MICROSOLV

Differences Between Precision Point and Conical Point Autosampler Vial Inserts - Tech Information

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Selecting the proper autosampler vial insert is essential for maximizing sample recovery, ensuring consistent injection performance, and preventing avoidable handling issues.

MICROSOLV offers two high-precision insert geometries—**Precision Point** and **Conical Point**—each engineered to address specific analytical priorities. Understanding the differences between these designs can help you choose the insert best suited for your workflow and sample type.

Precision Point Inserts

Precision Point inserts feature a sharply tapered, mandrel-formed internal point that creates an exceptionally narrow bottom geometry. This design ensures:

- Extremely consistent internal dimensions from insert to insert, due to precise mandrel manufacturing.
- Minimal residual volume, making these inserts ideal for analyses requiring maximum sample recovery—especially when working with valuable, limited, or low-abundance samples.
- High precision in fluid drawdown, as the tight taper collects the sample into the smallest possible footprint.

Because of the narrow geometry, surface tension can trap small air bubbles during filling. A light tap or “flick” at the bottom of the insert will typically dislodge these bubbles and restore full sample contact.

Best for: Applications where maximal sample recovery and lowest possible residual volume are the highest priorities.

Conical Point Inserts

Conical Point inserts are also mandrel-formed but feature a **wider conical taper** at the bottom. Their broader geometry offers several advantages:

- Reduced air bubble formation, making them easier and faster to fill—especially useful when preparing a high number of samples.
- Excellent dimensional precision, with the same manufacturing consistency as Precision Point inserts.
- Improved ease of handling, since the larger bottom diameter mitigates the effects of surface tension and promotes smoother filling behavior.

Best for: High-throughput environments or workflows where ease of filling, speed, and reduced bubble artifacts are more important than achieving the lowest possible residual volume.

Which Insert Should You Choose?

- Choose **Precision Point** inserts if:
  You require **maximum sample recovery**, ultra-low residual volume, or are working with small/precious samples.
  (Possible tradeoff: may require a flick to remove trapped bubbles.)

- Choose **Conical Point** inserts if:
  You want **easier, quicker filling** with fewer bubbles and prefer smoother sample handling during preparation.
  (Possible tradeoff: slightly higher residual volume than precision-point designs.)

Both insert types are manufactured with the same stringent quality standards to deliver reliable, vial-to-vial consistency and dependable autosampler performance.
Click *HERE* for low volume Insert ordering information and pictures

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MicroSolv Technology Corporation
9158 Industrial Blvd. NE, Leland, NC 28451
Tel: (732) 380-8900
Fax: (910) 769-9435
Email: customers@mtc-usa.com
Website: www.mtc-usa.com