
How to minimize HPLC column blockage from most common causes - Tips & Suggestions

An HPLC column blockage can be a problematic issue, resulting in undesirable phenomena such as high back pressure and poor peak shapes. The most important thing you can do is to prevent the problem from occurring in the first place. To do so, one must consider the potential causes and suggestions below:

1. Samples. When dealing with samples such as plasma, there can be particulate contaminants that can build up on the column inlet frit. Matrix components may also be chemically adsorbed onto the stationary phase material itself. Pre-column, Cogent Column Filters can be used to prevent particulates from reaching the frits, while guard columns may be used to avoid sample contaminant adsorption issues. It is always recommended to use either a 0.45um or 0.2um syringe filter before putting the sample in your vials.

2. Mobile Phase. To ensure dust, bacteria and other particulates are removed, the mobile phase should be vacuum filtered before introduction to the solvent reservoir bottle. This is especially important for mobile phases containing buffers, as any undissolved buffer can create blockages in the system.

3. The HPLC Instrument. Particulates can come from the pump, the injector, and other components in the instrument. The best way to avoid problems from these is to use a Cogent Column Filter.

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