MICROSOLV TECHNOLOGY CORPORATION
HPLC Columns and Chromatography Accessories
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How to repair a blocked frit in an HPLC column – Tips & Suggestions

A simple technique.

The frit assembly in all HPLC columns is a possible site of blockage and resulting high pressures and other possible issues.

Rationale: For non UHPLC, the frit pore size is a distribution of sizes with an average of only 2um wide and therefore can be easily blocked by small undissolved sample, matrix or other particulate matter that was not filtered out during sample prep. *The frits used in HPLC columns are actually compressed powders and therefore the consistency of pore size does vary a bit, with higher flow rates they become more susceptible to blockage.*

Blockage is most likely at the inlet frit. While frits can be removed and replaced but it is not recommended that you try to replace the frits as it is easy to disrupt the packing bed when the frit cap is off and that would ruin the column. Therefore, the best way to repair a blocked frit in your lab is to try to dislodge or dissolve the particle on the frit using solvents in which the particle might be soluble.

Technique: Place the column in a reverse direction on your HPLC system from what you were using it when it got blocked. Without creating any “pressure shock” to the column, slowly and gently run 100% HPLC grade water through the column starting a 0ml / minute and holding the flow rate at 0.5ml / minute for 4.0 or 4.6mm ID columns.

Hold this flow rate for about 2-3 hours then reduce the flow rate gently back to 0ml / minute. Using 100% Acetonitrile as the flow solvent, repeat the above. *If this does not work, we have found the 50% Methanol: 50% Water or 50% IPA:50% Water also works for many biological samples as the flow solvent. Other HPLC solvents can be used with TYPE-C™ columns.*

For 2.1mm ID columns, follow the same procedure but ramp the flow rate from 0ml/min to 0.05ml / minute.

It is not recommended to change frits in guard columns. Simply dispose of the guard column cartridge if the frit gets clogged.