

Silanizing Glass Autosampler Vial or Inserts for Surface Deactivation - HPLC Primer

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What Is Silanization?

Silanization involves coating the glass with a silicone-based layer to create a hydrophobic, low-adsorption surface. While traditional methods use silicone oil, MICROSOLV uses an advanced technique called Reactive Organosilane Bonding.

This method forms covalent bonds between reactive silane molecules and the hydroxyl groups on the glass surface, resulting in a semi-permanent, stable coating that resists interaction with polar compounds.

Key Benefits of Reactive Organosilane Bonding

- Long-term stability: Coatings can last for months, even with exposure to water, buffers, and organic solvents.
- Reduced adsorption: Ideal for sensitive compounds like proteins, peptides, phenols, and amines.
- Customizable: Coatings can be tailored for specific chemical classes.
- No residual solvents: Especially with gas-phase application.

Application Methods

Gas Phase Silanization (used by MICROSOLV):

- Provides the most uniform and complete surface coverage.
- Excellent for long-term storage and compatibility with chromatography solvents.
- May leave trace chloride residues—important for LCMS or ion chromatography users.

Liquid Phase Silanization:

- Offers even coating but is more costly.
- Available by special order.

Considerations

- Not compatible with strong bases (e.g., concentrated NaOH), which can strip the coating.
- Higher cost than traditional silicone oil coatings.
- Hydrolytic stability may decrease after 48 hours in water.

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