

## Solvents for LC-MS

Nowadays, the LC-MS technique is being used by an increasing number of analytical and research laboratories in several areas of industry (environmental, pharmaceutical and biotechnology laboratories).

**Due to its high sensitivity and selectivity, the LC-MS is the suitable technique for the identification and quantification of a large number of compounds in the most complex matrix.**

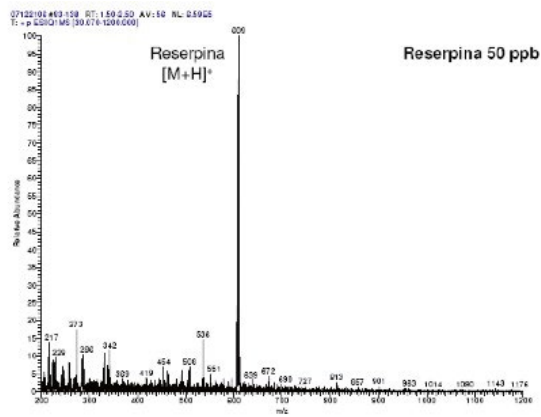
**PanReac AppliChem offers within its HPLC product line, the range of LC-MS solvents that meet the requirements of this modern technique:**

**Very low metal concentration (<100 ppb).**

**Low particle content due to microfiltration (0.2 µm pore size filter).**

**Suitability for LC-MS:** No signals higher than the molecular peak of the reserpine (609 amu) at a concentration of 50 ppb, in a range from 200 to 2000 amu.

**High UV transmittance** and an **excellent baseline** during gradient elution with HPLC.



### Solvents for LC-MS

Product code	Product name	CAS number	Pack size
701881.1611	Acetonitrile	75-05-8	1 L
701881.1612			2.5 L
701091.1611	Methanol	67-56-1	1 L
701091.1612			2.5 L
701074.1611	Water	7732-18-5	1 L
701074.1612			2.5 L

	Acetonitrile (LC-MS)	Methanol (LC-MS)	Water (LC-MS)
<b>Code</b>	701881	701091	701074
<b>Identity</b>	IR p/t	IR p/t	
<b>Density at 20/4</b>	0.779-0.783	0.791-0.792	
<b>APHA Colour</b>	≤ 10	≤ 10	
<b>Minimum assay (G.C.)</b>	≥ 99.9%	≥ 99.9%	
<b>Non-volatile matter</b>	≤ 0.0001%	≤ 0.0002%	≤ 0.0001%
<b>Acidity</b>	≤ 0.0003 meq/g	≤ 0.0002 meq/g	
<b>Alkalinity</b>	≤ 0.0001 meq/g	≤ 0.0002 meq/g	
<b>Water</b>	≤ 0.01%	≤ 0.02%	
<b>Chloride (Cl)</b>			≤ 0.000001%
<b>Fluoride (F)</b>			≤ 0.000001%
<b>Nitrate (NO<sub>3</sub>)</b>			≤ 0.00001%
<b>Sulfate (SO<sub>4</sub>)</b>			≤ 0.00001%
<b>Base line drift (210 nm)</b>	10 mUA		
<b>Base line drift (235 nm)</b>		15 mUA	
<b>Gradient</b>			
<b>A (mAU)</b>			
<b>at 210 nm</b>	≤ 1		≤ 5
<b>at 235 nm</b>		≤ 2	
<b>at 254 nm</b>	≤ 0.2	≤ 1	≤ 0.5
<b>UV Transmittance (1cm cell; ref.: water)</b>			
<b>at 190 nm</b>	≥ 30%		
<b>at 193 nm</b>	≥ 60%		
<b>at 195 nm</b>	≥ 80%		
<b>at 200 nm</b>	≥ 90%		≥ 98%
<b>at 205 nm (cut off)</b>		≥ 10%	
<b>at 210 nm</b>		≥ 30%	≥ 98%
<b>at 220 nm</b>		≥ 60%	
<b>at 230-400 nm</b>	≥ 98%		
<b>at 230 nm</b>		≥ 80%	
<b>at 240 nm</b>		≥ 90%	
<b>at 254 nm</b>			≥ 99%
<b>at 260-400 nm</b>		≥ 98%	
<b>at 300-450 nm</b>			≥ 99%
<b>Fluorescence</b>			
<b>Reference: Quinine</b>			
<b>at 254 nm</b>	≤ 1 ppb	≤ 1 ppb	≤ 1 ppb
<b>at 365 nm</b>	≤ 0.5 ppb	≤ 0.5 ppb	≤ 0.5 ppb
<b>Suitability for LC-MS</b>			
<b>TIC 200-2000 m/z ESI (+). Reference: 100 ppb reserpine</b>			
<b>Sensitive impurities</b>	≤ 100 ppb	≤ 200 ppb	≤ 200 ppb
<b>Metals</b>			
<b>Silver (Ag)</b>	0.05 ppm	0.05 ppm	0.1 ppm
<b>Aluminum (Al)</b>	0.5 ppm	0.5 ppm	0.5 ppm
<b>Barium (Ba)</b>	0.1 ppm	0.1 ppm	0.1 ppm
<b>Calcium (Ca)</b>	0.05 ppm	0.1 ppm	0.1 ppm
<b>Cadmium (Cd)</b>	0.05 ppm	0.05 ppm	0.05 ppm
<b>Cobalt (Co)</b>	0.02 ppm	0.02 ppm	0.02 ppm
<b>Chromium (Cr)</b>	0.02 ppm	0.02 ppm	0.02 ppm
<b>Copper (Cu)</b>	0.02 ppm	0.01 ppm	0.02 ppm
<b>Iron (Fe)</b>	0.1 ppm	0.1 ppm	0.1 ppm
<b>Potassium (K)</b>	0.1 ppm	0.1 ppm	0.1 ppm
<b>Magnesium (Mg)</b>	0.1 ppm	0.1 ppm	0.1 ppm
<b>Manganese (Mn)</b>	0.02 ppm	0.01 ppm	0.02 ppm
<b>Sodium (Na)</b>	0.1 ppm	0.1 ppm	0.1 ppm
<b>Nickel (Ni)</b>	0.02 ppm	0.02 ppm	0.02 ppm
<b>Lead (Pb)</b>	0.1 ppm	0.02 ppm	0.1 ppm
<b>Tin (Sn)</b>	0.1 ppm	0.1 ppm	0.1 ppm
<b>Zinc (Zn)</b>	0.1 ppm	0.1 ppm	0.1 ppm

