How are RSA vials different from all other autosampler vials - FAQ

RSA™ 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

🧪 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**

🧼 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**

✍️ 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**

🔥 Thermal Performance

- **Annealed at 1,200–1,400°F** to eliminate internal stress and organic residues
- **Usable up to 300°C (572°F)**

🧬 Why It Matters

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

RSA™
REDUCED SURFACE ACTIVITY GLASS

More RSA Information

Attachments

Time Dependent Vial Adsorption Studies pdf Download File
Compound-Dependent Vial Adsorption Studies pdf Download File
RSA Effect of Diluent on Adsorption pdf Download File

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