

Pre Slit Septa in Autosampler Vial Cap - Purpose - HPLC Primer

Date: 19-JANUARY-2025 Last Updated: 2-FEBRUARY-2026

Pre-slit septa are engineered to improve performance and reliability in autosampler workflows by providing a controlled, easy entry point for the injection needle. This design reduces insertion force, especially when using thicker or less-sharp needles, and minimizes septum coring, which can otherwise contaminate samples or obstruct the needle.

Beyond improved penetration, pre-slit septa also help maintain sample integrity by reducing pre-injection evaporation, preventing unwanted shifts in analyte concentration over time.

Eliminating Vacuum Formation

In certain autosamplers—such as Waters™ systems—non-slit septa can form an airtight seal around the needle. When the instrument withdraws sample, air cannot enter the vial fast enough, creating a partial vacuum. This can cause over-aspiration, inaccurate injection volumes, and even mechanical issues.

A pre-slit septum allows a small, controlled amount of air to enter during aspiration, equalizing pressure and ensuring accurate, reproducible injections while reducing stress on autosampler components.

Why Choosing the Right Septa Matters

Proper septa selection is a critical factor in maintaining robust LC or GC methods. Using compatible pre-slit septa helps ensure:

- More consistent quantitation
- Reduced variability over long sequences
- Fewer injection-related errors or instrument flags
- Longer autosampler hardware life

AUTOSAMPLER
VIALS AND CAPS