

SiliaChrom XT C18 and XT C18 Fidelity

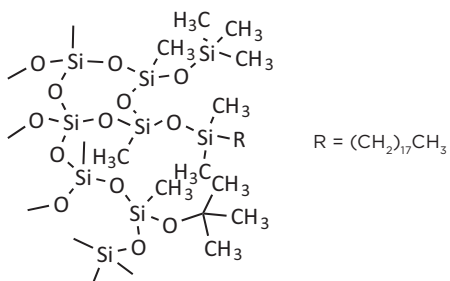
Description

SiliaChrom XT C18 and **XT C18 Fidelity** are suitable with low or high pH conditions. The key is to have a hybrid surface to reduce the solubility of silica at high pH. In fact, the SiliaChrom XT C18 and the XT C18 Fidelity silica are coated with a monomeric methyltriethoxysilane/tetraethoxysilane prepolymer, followed by a special thermic treatment to get a rigid surface that is less soluble than untreated silica itself at high pH.

The SiliaChrom XT C18 column is designed for applications at very high pH (*up to 12*) at room temperature but is also suitable for low pH (*down to 1.5*).

The SiliaChrom XT C18 Fidelity is used at high pH conditions and offers a higher thermal stability. The only difference between SiliaChrom XT C18 and the XT C18 Fidelity is the carbon loading. The SiliaChrom XT C18 Fidelity (21% C) presents a higher hydrophobic capacity than the SiliaChrom XT C18 (15% C).

Structure



SiliaChrom XT C18 and XT C18 Fidelity

Sorbent Characteristics

- Pore Size: 150 Å
- Specific Surface Area: 380 m²/g
- Particle Sizes Available: 3, 5 and 10 μm
- USP Code: L1
- Typical Carbon Loading: SiliaChrom XT C18: 15%
SiliaChrom XT C18 Fidelity: 21%

SiliaChrom XT Main Characteristics

- Excellent durability at high pH (*up to 12*)
- Ideal for basic compounds
- High thermal stability
- Ideal for auto-purification (*Prep. LC-MS*)
- Double endcapped
- Best HPLC columns for either metabolic or metabolite studies

« The high quality nature of the HPLC columns and plates from SiliCycle has allowed us to achieve a level of reproducibility with our compound libraries that would be unheard of with any other production line. »

Steven Marois from Boston University CMLD, Boston, MA, USA

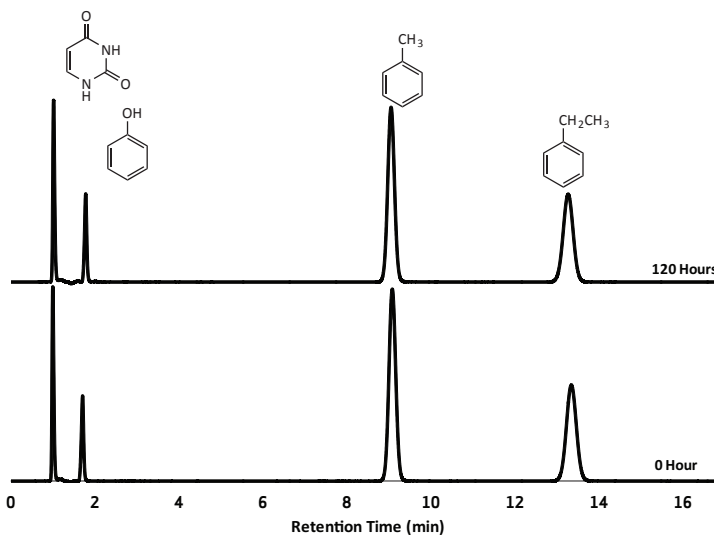


Stability of SiliaChrom XT C18 Fidelity at High pH Conditions

For some applications, it is necessary to work at high pH to increase the selectivity or to optimize peak shape. This is the case with basic organic compounds ($pK_a > 9.0$). It is the reason why it is important to have chromatographic phases stable at alkaline pH. This study demonstrates the stability of the SiliaChrom XT C18 Fidelity at high pH.

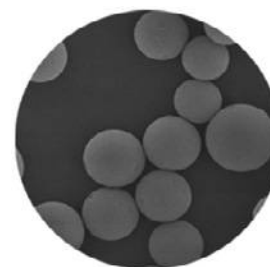
Chromatographic conditions

- **Column:** SiliaChrom XT C18 Fidelity, 5 μm
- **Column size:** 4.6 x 150 mm
SiliCycle P/N: HF171805H-N150
- **Mobile phase:** 0.2% TEA in ACN/water (55/45) (v/v)
Solution pH: 11.5
- **Temperature:** 23°C
- **Flow rate:** 1.000 mL/min
- **Detector:** UV at 270 nm

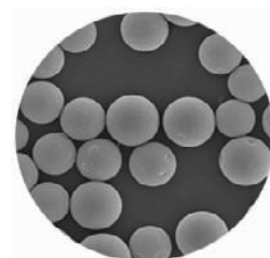


SiliaChrom XT C18 Fidelity (Ethylbenzene)

Time (hour)	RT (min)	TF (USP)	N (USP)
0	13.35	1.01	13,623
24	13.29	1.01	13,648
48	13.27	1.01	13,689
72	13.25	1.00	13,604
96	13.24	1.00	13,649
120	13.28	1.00	13,582
Mean	13.28	1.01	13,633
RSD (%)	0.29	0.54	0.28



SiliaChrom XT C18 Fidelity before



SiliaChrom XT C18 Fidelity after

The HPLC column was used under extreme pH conditions, and even after 5 days of continuous injections, the number of theoretical plates (N), the tailing factor (TF) and the retention times (RT) remain constant. The sorbent kept its chemical and structural integrity, which we have proven with similar chromatograms and scanning electron microscope (SEM) pictures before and after 120 hours of use.

In conclusion, our SiliaChrom XT C18 Fidelity column is stable at high pH conditions.