Specification 9-425 mm for Screw Top Autosampler Vials Definition - HPLC Primer

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The specification 9-425 mm refers to the thread size of screw-top autosampler vials and caps. This designation is based on two key measurements used in thread engineering:

1. Major Diameter (the “9” in 9-425)

- The major diameter is the outer diameter (OD) of the screw thread on the vial, measured across the tops of the threads.
- For a 9-425 thread, the major diameter is approximately 9 mm.
- This measurement helps ensure compatibility between the vial and the screw cap.

🔍 ***Note**: This is not the same as the outer diameter of the vial body itself—only the threaded portion.*

2. Thread Pitch (the “425” in 9-425)

- The number 425 indicates the thread pitch, meaning there are 425 threads per inch (TPI), or approximately 56 threads per 25.4 mm.
- This fine threading ensures a secure, leak-resistant seal, which is critical for autosampler applications.

Why Thread Matching Matters

- For optimal performance, the thread pitch of the cap must match the thread pitch of the vial. Mismatched threads can lead to poor sealing, leaks, or damage to the vial or cap.

Additional Context

- Larger screw thread sizes are often expressed in fractional inches (e.g., a 1/4-20 screw has a 1/4" major diameter and 20 threads per inch).
- Smaller thread sizes, like those used in laboratory vials, may use a gauge system (e.g., 0, 1, 2, 3) or metric designations like 9-425.
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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