Septa in Autosampler Vial Caps - Self Sealing, Inertness and Solvent Compatibility - Tech Information

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Understanding the sealing performance and chemical resistance of septa is essential for achieving consistent analytical results, especially in applications involving aggressive solvents or repeated needle piercings. The following guidance summarizes how MICROSOLV septa behave under typical laboratory conditions and what users should keep in mind for solvent-sensitive workflows.

Self-Sealing Performance

All MICROSOLV **non-slit autosampler vial septa** are designed to be self-sealing, allowing the material to close back on itself after a needle puncture. This helps maintain vial integrity during multiple autosampler injections and reduces the risk of contamination or vapor loss.

Material Composition and Inertness

Each septum is lined with polypropylene, PTFE, or other fluoropolymer materials, ensuring high chemical inertness and minimizing extractables or interactions with common analytical solvents. These fluoropolymer barriers are particularly advantageous in LC and GC workflows where chemical purity is critical.

Solvent Compatibility Considerations

For most applications using HPLC and GC solvents, MICROSOLV septa provide excellent resistance and maintain sealing performance without degradation. However, some solvents require special attention:

- Acetonitrile
- Ethers

These solvents are highly volatile, and once the septum is pierced, rapid vapor escape may occur. In such cases, the vial cap may need to be replaced after a single injection if strict evaporation control is required for your method.

Best Practices for Controlled Evaporation

If your process is sensitive to solvent loss, consider the following recommendations:

- Limit the number of punctures per vial when working with volatile solvents.
- Replace caps promptly after sampling if precise quantitative transfer or long autosampler queue times are involved.
- Evaluate septa performance using a small test set before establishing them in critical or validated workflows.

By understanding these performance characteristics, users can select the appropriate septum material and handling strategy for their analytical protocols.

Click HERE for screw cap ordering information and pictures

AUTOSAMPLER
VIALS AND CAPS

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