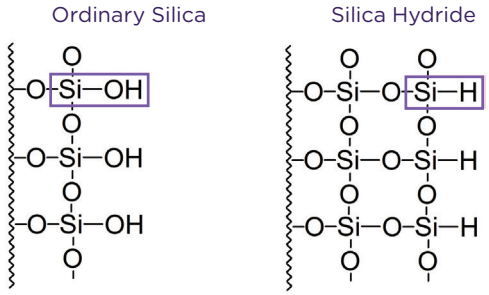
What is Cogent TYPE-C™ Silica?

VALUE PROPOSITION:

Improve your method development, run time and column lifetime by using Cogent TYPE-C™ silica-hydride technology. Get the competitive edge in your industry and make an impact on your company's bottom line by lowering the cost of analysis and possibly providing 'greener' applications by taking advantage of the time and solvent savings these columns can provide. Cogent™ columns bring modern technology to your lab for less money, while making challenging separations more robust and reliable. 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.

The introduction of Cogent silica-hydride technology offers a considerable advance in HPLC column technology. TYPE-C silica consists of high purity, low metal content silica particles that have been manufactured so that their surface layer is populated with silicon hydride (Si-H) instead of silanols (Si-OH). These phases are formed from a high purity Type B silica backbone, by replacing >95% of the surface silanols with Si-H (see Figure 1). It can be seen that the internal structure of silica-hydride and 'ordinary' silica is essentially the same, in that the siloxane bonds leading to rigidity and strength are the same. The difference is that the surface silanols are replaced with Si-H, which create a stable hydrophobic surface. The lack of silanols on the surface also means that endcapping is not required.

Figure 1.

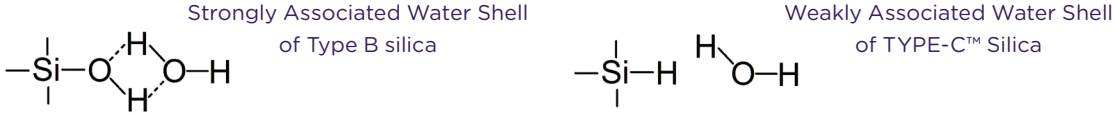


Same basic structure with different surface chemistries

TYPE-C silica-hydride has all the physical advantages of Type B silica, such as spherical shape, low metal content, high purity, high mechanical strength, narrow pore size distribution and ease of chemical modification. However, TYPE-C silica-hydride products also have many advantages over the Type B silica columns.

Due to the unique hydride surface, Cogent TYPE-C silica can bond with any chemical moiety which possesses either a terminal double or triple bond. Due to the resulting strong chemical bond between silicon and carbon, these bonded phases show increased stability and improved resistance to conditions that may cause hydrolysis in Type B silica columns.

Figure 2.



Additionally, the surface silanols that are present in all Type A and Type B silicas, even after bonding and extensive endcapping, form a strong association with water, resulting in a 'hydration shell' surrounding the silica (see Figure 2). This adsorbed water layer does not desorb unless it is baked at 600°C and kept under non-aqueous conditions. However, the silica-hydride particles of TYPE-C silica have different adsorption characteristics with only a weak attraction for water. These effects can more easily be visualised from Figure 3 on page 7.