

Maximum Back Pressure in PEEK FlexiTubes - Tech Information

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Overview

PEEK FlexiTubes are designed to provide flexible fluidic routing while maintaining compatibility with a wide range of HPLC solvents and operating conditions.

However, their maximum back-pressure tolerance cannot be expressed as a single, universal rating. Instead, it depends on several system-specific factors that influence resistance to flow.

Why No Fixed Maximum Back Pressure Exists

Back Pressure Depends on Multiple Variables

According to the MICROSOLV FAQ, the maximum back pressure cannot be definitively specified because it varies based on:

- Flow rate – Higher flow increases pressure through the tubing.
- Solvent density – Heavier or more viscous solvents generate more resistance.
- Temperature – Alters solvent viscosity and pressure behavior.
- Tubing dimensions – Inner diameter, length, and coil geometry significantly impact resistance.
- Overall system configuration – Pump performance, fittings, and downstream components all contribute.

This means that even identical FlexiTube assemblies can yield different back-pressure readings depending on how they are used.

How Users Should Evaluate Back Pressure

Recommended Approach

Because operating conditions vary widely, MICROSOLV advises users to:

- Evaluate the back pressure under their actual method conditions rather than relying on a preset limit.
 - Consider testing with the highest expected flow rate and solvent viscosity.
 - Verify that downstream components—fittings, unions, tubing, and the instrument—are all within their respective pressure ratings.
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Practical Notes for Users

Useful Guidelines

- Narrower IDs and longer lengths of FlexiTube produce higher back pressure; choose dimensions accordingly.
- Elevated temperature generally lowers solvent viscosity, reducing pressure.
- Highly viscous mobile phases (buffers, high-ACN mixes, glycerol, etc.) may dramatically raise back pressure.
- Ensure your system's weakest component (often nuts, ferrules, or polymer fittings) is not exceeded.

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