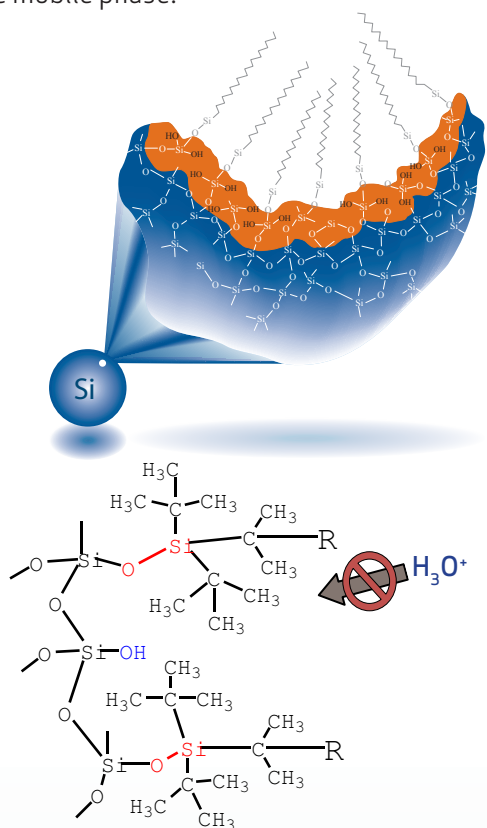


New Generation of HPLC Silica-Based C18 Column for Both Highly Acidic and Basic pH Conditions: The **SiliaChrom® SB C18** and **SiliaChrom XT C18 Fidelity**

Acidic and basic mobile phases have found widespread applications in the reversed-phase HPLC separation of many important pharmaceutical and environmental compounds. Analytes such as pharmaceuticals and biomolecules often show peak shape, retention and selectivity changes when the pH of the mobile phase is changed from neutral to acidic pH (pH <1.0) or to basic pH (pH >11.0). SiliCycle offers HPLC columns for a wide pH range.

SiliaChrom SB C18 Phase

The surface of **SiliaChrom SB C18** is treated with an organic form of silicon to increase the number of silanol groups on the surface. Following this step, the surface is bonded with an octadecyl silane with two different functions. One of them is a protecting group that shields the area under it and protects the surface from an acid attack from the mobile phase.

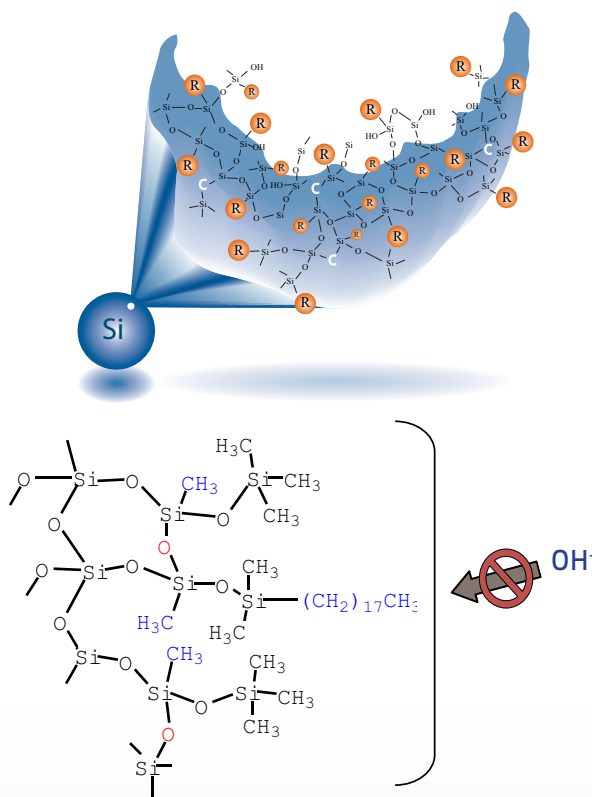


Acidic ions have limited access to break the O-Si bond (steric effect)

