

Polypropylene LCMS Compatible Plastic Vials - Hydrophobic or Hydrophilic - Tech Information

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When selecting vials for LC-MS or other high-sensitivity analytical workflows, the surface chemistry of the vial material plays a major role in recovery, consistency, and the overall quality of the data. MICROSOLV's LCMS-compatible polypropylene (PP) vials are engineered with specific polymer characteristics that directly impact chromatographic performance.

1. Polymer Composition and Hydrophobicity

The polymer used in MICROSOLV's LCMS-compatible plastic vials is composed of pure repeating hydrocarbon monomer units with no polar or ionizable groups, resulting in a material that is fully hydrophobic.

This hydrophobic nature is intentional and beneficial:

- It prevents attraction of polar or ionic species.
- It minimizes undesired interactions with analytes, particularly biological compounds.
- It provides a surface that remains consistent across varied solvents and mobile phases.

This level of chemical simplicity and structural consistency is a core reason why PP is widely chosen for bioanalytical workflows.

2. Why Hydrophobic PP Is an Advantage Over Hydrophilic Glass

Borosilicate glass contains hydrophilic silanol groups, which interact strongly with:

- Basic molecules
- Peptides
- Proteins

These silanol interactions cause adsorption, reducing analyte recovery and distorting quantitation.

Hydrophobic polypropylene eliminates these problematic silanol sites, thereby offering:

- Improved sample recovery
- More reliable quantitative results
- A more inert surface for biological analytes

This makes PP especially valuable for protein and peptide workflows that would otherwise suffer from low-level losses or inconsistent recovery when glass vials are used.

3. Ultra-Low Extractables for LC-MS Compatibility

The polypropylene used in MicroSolv MS-compatible vials is manufactured with extremely low extractables, including ionic contaminants. This enhances performance in LC-MS applications by reducing the likelihood of:

- Ghost peaks
- Ion suppression
- Background noise
- Baseline instability

This high-purity polymer formulation allows these vials to function as a more inert alternative not only to glass vials but also to other lower-grade plastic vials that may contain additives or processing residues.

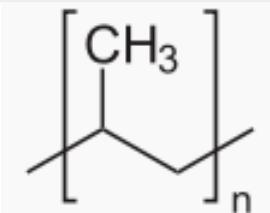
4. Why These Vials Are Preferred in LC-MS Workflows

MS-compatible PP vials are advantageous because they:

- Provide predictable behavior across varying sample types
- Avoid ion-binding and protein-binding issues seen in glass
- Offer consistent surface activity, essential for low-abundance analytes
- Reduce instrument contamination due to low extractables

In addition, MICROSOLV offers both **Snap-top** and **Screw-top** LC-MS-compatible versions for flexibility within different autosamplers.

Summary for Technical Users: MICROSOLV's LC-MS-compatible polypropylene vials are hydrophobic due to their pure hydrocarbon polymer structure. They avoid the hydrophilic silanol interactions found in borosilicate glass and provide a cleaner, more inert sample environment. With extremely low extractables and excellent compatibility with sensitive LC-MS workflows, these vials offer superior performance for proteins, peptides, and basic analytes.



Click [HERE](#) for LCMS compatible screw top vial ordering information.

Click [HERE](#) for LCMS compatible snap top vial ordering information.

AUTOSAMPLER
VIALS AND CAPS

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