GL Sciences

An HPLC Column

InertSustain™ C18

Inertsil continues to evolve to **InertSustain**･･･

Physical Properties

Silica:	Newly Developed Silica Gel	Particle Size:	3 µm, 5 µm
Bonded Phase:	Octadecyl Groups	Surface Area:	350 m^2/g
End-capping:	Complete	Pore Size:	100 Å
Carbon Loading:	14 %	Pore Volumne:	0.85 mL/g
USP Code:	L1	pH Range:	1～10

Inertness and Durability combined in a new HPLC column

InertSustain™ C18

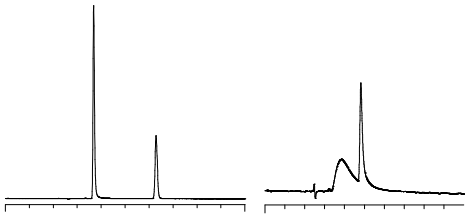
Generally, silica based columns are mechanically stable and provide high efficiencies, however, they cannot be used under alkaline conditions and their residual silanol groups tend to adsorb organic bases. InertSustain C18 employs a radically new type of silica, in which the surface of the silica is uniquely modified, enabling precise control of the silica properties. InertSustain C18 inherits the advantages of all the current Inertsil HPLC columns (e.g., extremely low operating back pressure, superior inertness to typically any analytes, high efficiency and compatibility with a wide range of solvents), but now can be used for wide pH analysis with consistent performance from column to column and lot to lot.

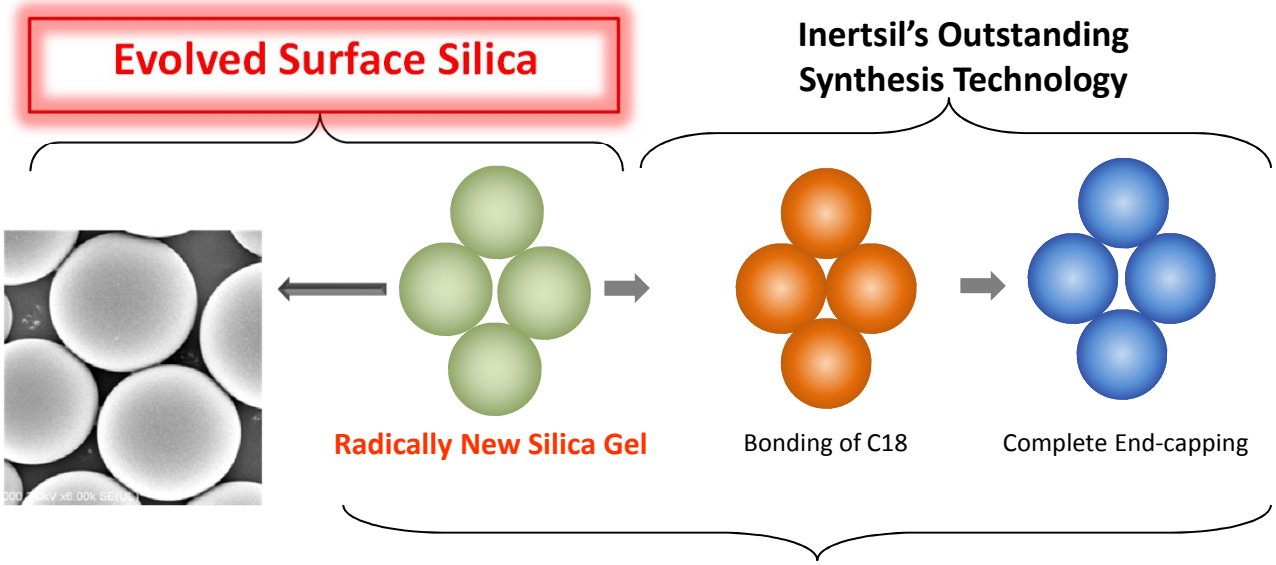
BENEFITS

Inert : **Superior Peak Shape with Better Resolution**

Sustain : **Wide pH Analysis with Endurance at High pH**

C18 : **Strong Retentivity, Low Operating Pressure**





The Fusion of Evolved Surface Silica and Inertsil Technology

Introducing a Radically New Type of Silica

It was not possible to end-cap 100% of residual silanols using traditional chemical modification procedures. GL Sciences studied the possibility of developing a radically new type of silica, a silica that would provide both high intertness (base deactivation) and durability at a wide range of pH.

