Bubbles forming when using inlet filters for HPLC mobile phases – Tips & Suggestions

Bubbles Can Form in an HPLC Mobile Phase.

When an HPLC pump is active, a vacuum is present in the tubing and any filter that is connected to the pump. If the liquid cannot flow fast enough, an air bubble will result which is commonly called “cavitation”. This cavitation can occur for a variety of reasons, some of which we list below:

1. The flow rate may be too high for the pore size of the filter and larger pore filters would then be required to prevent bubbles.
2. The mobile phase itself may be more susceptible to this behavior (for example, a phosphate buffer with methanol or acetonitrile content).
3. The mobile phase reservoir bottle is situated at or below the level of the pump. The solvent reservoir should always be higher than the pump to help minimize bubble formation.

Degassing the solvent before introduction to the LC system can also reduce or prevent air bubbles and this may be accomplished by sonicating, sparging with nitrogen gas for 10min, or vacuum filtration.

Click HERE for mobile phase filtering item ordering information and pictures.

Printed from the Chrom Resource Center
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
Date: 05-06-2024