# Eclipse XDB Family of Bonded Phases Designed for Optimum Lifetime at Intermediate pH

Application

Technical

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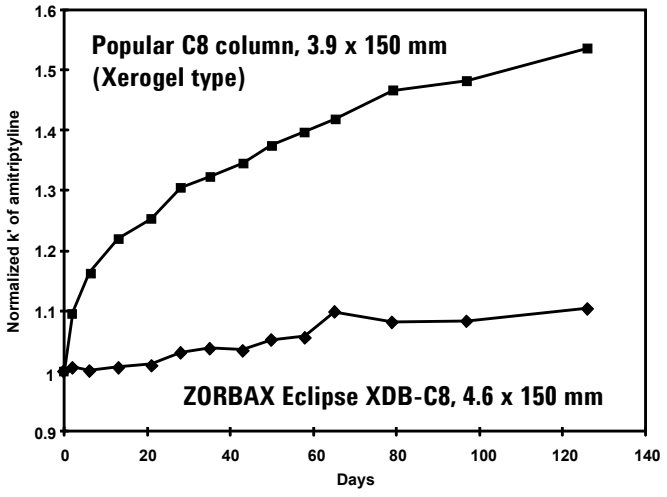
During use at intermediate and basic pH (³7), column packings can change. The change is generally believed to be the result of additional hydroxyl groups created as the silica is dissolved, rather than bonded phase hydrolysis. Compounds which react with silanols will exhibit retention time and peak-shape changes.

Below, the stability of two C8 columns is compared. One has a retention time increase for amitriptyline of 55% over a 125-day exposure to a phosphate buffer mobile phase with a pH of 7; whereas retention time on the other column changes by only 10%. There were two main differences between these two columns. The more quickly degraded material was a xerogel type of silica, and the other was a solgel type. The second difference was that the more quickly changing column was singly endcapped; whereas, the other column was doubly endcapped. Clearly, both columns "aged" during use, as exemplified by the change in the relative capacity factor (k') of the analyte.

To use an analogy, steel is painted to keep "corrosive agents" away from the surface. In HPLC, endcapping may be thought of as a coating (like paint), and double endcapping is a more effective protectant from the "corrosive" mobile phase. Thus, Agilent ZORBAX Eclipse XDB is designed for optimal lifetime in the intermediate pH range.




**Conditions:**
**LC: HP1090**
**Mobile Phase: MeOH : $H_2O$; pH 7.0; 65:35; 7mM phosphate buffer**
**UV: 254 nm; Flow: 1.0 mL / min.; 23°C**
**Inj. Vol.: 5 µL (0.08 µg / mL)**

## *Highlights*

- *Agilent ZORBAX Eclipse XDB-C8 outlives C8 bonded Xerogels.*
- *Eclipse is designed for long life at pH ³ 6-8.*

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