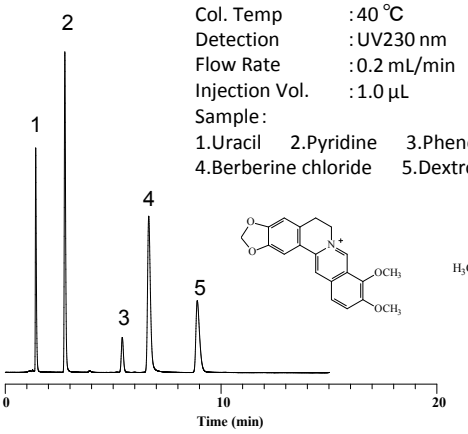
Our focused R&D effort lead to the development of **"Evolved Surface Silica"**, in which adsorption sites and silanol distribution are strictly controlled. This process enables delivery of an HPLC column with the most advanced combination of base deactivation and chemical compatibility.

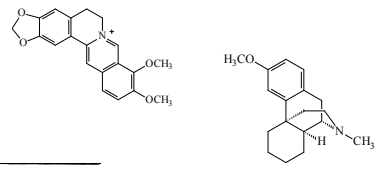
The introduction of Evolved Surface Silica and our cutting-edge chemical bonding technology make InertSustain C18 compatible with100 % aqueous mobile phases, while maintaining strong non-polar retentivity. InertSustain C18 offers superb separation power with unmatched inertness to virtually any type of analyte.

Symmetric and Sharp peaks for Pharmaceutical Bases, Acids, Chelating compounds, and Zwitterions

Basic Compound

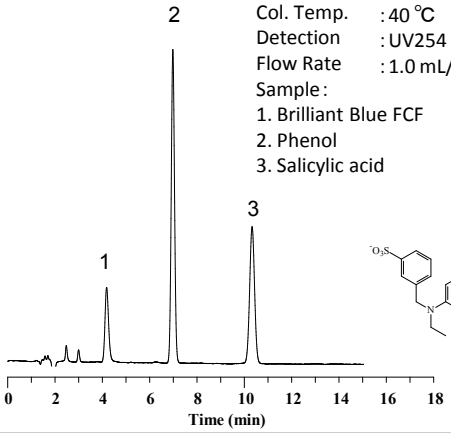
Column : InertSustain C18 3 µm
2.1 mm I.D. × 150 mm
Eluent : CH_3CN / 25 mM Phosphate Buffer(pH=7.0) = 30 / 70
Col. Temp : 40 ℃
Detection : UV230 nm
Flow Rate : 0.2 mL/min
Injection Vol. : 1.0 µL
Sample :
1.Uracil 2.Pyridine 3.Phenol
4.Berberine chloride 5.Dextromethorphan

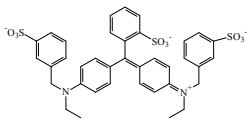




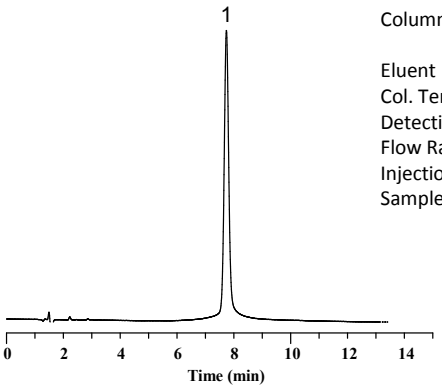
Acidic Compound

Column : InertSustain C18 5 µm
4.6 mm I.D. × 150 mm
Eluent : CH_3CN / 0.1%H_3PO_4 = 25 / 75
Col. Temp. : 40 ℃
Detection : UV254 nm
Flow Rate : 1.0 mL/min
Sample :
1. Brilliant Blue FCF
2. Phenol
3. Salicylic acid

