8384	1LT, 2½LT
LC Eluant mix MA2 UpS methanol with acetic acid 0.1% ultra lc	R5604	1LT, 2½LT
LC Eluant mix MT2 UpS methanol with trifluoroacetic acid 0.1% ultra lc	R3124	1LT, 2½LT
LC Eluant mix WA4 UpS water with acetic acid 0.1% ultra lc	R7416	1LT, 2½LT
LC Eluant mix WF2 UpS water with formic acid 0.1% ultra lc	R4905	1LT, 2½LT
LC Eluant mix WT4 UpS water with trifluoroacetic acid 0.1% ultra lc	R2614	1LT, 2½LT

LC Eluant mix AT4 UpS

acetonitrile with trifluoroacetic acid 0.1% ultra lc ***R8384***

2 components:
Acetonitrile (ROMIL H050)
containing
Trifluoroacetic Acid (ROMIL HA853) 0.1% v/v
Application: Ready to use eluant for critical gradient applications, LC-MS, UHPLC

LC Eluant mix WF2 UpS

water with formic acid 0.1% ultra lc ***R4905***

2 components:
Water (ROMIL H949)
containing
Formic Acid (ROMIL HA353) 0.1% v/v
Application: Ready to use eluant for critical gradient applications, LC-MS, UHPLC

Additives

Benefits of ROMIL-SpR™ Super Purity Reagents

- Includes all commonly used LC-MS additives
- Suitability tested for LC-MS
- Trace ionic impurities
- Good UV transparency

Analysts frequently add compounds such as formic, acetic and trifluoroacetic acids, and ammonium acetate or formate, to LC mobile phases to improve chromatographic resolution and enhance ionisation for MS detection. Depending on the application, additives are chosen to suppress unwanted signals or to selectively improve the signal of specific compound(s) in a mixture. They can also act as buffers to control the ionisation state of the analyte(s), or as ion-pair reagents to enable separation of polar orionic substances on reversed phase columns.

ROMIL-SpR™ Super Purity Reagents are a range of high purity additives for use in HPLC and LC-MS applications. Available in bulk and laboratory quantities, they allow cost-effective separations in a variety of LC-MS applications, from high volume routine quality control to specialised research and development.

ROMIL-SpR™ Additives for LC-MS

Product description	Product code	Available packs
Acetic Acid SpR	HA016	100ml, 500ml, 1LT
Ammonium Acetate SpR	HR079	100g, 500g
Ammonium Carbonate SpR	HR143	100g, 500g
Ammonium Fluoride SpR	HR453	100g, 500g
Ammonium Formate SpR	HR305	100g, 500g
Difluoroacetic Acid SpR	HA744	100ml
Formic Acid SpR	HA353	100ml, 500ml, 1LT
Heptafluorobutyric Acid SpR	IP235	25ml
Trifluoroacetic Acid SpR	HA853	100ml, 500ml

Maintaining solvent quality

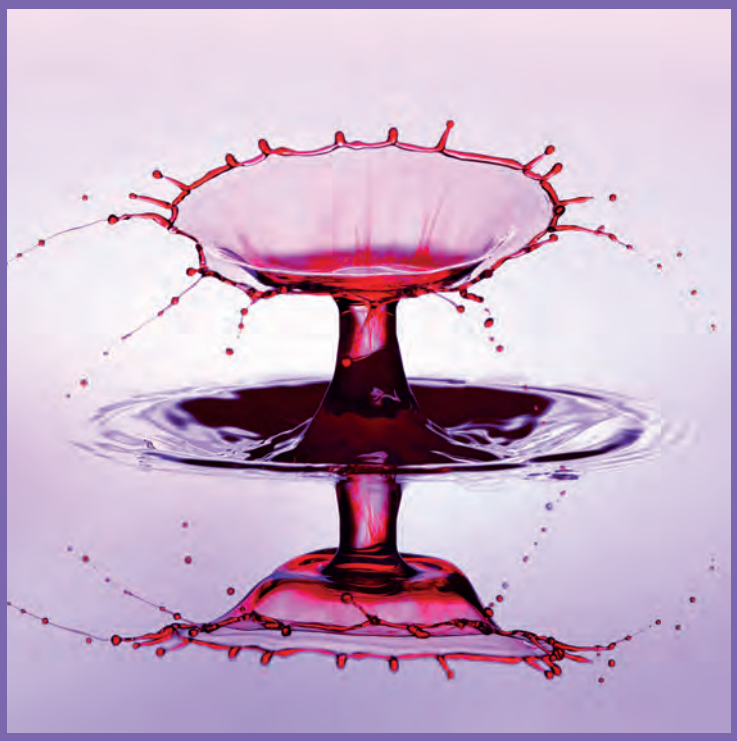
By using LC-MS grade solvents and following best practices in the laboratory, analysts can be certain of getting the most out of their LC-MS systems.

Choosing the right grade of solvent is just the beginning; following good laboratory practice is essential to maintaining the solvent quality once in use. It is important to remember that contaminants can be absorbed from the environment, and to handle and store solvents accordingly.

- LC-MS mobile phases should be stored on an instrument for the minimum amount of time.
- Storage containers should be chosen carefully; plastic bottles leach plasticisers into aqueous solvents over time, while glass containers release ionic contaminants and organics, although at a lower level than their plastic counterparts.
- Solvent reservoirs should always be capped to prevent the absorption of contaminants from the atmosphere or the ingress of particulate matter.
- Aqueous mobile phases and water are prone to microbial growth during storage, which can cause blockages and result in spurious peaks. Replace the mobile phase regularly to help to minimise the likelihood of microbial contamination.
- Do not 'top up' solvent reservoirs. Replace with a fresh bottle of mobile phase and ensure storage reservoirs are thoroughly cleaned before reuse.
- Take care not to inadvertently introduce contamination when handling and preparing mobile phases. For example, plasticisers can leach from plastic gloves, and using the same pipettes to prepare the mobile phase and the stock solutions for analysis is a potential contamination risk.
- Regularly flushing the system using LC-MS grade reagents is recommended to reduce the risk of contamination and microbial growth.

ROMIL-UpS™ Ultra Purity Wash Mixes

Product description	Product code	Available packs
LC Wash solution AMPW1 UpS acetonitrile/methanol/propan-2-ol/water 25:25:25:25	R2257M	1LT, 2½LT
LC Wash solution PW1 UpS propan-2-ol/water 50:50	R1485M	1LT, 2½LT



Today's analytical laboratory is full of operational and quality challenges that only an exceptional chemical manufacturer like ROMIL can solve. For more than three decades, ROMIL has been dedicated to achieving the highest standards of chemical purity, based on a unique blend of experienced staff and leading-edge production facilities.

But that's not all.

It takes an extra, vital ingredient - customer focus - to really excel. And by adding this to the mix, ROMIL has found the formula for success.

When it works well, it's pure chemistry.

And when it's pure chemistry, it's ROMIL.

ROMIL Ltd The Source Convent Drive Waterbeach Cambridge GB-CB25 9QT
Tel: +44 (0)1223 863 873 Fax: +44 (0)1223 862 700 Eml: pure.chemistry@romil.com Web: romil.com