What is the difference between a Cap Liner and a Cap Septum - HPLC Primer

21-MAY-2021 Last Updated: 20-JUNE-2025

In chromatography and laboratory vial systems, cap liners and cap septa serve different purposes, even though they may appear similar in material or thickness.

Cap Liner

- A liner is typically installed in a solid-top cap (i.e., a cap without a hole).
- It cannot be pierced and is not designed for needle access.
- Its primary function is to seal the vial, preventing sample evaporation or contamination during storage or transport.
- Liners may be made from materials such as PTFE, silicone, or polyethylene, and are selected based on chemical compatibility.

Cap Septum

- A septum (plural: septa) is installed in an open-top cap, which has a hole to allow needle access.
- It is designed to be pierced by an autosampler needle or syringe during sample injection.
- After piercing, the septum reseals itself, maintaining vial integrity and minimizing exposure to air or contaminants.
- Septa are often made from layered materials (e.g., PTFE/silicone) to balance chemical resistance and resealability.

🔍 ***Fun Fact:*** *The term septum comes from Latin, meaning "a wall" or "partition." In chromatography, it acts as a barrier that protects the sample until it's accessed.*

Why It Matters

- Using the correct closure type is essential for sample integrity, instrument compatibility, and analytical accuracy.
- Always match the cap type (solid or open-top) with the appropriate liner or septum based on your application—whether for storage or injection.

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