R: $-(\text{CH}_2)_{17}\text{CH}_3$ or $-(\text{CH}_2)_7\text{CH}_3$

SiliaChrom XT C18 Fidelity Phase

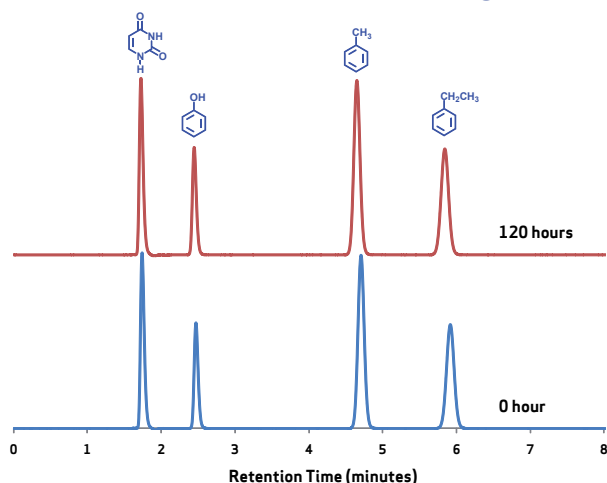
The key is to have a hybrid particle or hybrid surface to reduce the solubility of silica at high pH. In fact, **SiliaChrom XT** is silica coated with a prepolymer of ethyltriethoxysilane/ tetraethoxysilane, followed by a special thermo treatment step that produces a rigid surface that is less soluble than silica itself at high pH.



Layer protection (CH_3) and Si-O-Si bridge

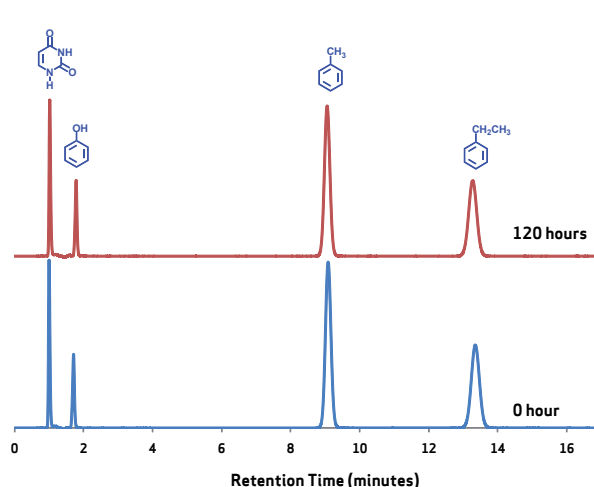
R: $-(\text{CH}_2)_{17}\text{CH}_3$

Acid and Alkaline Stability Testing - Naphthalene Peak Evaluation



Conditions

Column: SiliaChrom SB C18, 5µm
Column Size: 4.6 x 150 mm
SiliCycle PN: HPC-1105-15N
Mobile Phase: 2% TFA in ACN/Water (60/40)
Solution pH = 1.00
Temperature: 23°C
Flow Rate: 1.00 mL/min
Detector: UV at 270nm



Conditions

Column: SiliaChrom XT C18 Fidelity, 5µm
Column Size: 4.6 x 150 mm
SiliCycle PN: HPC-11005-15N
Mobile Phase: 0.2% TEA in ACN/Water (55/45)
Solution pH = 11.50
Temperature: 23°C
Flow Rate: 1.00 mL/min
Detector: UV at 270nm

SiliaChrom SB C18

Time (hour)	RT (min)	TF (USP)	N (USP)
0	5.91	1.01	14 014
24	5.89	1.02	14 085
48	5.77	1.02	14 023
72	5.83	1.02	14 076
96	5.85	1.01	14 087
120	5.84	1.02	14 050
Mean	5.85	1.02	14 056
RSD (%)	0.84	0.51	0.23

SiliaChrom XT C18 Fidelity

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

Ordering Information

Column Size ID x Length (mm)	Product Number SiliaChrom		Column Size ID x Length (mm)	Product Number SiliaChrom	
	SB C18	XT C18 Fidelity		SB C18	XT C18 Fidelity
Characteristics: Particle size: 3µm Pore size: 150Å			Characteristics: Particle size: 5µm Pore size: 150Å		
2.1 x 30	HPC-1107-03G	HPC-11007-03G	3.0 x 50	HPC-1114-05H	HPC-11016-05H
2.1 x 50	HPC-1108-05G	HPC-11008-05G	3.0 x 100	HPC-1115-10H	HPC-11017-10H
3.0 x 30	HPC-1117-03H	HPC-11021-03H	3.0 x 150	HPC-1116-15H	HPC-11018-15H
3.0 x 50	HPC-1118-05H	HPC-11018-05H	4.6 x 100	HPC-1104-10N	HPC-11004-10N
4.6 x 50	HPC-1101-05N	HPC-11001-05N	4.6 x 150	HPC-1105-15N	HPC-11005-15N
4.6 x 100	HPC-1102-10N	HPC-11002-10N	4.6 x 200	HPC-1106-20N	HPC-11006-20N
4.6 x 150	HPC-1103-15N	HPC-11003-15N	4.6 x 250	HPC-1112-25N	HPC-11011-25N

Other sizes (analytical, semi-preparative, preparative and guard cartridges), particle sizes and phases (C8) also available. Contact us!