Converting Cogent TYPE-C Columns to Normal Phase after use in Reversed Phase - How To

Date: 1-APRIL-2012 Last Updated: 12-FEBRUARY-2026

Introduction

Cogent TYPE-C™ silica hydride HPLC columns can operate in both Reversed Phase (RP) and Normal Phase (NP) systems, offering exceptional flexibility in method development. Their unique hydride-based surface allows seamless switching between aqueous and non-aqueous solvents when performed correctly. This article explains how to safely convert TYPE-C columns between RP and NP modes and highlights important precautions.

Main Content

Why TYPE-C Columns Support Mode Switching

The surface of TYPE-C™ silica contains Si–H (silicon-hydride) groups rather than traditional silanols. This hydride surface does not strongly bind water, so it avoids the hysteresis effects common in ordinary silica columns. Because of this, the columns switch between aqueous and non-aqueous modes quickly and without permanent change to the stationary phase.

Procedure for Converting RP ↔ NP

Flush with 100% IPA

To convert any Cogent TYPE-C™ column from RP to NP or back again, purge it with 15 column volumes of 100% HPLC-grade, filtered isopropanol (IPA). This removes the previous mobile-phase system and prepares the stationary phase for the alternate mode.

Monitor Backpressure

IPA is more viscous than common reversed-phase solvents such as water or acetonitrile. Even at low flow rates, IPA can generate significant backpressure, which can damage the column if not controlled. To avoid pressure spikes:

- Reduce the flow rate before switching to IPA
- Observe the system pressure continuously
- Stay well below the column and instrument limits

The solvent itself does not cause damage—only excessive pressure does.

Resume Desired Mode

Once the IPA purge is completed without pressure issues, the column is ready to operate in the new chromatographic mode. TYPE-C columns transition rapidly and do not require extended

conditioning.

Additional Note: Using Bidentate C18™ with Non-Aqueous Solvents

Even bonded phases such as Cogent Bidentate C18™ may be used in fully non-aqueous solvent systems. This capability is especially valuable when analyzing water-labile compounds, which degrade or react in aqueous environments. The hydride surface and robust Si–C bonded ligands provide excellent stability under these conditions.

Conclusion

Cogent TYPE-C™ columns can be safely and effectively switched between Reversed Phase and Normal Phase modes using 15 column volumes of 100% IPA, provided that backpressure is carefully monitored.

The hydride-based surface supports rapid, reversible solvent exchange without hysteresis or damage. Additionally, bonded phases like Bidentate C18™ offer reliable performance in non-aqueous systems, enabling sensitive analyses such as those involving water-labile compounds.

Note: Using even the Cogent Bidentate C18™ with non aqueous solvents can provide a very useful analysis especially for water labile compounds.

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