Microfiltered product (0.2 µm) and bottled under nitrogen atmosphere

## Other PanReac AppliChem's solvents and reagents for chromatography and spectroscopy

You may also be interested in other instrumental analysis techniques. Our range of reagents and solvents are specifically designed to be used in the modern methods of Instrumental Analysis. For an accurate and brilliant result it becomes necessary to use reagents that meet the highest requirements in quality. Find more information about our range of reagents and solvents for instrumental analysis on our website [itwreagents.com](http://itwreagents.com)

### Some examples:

- Solvents for pesticide residues analysis
- QuEChERS for pesticide residues analysis
- Solvents for residual solvent analysis by Headspace GC-MS
- Reagents for HPLC and spectroscopy
- Reagents for pharma industry

**PanReac AppliChem**  
ITW Reagents

High purity reagents for pesticide residues analysis  
For the food and environmental industry

**PanReac AppliChem**  
ITW Reagents

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### UHPLC Solvents

Over the last years, the use of Ultra High Performance Liquid Chromatography (UHPLC) has significantly increased over conventional High Performance Liquid Chromatography (HPLC) due to the number of advantages that it offers.

Thanks to the improvements that UHPLC offers in terms of analysis speed, sensitivity and resolution, the number of laboratories purchasing UHPLC units is increasing. These advantages are the result of significant improvements in the technology of those units (electrical, mechanical, pumps, columns, etc.). To obtain the best performance from these UHPLC units, it is recommended that appropriate high purity solvents are used to avoid their interfering with analysis.

**PanReac AppliChem offers improved specifications of HPLC grade quality Acetonitrile, Methanol and Water so that they are adequate for use in UHPLC:**

- Lower non-volatile matter content
- Improved transparency at low wavelengths
- Near control of base line drift

Please note that we have other qualities for analytical liquid chromatography, depending on your requirements.

