

What are some of the advantages of using Cogent TYPE-C prep and semi-prep HPLC columns - FAQ

At the semi-prep or prep scale, other manufacturers tend to use larger particles (about 10–20µm/ spherical for HPLC or 40–60µm/ irregular for flash) whereas the Cogent TYPE-C™ columns use 4µm spherical particles. Larger particles are cheaper but the TYPE-C™ columns can save money in other ways. *For custom orders, larger particles may be available for Cogent columns.*

In a study of a complex natural product sample containing a hundred or so near-isomers, the same on-column loading was achieved using a Cogent TYPE-C 4µm, 21 x 250mm column as with a 30 x 250mm column with 15µm particles. Flow rates less than 10 mL/min were used with the column, meaning that the method could be used on a standard analytical HPLC system. Hence, there are several aspects of the analysis where you can save money by using the smaller particle sized-Cogent™ columns for preparative work:

- **No need to purchase a high-cost prep LC system.** Simply use your analytical HPLC system at high flow rates with a 21 x 250mm Cogent™ column.
- **Use less solvent in LC Method.** The higher the column ID, the more volume per minute you will need to use to get the same linear flow rate. This can add up quickly if you compare a 21mm ID Cogent™ column with a 30mm ID column that has 15µm particles.
- **Use less solvent in rotary evaporation step.** Your fraction collections will contain less volume with the smaller ID column. This translates to not only less solvent consumption but also less solvent you need to remove in the rotary evaporator. Hence, you can save significant time at this step and increase productivity.
- **Type of solvent can affect the evaporation time required.** If you are doing a reversed phase method, you probably have a good amount of water in the fraction collections. Water is more difficult to evaporate off than organic solvents like acetonitrile or acetone. The Cogent™ columns can be used in the **aqueous normal phase** mode, which often uses a high percentage of organic solvent and a low percent of water. Hence, if your method uses little water, you will be able to evaporate solvents in the fraction collections more rapidly. In addition, when using ANP these columns often require lower salt content than some other methods for polar compounds such as HILIC or IEX. This means faster evaporation times can be achieved because the higher salt content decreases the mobile phase vapor pressure (i.e. lower volatility). This behavior can be rationalized by considering **Raoult's Law**, which describes how the vapor pressure of a pure solvent is greater than when you add a nonvolatile component (such as a salt) to that solvent. The more salt you add, the less volatile it becomes and hence the harder it is to evaporate.

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