

Teflon Bottles for A and B Solvents in Negative Ion Mode LC-MS - HPLC Primer

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Overview

Negative ion mode LC-MS is highly sensitive to contamination—particularly sodium, which readily forms unwanted adducts with anionic species. Standard borosilicate glass mobile phase bottles can introduce sodium into the solvent, elevating background noise and reducing quantitative accuracy. Replacing glass with Teflon (PTFE) mobile phase reservoir bottles is a recommended best practice for maintaining cleaner baselines and improving reproducibility.

In addition, sample vials can also be a contamination source. Using RSA™ Reduced Surface Activity autosampler vials helps maintain analyte integrity and minimizes surface-derived ionic interference.

Why Use Teflon Bottles for Mobile Phase Reservoirs?

1. Prevent Sodium Leaching from Glass

Borosilicate glass contains sodium silicates that can leach into aqueous or organic solvents. In negative ion mode LC-MS, this contamination leads to:

- Increased sodium adduct formation
- Compromised detection of phosphates, organic acids, and other anionic analytes
- Elevated background, reduced signal-to-noise ratios

Using Teflon (PTFE) bottles prevents sodium introduction because PTFE is chemically inert, contains no extractable alkali metals, and does not interact with mobile phase components.

2. Improve Analyte Stability and Quantitation

Cleaner solvents directly improve LC-MS performance by:

- Enhancing peak quality
- Reducing adduct-related mass shifts
- Increasing analytical sensitivity

This is especially important for trace-level or high-sensitivity applications.

Sample Vials: The Importance of RSA™ Glass

Even if the mobile phase is clean, sodium or silanol residues from standard autosampler vials may still contaminate samples. RSA™ vials are engineered to:

- Eliminate surface silanols and sodium silicate residues
- Prevent pH drift
- Minimize adsorption of polar or basic compounds

Using RSA™ vials is particularly beneficial in workflows requiring:

- Ultra-low adsorption
- High reproducibility
- Accurate quantitation in negative ion mode

Best Practices for Negative Ion Mode LC-MS

Use Teflon Mobile Phase Reservoir Bottles To:

- Eliminate sodium leaching
- Reduce adduct formation
- Improve detection of anionic species

Use RSA™ Autosampler Vials To:

- Ensure clean, inert sample contact surfaces
- Prevent analyte loss or ionic contamination
- Maintain sample stability from prep to injection

Click [HERE](#) for ordering, technical information and pictures of RSA Autosampler Vials.

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