Temperature Range Maximums for Autosampler Vials - Tech Information

Date: 11-DECEMBER-2012 Last Updated: 1-FEBRUARY-2026

Selecting the appropriate autosampler vial and cap for temperature-sensitive workflows is essential for maintaining sample integrity, instrument safety, and reliable analytical performance. The following guidance summarizes the thermal limitations and recommended usage conditions for standard MICROSOLV autosampler vials and caps.

General Temperature Capability

Commercial autosamplers operate within **moderate, non-extreme temperature ranges**, and all standard autosampler vials and caps are engineered to function reliably within those limits. Typical autosampler conditions do **not** exceed the safe operating range of standard borosilicate glass vials.

Very Low Temperature Use

For applications requiring cryogenic storage—including temperatures near –80 °C—specialized cryo-rated vials are required.
MICROSOLV does not offer cryogenic storage vials, and standard autosampler vials are not recommended for such extreme low-temperature storage.

High-Temperature Tolerance

Autosampler vials manufactured from high-purity borosilicate glass can withstand temperatures up to approximately 300 °C, provided that the sample itself does not introduce thermal or chemical stress that could compromise the vial.

Because chemical reactions, solvent expansion, and thermal gradients may significantly affect vial performance, testing a few vials under actual expected conditions is strongly advised before routine high-temperature use.

RSA™ Brand Vial Limitations

While most borosilicate autosampler vials tolerate high temperatures, RSA™ brand vials must not be used above 120 °C. This limitation is critical for preventing texture change, structural weakening, or stress-related failure in RSA glass.

Recommendations for Safe Use

To ensure appropriate thermal performance when selecting vials for challenging temperature conditions:

- Verify temperature compatibility for both vial and cap components before use.

- Test representative samples under real conditions when approaching upper thermal limits.
- Avoid using standard autosampler vials in any cryogenic application (–80 °C range).
- Observe the strict **120 °C maximum** for RSA™ vials even if similar borosilicate vials can tolerate higher heat.

These guidelines help maintain safety and analytical reliability across a wide range of laboratory temperature applications.

NOTE: RSA™ brand vials should not be used with temperatures over 120°C. *RSA Glass Vials product page*

AUTOSAMPLER
VIALS AND CAPS

MicroSolv Technology Corporation
9158 Industrial Blvd. NE, Leland, NC 28451
Tel: (732) 380-8900
Fax: (910) 769-9435
Email: customers@mtc-usa.com
Website: www.mtc-usa.com