

StableBond Family of Bonded Phases Designed for Optimum Lifetime at Low pH (≤ 3)

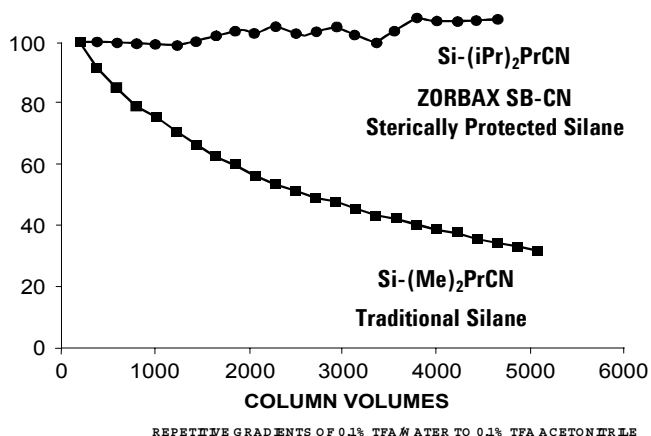
Application
Technical
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Columns may change during use, causing concern of column stability to most chromatographers. Sometimes column change is slow, and other times it is fast. Change during use depends on the type of column and the mobile phase that is used. The best way to ensure long column life is to follow the manufacturer's operating instructions. But, there are times when columns must be used in mobile phases that will cause "wear and tear" on the bonded phase and/or on the silica. In these situations, you will have to accept the change in column performance and should search for the most suitable column.

For instance, many reversed-phase column manufacturers recommend columns to be used at pH values from 3 to 8. At acidic pH, the silane bond can be hydrolyzed; this is particularly troublesome for short-chain alkyl bonded phases like C4 or CN. Behavior will vary from manufacturer to manufacturer and will depend on how the alkyl silane is attached to the silica. If the silane is attached using a dimethyl alkyl group, the bond is more prone to hydrolysis than if the silane has protecting side groups as do the Agilent ZORBAX StableBond family of bonded phases. The cyano group is often reported to be unstable compared to a C8 or a C18. Stability of StableBond CN vs. a conventional cyano column is shown in the figure below. Decrease in retention of the sample represents a loss of stationary phase. Stability of bonded phases at low pH is particularly important to those researchers using trifluoroacetic acid (TFA) in their mobile phases.

Highlights

- Agilent ZORBAX StableBond family designed for optimum life at $\text{pH} \leq 3$.
- SB-CN is a truly usable CN, unlike other manufacturer's CN columns.



Conditions:
LC: HP1050
Columns: 4.6 x 150 mm
Mobile Phase: ACN : H₂O (50:50), 1% TFA
UV: 254 nm; Flow: 1.0 mL / min.; 50°C



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