

## **NEW** Cogent TYPE-C™ Columns Preparative and Process Chromatography

At the semi-preparative or preparative scale, many laboratories use larger particles (e.g. 10–20µm). In contrast, Cogent columns can use the same 4µm spherical particles as in the corresponding analytical columns. Using this 4µm material, columns up to 30mm i.d. can be packed.

A higher silica surface area generally enables greater sample loadability. However, at the semi-preparative/preparative level, analyte solubility may become the limiting factor on loading capacity. This can be more of a significance in Reversed-Phase (RP) compared to Aqueous-Normal Phase (ANP) or Organic Normal-Phase (ONP).

Since peaks tend to broaden significantly at high loading, the maximum loading capacity will be lower for closely eluting peaks. If there is good selectivity between the target compounds and others in the mixture, it is possible to greatly overload the column without fear of contamination and hence prepare much more material per run. Cogent TYPE-C silica columns provide unique selectivity and solvent compatibility options for many separations, which can offer benefits in this area.

In a study of a complex natural product sample, the same on-column loading was achieved using a Cogent 4µm, 21.2 x 250mm column as with a Type B silica 30 x 250mm column with 15µm particles. Flow rates less than 10mL/min were used with the Cogent column, meaning that the method could be used on a standard analytical HPLC system.

There are several key advantages and overall cost savings to using TYPE-C silica-hydrate columns for preparative work.

- **No need to purchase a high cost preparative LC system.** Simply use your analytical HPLC system at high flow rates with a 4µm, 21.2 x 250mm Cogent TYPE-C silica column.
- **Use less solvent in LC method.** The higher the column i.d. the more volume per minute needed to achieve the same linear flow. This is significant when comparing a 21.2mm i.d. Cogent column with a 30mm i.d. column with 15µm particles.
- **HIGHER YIELD, Less solvent evaporation time.** Cogent columns can be used in the ANP mode, which uses a high percentage of organic solvent and a low percentage of water. This leads to faster solvent evaporation from collected fractions. In contrast RP methods using a high water content mobile phase have slower solvent evaporation rates.
- **HIGHER YIELD, Less salt to elute.** Cogent columns used in ANP have produced as much as a 10 fold increase in yield due to low salt concentrations needed to elute compounds thus reducing “dry down” attempts to collect salt free compounds.
- **Can use columns in 3 modes.** The capability of being used in RP, ONP and ANP increases the chances of success in preparative chromatography, by increasing the dynamic range of solubility of analytes without hysteresis or damage to columns.

Preparative columns packed with 10µm–20µm phases are available on request.

Figure 38.



Please see page 30–32 for ordering details.