	Acetonitrile	Methanol	Water
HPLC Reagent	221881	221901	221920
UHPLC	221881	221901	221920
HPLC	221881	221901	221920
LC-MS	221881	221901	221920

Ordering Information

Description	Code	Packsize
Acetonitrile (Dist.)	221881-1412	1000ml
Ph. Eur. for HPLC	221881-1412	2.5 L
Supergradient ACN	221881-1412	2.5 L
221881-0204	5 L	
221881-0204	5 L	
221881-0204	10 L	
221881-0204	20 L	
221881-0204	30 L	
221881-0204	200 L	
221881-0204	1000 L	
Methanol (Dist.)	221901-1412	1000ml
Ph. Eur. for HPLC	221901-1412	2.5 L
Supergradient ACN	221901-1412	2.5 L
221901-0214	5 L	
221901-0214	5 L	
221901-0214	10 L	
221901-0214	20 L	
221901-0214	30 L	
221901-0214	200 L	
221901-0214	1000 L	
Water for HPLC	221920-1412	1000ml
Supergradient ACN	221920-1412	2.5 L

\*Packsize does not apply to subject to specific ordering conditions.

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ITW Reagents

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### Solvents for Headspace GC

During the manufacturing of actives or excipients, or during the preparation of medicinal products, solvents that are used may not be completely removed. These solvents may have harmful effects on human health or on the environment and must be removed to the maximum extent possible. CIPAC public International Council for Harmonization of Technical Requirements for Pharmaceuticals for Human Use establishes the acceptable levels of residual solvents in pharmaceuticals and classifies them according to their toxicity into class 1, 2 and 3 solvents (see on the back).

It also describes the official methods for content analysis of said solvents in active, excipients and/or medicines. The European Pharmacopoeia and the USP have adopted these same guidelines (Ph. Eur. method 2.4.24 and USP <457>).

The method normally consists of dissolving the sample in an appropriate solvent (water, dimethyl sulfoxide or dimethyl formamide, among others) to remove the residual solvent. Subsequent analysis is done by Headspace Gas Chromatography.

Therefore it is important that the solvent to be used for dissolving the sample has maximum purity and contains none of the residual solvents to be analyzed.

At PanReac AppliChem we are experts on solvent purification and control, we offer four of the most frequently used solvents in the preparation of samples for subsequent analysis by Headspace Gas Chromatography.

To ensure the utmost quality of these new solvents it has been necessary to develop new, more demanding manufacturing and packaging protocols.

Residual	Class	Code	Pack
N,N-Dimethylformamide	Class 2	221765-1511	1000ml
N,N-Dimethylformamide	Class 2	221765-1512	2.5 L
Dimethyl Sulfoxide	Class 2	221954-1511	1000ml
Dimethyl Sulfoxide	Class 2	221954-1512	2.5 L
1-Methyl-2-Pyrrolidone	Class 2	220806-1511	1000ml

According to their risk to human health, residual solvents have been grouped into 3 categories:

- Class 1: Solvents that should be avoided.
- Class 2: Solvents to be limited.
- Class 3: Solvents with low toxic potential.

Reagents for HPLC and Spectroscopy that meet the highest requirements in quality

**PanReac AppliChem**  
ITW Reagents

Reagents for Pharma Industry  
Chapter 2  
Spectroscopy

**PanReac AppliChem**  
ITW Reagents

Reagents for Pharma Industry  
Chapter 4  
Chromatography

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## Distributors

For ordering our high-quality products please contact your local distributor. **ITW Reagents** has distributors in the countries as follows:

Algeria	Ecuador	Kazakhstan	Senegal
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Armenia	Finland	Lithuania	Slovakia
Australia	France	Mexico	Slovenia
Austria	Germany	Montenegro	South Korea
Bangladesh	Greece	Morocco	Spain
Belarus	Hong Kong-China	Netherlands	Sweden
Belgium	Hungary	New Zealand	Switzerland
Bosnia and Herzegovina	Iceland	Norway	Taiwan
Brazil	India	Pakistan	Thailand
Bulgaria	Indonesia	Paraguay	Tunisia
Chile	Ireland	Peru	Turkey
China	Israel	Poland	Ukraine
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Czech Republic	Japan	Russia	Uruguay
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For further contact details of our distributors please visit

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or contact our Customer Service at

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## Customers - Webshop

Authorized customers from Spain, Portugal, Austria, France and Germany can order via our webshop on [itwreagents.com](http://itwreagents.com).

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