Prep and Semi-Prep HPLC TYPE-C Column - Advantages - Tech Information

Date: 11-FEBRUARY-2015 Last Updated: 11-FEBRUARY-2026

Advantages of Cogent TYPE-C™ Prep and Semi-Prep HPLC Columns

When scaling analytical methods to preparative or semi-preparative chromatography, column design has a major impact on cost, efficiency, and overall system requirements.

Cogent TYPE-C™ columns offer several compelling benefits that differentiate them from traditional prep column technologies.

Smaller Particles, Greater Efficiency

Most manufacturers rely on large particles—10–20 µm spherical for HPLC or 40–60 µm irregular for flash chromatography—to reduce manufacturing cost. In contrast, Cogent TYPE-C™ prep and semi-prep columns use 4 µm spherical particles, enabling significantly higher efficiency and sharper peaks

In one study involving a complex natural product mixture containing approximately 100 near-isomers, a 4 µm, 21 × 250 mm Cogent TYPE-C column achieved the same on-column loading as a 30 × 250 mm column with 15 µm particles, demonstrating its superior resolving power.

No Need for a Dedicated Prep LC System

Because the smaller particles maintain high performance even at elevated flow rates, these columns can operate on a standard analytical HPLC system, avoiding the cost of a prep-scale LC platform.

This makes TYPE-C™ particularly attractive for labs looking to scale up methods without large capital investments.

Reduced Solvent Consumption

Smaller internal diameters and higher efficiency translate into lower solvent use at every stage:

- Less mobile phase required during LC runs
- Lower fraction volumes, reducing the burden on downstream processing
- Shorter rotary evaporation times, particularly important when processing multiple fractions

Comparing a 21 mm ID Cogent column to a 30 mm ID column (15 µm particles) illustrates substantial solvent savings, reducing both operating costs and environmental impact.

Faster Evaporation and Improved Fraction Handling

Traditional reversed-phase workflows often produce fractions with high water content, which slows evaporation. Cogent TYPE-C™ columns are compatible with Aqueous Normal Phase (ANP), which

typically uses a much higher percentage of organic solvent and minimal water.
This enables:

- Faster solvent removal
- Quicker batch turnover
- More efficient prep workflows overall

Additionally, ANP methods using TYPE-C™ columns generally require lower salt concentrations compared to HILIC or ion-exchange methods. This improves volatility and speeds up solvent removal while reducing the risk of salt buildup.

Click *HERE* for More Information about Cogent TYPE-C™ HPLC Columns

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