

Differences of RSA and All Other Autosampler Vials - Tips and Suggestions

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RSA™ Autosampler Vials Are the Gold Standard in Chromatography

Precision-Engineered for Your Sample Chemistry and Your Autosampler

RSA™ (Reduced Surface Activity) autosampler vials are not just made to fit your autosampler—they're engineered to protect your samples. Through a proprietary precision manufacturing process, RSA™ vials deliver unmatched performance in chromatography by eliminating the surface activity that can compromise sensitive compounds.



The Problem with Conventional Vials

Most autosampler vials—even those labeled “certified”—are made from borosilicate glass tubing formed under high heat and rapid tooling. This process:

- Uses petroleum-based lubricants (introducing organic contaminants)
- Drives metals and silicates to the surface
- Causes sublimation of sodium borates and silicates onto the vial walls
- Results in inconsistent surface chemistry from vial to vial

These silicate residues are not covalently bonded and can:

- Vary in amount across lots
- Be pH-sensitive
- Adsorb basic compounds
- Delaminate under certain conditions

Even post-production “cleaning” with water, acids, or surfactants can introduce new contaminants and make vials incompatible with LCMS/MS applications.



The RSA™ Difference

RSA™ vials are manufactured using a proprietary heat control process that prevents the formation of silicate residues altogether. This means:

- No need for post-production cleaning
- No silicate layer to interfere with your samples
- No risk of delamination or pH drift

The result? Ultra-clean, LCMS/MS-compatible borosilicate glass with:

- Exceptionally low metal and organic content
- Consistent surface chemistry

- Perfect dimensional tolerances for autosampler compatibility
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Critical for Low-Abundance Basic Compounds

One of the most important advantages of RSA™ vials is their ability to prevent adsorption of basic compounds, especially when present in low concentrations. In conventional vials, these compounds can bind to active sites on the glass surface—leading to:

- Signal suppression
- Poor reproducibility
- Loss of sensitivity

RSA™ vials eliminate this risk by offering a non-reactive, low-energy surface, making them ideal for:

- Trace-level quantification
 - Basic drug compounds
 - Peptides and amines
 - Any LCMS/MS application where adsorption can skew results
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Tested for Performance

Every RSA™ vial is rigorously tested for:

- Adsorption of basic compounds (via LCMS)
 - Metal content (via ICP-MS)
 - pH stability over time
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Cleanroom Packaged for Purity

To preserve their pristine condition, RSA™ vials are:

- Packaged in an ISO-certified Class 100,000 cleanroom
 - Handled exclusively by robotic systems
 - Shipped pyrogen- and contaminant-free
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Ceramic Write-On Patch—Not Epoxy

Unlike most vials that use epoxy paint (which can outgas and contaminate samples), RSA™ vials feature a **permanent ceramic patch** that:

- Won't smear or flake
 - Is impervious to solvents and alcohols
 - Remains intact even in **liquid nitrogen storage**
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Thermal Performance

- Annealed at 1,200–1,400°F to eliminate internal stress and organic residues
 - Usable up to 300°C (572°F)
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RSA™ vials are ideal for:

- Basic drugs and compounds sensitive to silanol interactions
- LCMS/MS workflows requiring ultra-clean glass
- Low-abundance analytes where adsorption must be avoided
- Labs seeking consistency, reliability, and superior sample integrity



[More RSA Information](#)

Attachments Time Dependent Vial Adsorption Studies pdf [Download File](#)

Compound-Dependent Vial Adsorption Studies pdf [Download File](#)

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