

Thread Type and Tubing to Use with the Filter Sparging Stones - Tech Information

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Overview

Selecting the correct thread type and tubing for filter-style sparging stones is essential for achieving a secure, contamination-free, and reliable gas-delivery setup. MICROSOLV's ARE-Applied Research brand of sparging stones are engineered with precise internal threading designed specifically for low-pressure polymeric tubing.

Understanding how these threads function—and why they differ from fittings-based stones—ensures reliable performance in mobile phase preparation, degassing, and general gas-dispersion applications.

Internal Thread Type

ARE-Applied Research brand filters and sparging stones use an internal 5-40 thread.

Unlike traditional mechanical threads, these are designed as micro-barbed internal threads. The micro-barbs act as gripping surfaces that “bite” into soft polymeric tubing, allowing the tubing to seat securely without the need for metal fittings, ferrules, or added hardware.

This design ensures a direct, simplified connection while minimizing the number of components exposed to solvent.

Recommended Tubing Types

These stones should be paired with low-pressure polymeric tubing with:

- 1/8 inch inner diameter (ID)
- 1/16 inch inner diameter (ID)

Polymeric tubing—such as PTFE, FEP, or similar materials—compresses slightly when inserted into the internal barbed thread, forming a reliable seal without added mechanical compression.

This approach is ideal for low-pressure sparging, mobile phase preparation, inert gas delivery, and general solvent handling.

Why Internal Threaded Stones Are Preferred

Using internally threaded sparging stones offers several advantages over stones equipped with fittings:

Reduced Component Complexity

Internal-threaded designs eliminate the mixture of multiple components such as ferrules, compression fittings, stems, and adapters. Fewer components reduce contamination risk and lower the chance of system failure.

Secure In-Situ Connection

Tubing inserted into the micro-barbed internal thread does not easily detach during operation, unlike tubing-to-stem configurations, which can loosen or disconnect under movement, vibration, or extended use.

This makes internally threaded stones highly reliable for long-duration or continuous gas-sparging processes.

Lower Risk of Solvent Contamination

Every additional fitting introduces new surfaces and materials that may contact the solvent. Using a direct polymer-to-stone interface minimizes foreign materials in the flow path, which is especially important in high-purity and analytical workflows.

Best Practices for Installation

- Cut tubing cleanly to avoid deformation before insertion
- Insert the tubing with steady pressure to properly engage the internal barbs
- Avoid overtightening or twisting motions that may damage the tubing end
- Ensure tubing is fully seated to maintain a firm hold during operation
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