

# Cogent TYPE-C™ Silica for Aqueous Normal-Phase (ANP) for Polar Compounds

## VALUE PROPOSITION:

An important advantage for you with Cogent™ HPLC columns is Aqueous Normal-Phase (ANP) chromatography. This valuable technique presents a key opportunity for chromatographers to improve method development time, application run time and column lifetime when separating polar compounds or non polar bio-active compounds. This technique offers improvements in run to run precision and solutions to the problem of separating closely related compounds. Aqueous Normal-Phase must be developed on Cogent TYPE-C™ Silica columns to gain significant improvements over HILIC or IEX type methods. Take a competitive edge in your industry and company by helping lower your cost of analysis, with reduced run time and reduced solvent usage. Using these columns is simple. The on-boarding process and lifetime support makes bringing them to the lab a smooth (even enjoyable) and scientifically valid process.

ANP is a technique involving the mobile phase region between Reversed-Phase (RP) and Organic-Normal-Phase (ONP). TYPE-C silica-hydrate phases have the ability to retain compounds in both the reversed-phase and normal-phase modes since the mobile phases contain high concentrations of organic solvent (acetonitrile or acetone) with a lower quantity of water. Therefore the mobile phase for ANP is both 'aqueous' and 'normal' (being less polar than the stationary phase). Thus polar solutes (such as acids and amines) are most strongly retained in ANP, with retention decreasing as the amount of water in the mobile phase increases. ANP therefore shows elution order patterns similar to that of NP (most polar last) but with mobile phase conditions similar to RP (see table below).

	Reversed-Phase (RP)	Organic Normal-Phase (ONP)	Aqueous Normal-Phase (ANP)
<b>Analytes</b>	Most polar analytes elute first, least polar last	Most polar analytes elute last, least polar first	Most polar analytes elute last, least polar first
<b>Mobile Phase</b>	Polar organic and aqueous mobile phase e.g. water/MeCN, water/MeOH	Non polar organic or moderately polar organic e.g. hexane	Polar organic and water e.g. water/MeCN, water/acetone
<b>Columns</b>	Non polar bonded phases e.g. C18, C8, Phenyl, UDC-Cholesterol, Amide	Unbonded silica or polar bonded columns e.g. Silica-C, Diol, C18	TYPE-C silica columns. e.g. Silica-C, Diamond Hydride, Diol, Amide, Phenyl, UDA, UDC-Cholesterol

Typically, the amount of the non-polar component (acetonitrile) in the mobile phase must be 60% or greater with the exact point of increased retention depending on the solute and the organic component of the mobile phase. A true ANP phase will be able to function in both the reversed-phase and normal-phase modes with only the amount of water in the mobile phase varying.

Figure 4.