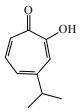




Chelating Compound

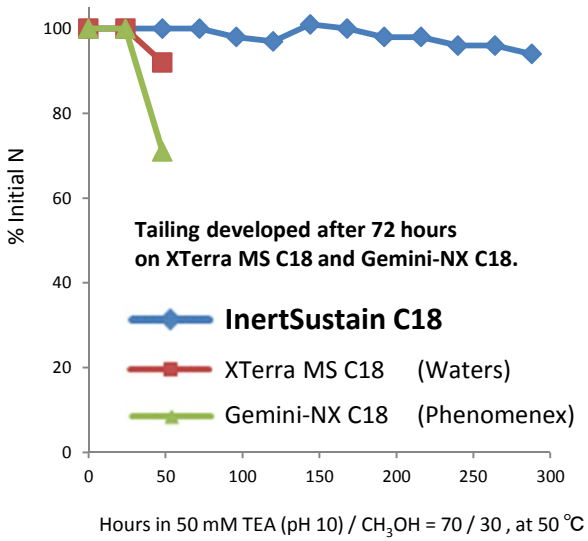


Column : InertSustain C18 5 µm
4.6 mm I.D. × 150 mm
Eluent : CH_3CN / 0.1% H_3PO_4 = 40 / 60
Col. Temp. : 40 ℃
Detection : 254 nm
Flow Rate : 1.0 mL /min
Injection Vol. : 1 .0 µL
Sample : Hinokitiol



Wide pH compatibility with Long Column Lifetime

As shown in the experiment below, InertSustain C18 maintained high efficiency and peak shape for 300 hours while other “wide pH” column brands failed.



Hours in 50 mM TEA (pH 10) / CH_3OH = 70 / 30 , at 50 ℃

●Purging Conditions

Column : 4.6 mm I.D. × 150 mm 5 µm
Eluent : A) 50 mM Triethylamine (pH 10.0)
B) CH_3OH
A / B = 70 / 30. V/V.
Flow Rate : 1.0 mL / min
Col. Temp. : 50 ℃

●Analytical Conditions

Column : 4.6 mm I.D. × 150 mm 5 µm
Eluent : CH_3CN / H_2O (65 / 35)
Flow Rate : 1.0 mL / min
Col. Temp. : 40℃
Detection : UV 254 nm (Naphthalene)

Column Ordering Guide

2um will be available from 2011.

Particle Size: 3 µm Max. Operating Pressure: 20 MPa (200 Bar)	Length/I.D. (mm)	1.0	1.5		
	30	5020-14301	5020-14311		
	50	5020-14302	5020-14312		
	75	5020-14303	5020-14313		
	100	5020-14304	5020-14314		
	150	5020-14305	5020-14315		
	250	5020-14306	5020-14316		
	Length/I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-07411	5020-07421	5020-07431	5020-07441
	50	5020-07412	5020-07422	5020-07432	5020-07442
	75	5020-07413	5020-07423	5020-07433	5020-07443
	100	5020-07414	5020-07424	5020-07434	5020-07444
	150	5020-07415	5020-07425	5020-07435	5020-07445
	250	5020-07416	5020-07426	5020-07436	5020-07446

HP Series Particle Size: 3 µm Max. Operating Pressure: 50 MPa (500 Bar)	Length/I.D. (mm)	2.1	3.0	4.6
	30	5020-14411	5020-14421	5020-14441
	50	5020-14412	5020-14422	5020-14442
	75	5020-14413	5020-14423	5020-14443
	100	5020-14414	5020-14424	5020-14444
	150	5020-14415	5020-14425	5020-14445
	250	5020-14416	5020-14426	5020-14446

Particle Size: 5 µm Max. Operating Pressure: 20 MPa (200 Bar)	Length/I.D. (mm)	1.0	1.5		
	30	5020-14201	5020-14211		
	50	5020-14202	5020-14212		
	75	5020-14203	5020-14213		
	100	5020-14204	5020-14214		
	150	5020-14205	5020-14215		
	250	5020-14206	5020-14216		
	Length/I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-07311	5020-07321	5020-07331	5020-07341
	50	5020-07312	5020-07322	5020-07332	5020-07342
	75	5020-07313	5020-07323	5020-07333	5020-07343
	100	5020-07314	5020-07324	5020-07334	5020-07344
	150	5020-07315	5020-07325	5020-07335	5020-07345
	250	5020-07316	5020-07326	5020-07336	5020-07346

* End-fittings are 1/16” Waters –compatible.
* Other column sizes available upon request
* The specification and the column type are subject to change without notice due to continual improvements.
* All brand names and product names are trademarks of GL Sciences Inc.

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