

**AUTHORIZED DISTRIBUTOR**

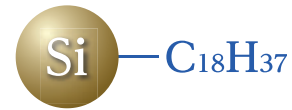
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# Reversed Phase Columns

• InertSustain C18 .....	002	• InertSustainSwift C8 .....	030
• InertSustain AQ-C18 .....	006	• Inertsil C8-4 .....	032
• InertSustainSwift C18 .....	008	• Inertsil C8-3 .....	034
• Inertsil ODS-HL .....	010	• Inertsil C8 .....	036
• Inertsil ODS-4 .....	012	• Inertsil C4 .....	037
• Inertsil ODS-3 .....	014	• InertSustain PFP .....	038
• Inertsil ODS-4V .....	016	• InertSustain Phenylhexyl .....	040
• Inertsil ODS-3V .....	017	• InertSustain Phenyl .....	042
• Inertsil ODS-SP .....	018	• Inertsil Ph-3 .....	044
• Inertsil ODS-P .....	020	• Inertsil Ph .....	046
• Inertsil ODS-EP .....	022	• InertSustain Cyano .....	048
• Inertsil ODS-80A .....	024	• Inertsil WP300 C18 .....	050
• Inertsil ODS-2 .....	026	• Inertsil WP300 C8 .....	052
• Inertsil ODS .....	027	• Inertsil WP300 C4 .....	053
• InertSustain C8 .....	028		

# InertSustain C18

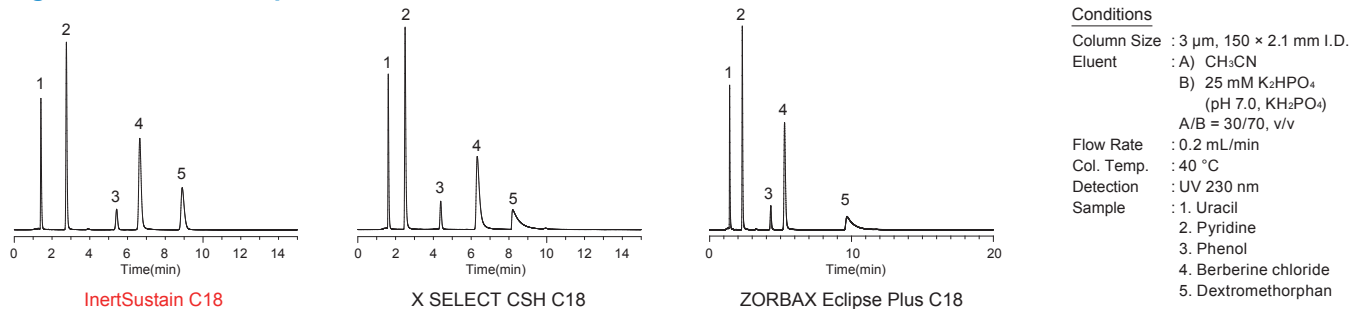
- Silica : High Purity ES Silica Gel
- Particle Size : 2 µm, 3 µm, 5 µm
- Surface Area : 350 m<sup>2</sup>/g
- Pore Size : 100 Å (10 nm)
- Pore Volume : 0.85 mL/g
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 14 %
- USP Code : L1
- pH Range : 1 - 10



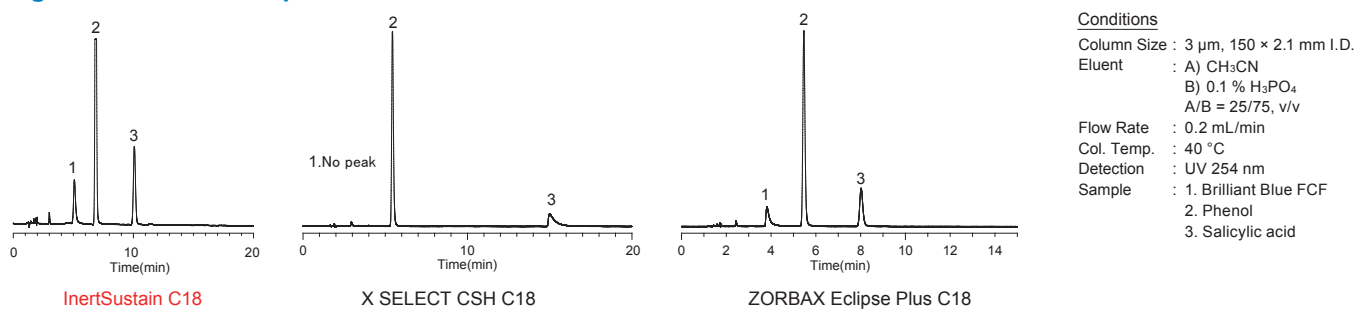
Generally, silica based columns are mechanically stable and provide high efficiencies, however, they cannot be used under alkaline conditions and their residual silanol groups tend to adsorb organic bases. InertSustain C18 employs a radically new type of silica, in which the surface of the silica is 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.

