Blocked HPLC Column May be Recovered - Tips & Suggestions

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Why Sample Filtration Is Essential for HPLC Success

Proper sample preparation is critical for reliable HPLC performance—and filtration is a non-negotiable step. Most samples, especially biological ones, contain particulates or matrix components that can clog the system or damage the column. Additionally, macromolecules like proteins may need to be precipitated and removed to prevent blockages.

Here's a real-world example that highlights the importance:

During an HPLC study at a major university using a Cogent Diamond Hydride™ column, several biological samples were analyzed successfully. However, two older samples—prepared using unknown methods and injected without filtration—caused a sudden spike in column backpressure. Upon investigation, it was found that proteins in the samples had not been removed, leading to partial blockage.

Fortunately, the Diamond Hydride column was easily regenerated by flushing overnight with 90% DI water / 10% methanol at a flow rate of 0.2 mL/min. The next morning, the column was fully restored, and the analysis resumed after proper sample cleanup.

Takeaway:
Always remove undissolved particles and macromolecules from your samples before injection. While some columns like the Diamond Hydride™ can recover from contamination, many cannot—and **prevention is far easier than recovery.**

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