MICROSOLV

# Sterilization of U-2D Micro-Sample Management System Inserts - Tech Information

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The U-2D™ system uses precision glass inserts in a 96-well plate footprint to manage micro-volume samples for LC/LCMS workflows. This note clarifies what can be sterilized, how to sterilize, and **operational caveats** so you can integrate U-2D inserts into GMP/GLP-aligned procedures.

## Insert Construction and Materials

- The 350 µL U-2D inserts are manufactured from Class A, Type 33 (first hydrolytic) borosilicate glass and feature a geometry designed to resist bubble formation during filling and sampling.
- When an insert is dropped into a compatible wide-opening 2 mL screw-top autosampler vial, it is self-aligning, eliminating the need for a supporting poly spring.
- The silicone sealing mat used with the U-2D system contains no special additives and is approved for LC/MS use. Treat it as you would any 100% silicone cover mat.

## Sterilization / Decontamination

- Autoclaving: U-2D inserts (standard or deactivated/silanized) may be autoclaved in the same manner as other Type-33 borosilicate glassware. Use your site's validated steam cycles and drying protocol.
- Other sterilization: Inserts may be sterilized by non-steam methods when your SOPs require alternatives (e.g., gas sterilization). Handle as you would typical analytical glassware to avoid residue or etch.

  Note on plastics in the U-2D ecosystem: The rack/base plastics in the U-2D system have a separate autoclave profile; always consult the appropriate U-2D FAQ before heat-sterilizing non-glass components. (Related U-2D FAQs differentiate glass inserts vs. plastics and provide integration/centrifugation limits.)

## Centrifugation and General Processing

- U-2D inserts can be processed in a centrifuge similarly to other borosilicate items. Follow your rotor/adaptor specifications and validated g-limits for plate-based use (see companion U-2D guidance for plate assembly g-rating).
- Inserts may be stored like standard analytical glass without special restrictions beyond good laboratory practice.

## Best-Practice Recommendations (Qualification-Minded)

1. Pre-clean & document: Prior to first use, rinse inserts with the same grade solvent as your mobile phase (e.g., LC-MS grade) and document the cleaning lot in your batch record. (Reinforces the vendor's allowance to treat inserts as typical Type-33 glass.)

2. Autoclave load geometry: Autoclave inserts unstacked or in perforated cassettes to ensure steam contact and drying; avoid tight nesting that can trap condensate. (Generalization consistent with the “treat like borosilicate glass” guidance.)
3. Post-cycle verification: After sterilization, visually inspect for chips, haze, or residues; discard any inserts with defects to maintain sample integrity. (Prudence step for glass managed as analytical ware.)
4. LC/MS compatibility of mats: When LC/MS is sensitive to silicone extractables, keep needle punctures to the minimum necessary and consider fresh mats for critical sequences; this aligns with the statement that the mat is a standard 100% silicone cover mat approved for LC/MS.
5. Self-alignment advantage: If you transfer inserts into 2 mL vials for injection/storage, leverage self-alignment to skip poly springs, reducing the risk of spring-derived particulates or adsorption sites.

Click *HERE* for U-2D Micro-Sample management system ordering information and pictures.


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