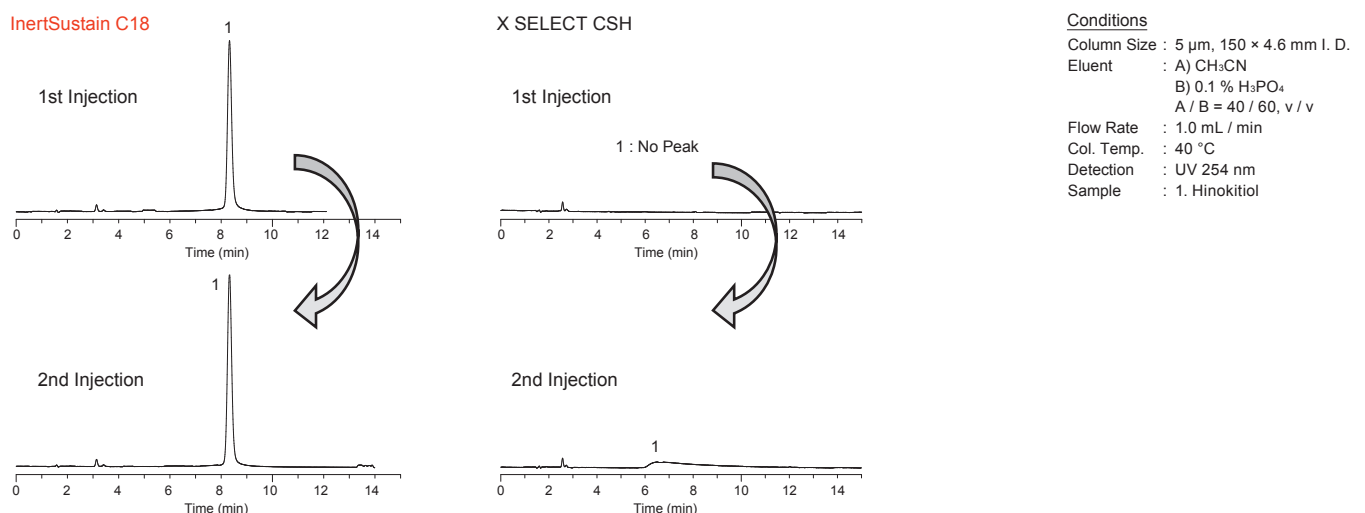
**Figure 1 : Basic Compounds**



**Figure 2 : Acidic Compounds**



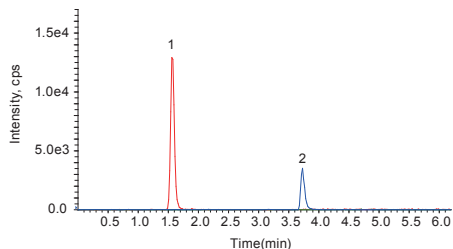
**Figure 3 : Chelating Compounds**



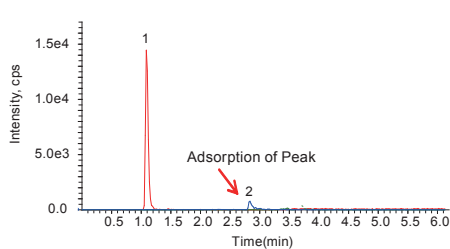
### Comparison of Performance to Core-Shell Columns

As shown below, core-shell columns show peak tailing due to the presence of trace metals or silanol groups in their silica gel. Quantitative and qualitative analysis will be a source of concern since the adsorption of compounds can be expected.

InertSustain C18 (3 µm)



Kinetex C18 (1.7 µm)

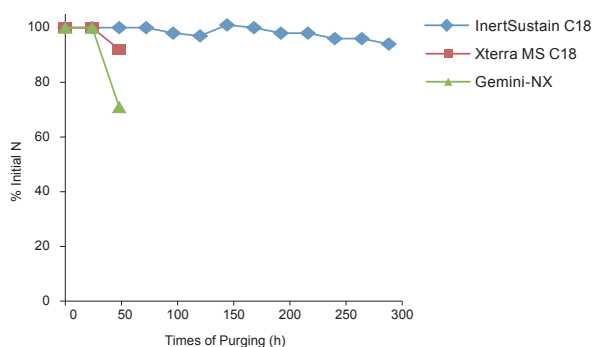


**Conditions**

Column : ODS Column(100 × 2.1 mm I.D.)  
 Eluent : A) 2 mM CH<sub>3</sub>COONH<sub>4</sub> in 95 % CH<sub>3</sub>CN  
 B) 2 mM CH<sub>3</sub>COONH<sub>4</sub> in 10 % CH<sub>3</sub>CN  
 A / B = 20 / 80 - 2 min - 100 / 0 - 2.5 min  
 - 100 / 0 - 0.01 min - 20 / 80, v / v  
 (Mixed by a gradient mixer)  
 Flow Rate : 0.3 mL / min  
 Col. Temp. : 40 °C  
 Detection : LC / MS / MS  
 (4000 QTRAP® : ESI, Positive, MRM)  
 Injection Vol. : 10 µL  
 Sample : 1. Nitrofurazone (100 µg / L)  
 2. Lasalocid A (100 µg / L)

### Wide pH compatibility with Long Column Lifetime

As shown in the experiment below, due to the introduction of Evolved Surface Silica, InertSustain C18 maintained high efficiency and peak shape for 300 hours while other "wide pH" column brands failed.



**Purging Conditions**

Column Size : 5 µm, 150 × 4.6 mm I.D.  
 Eluent : A) CH<sub>3</sub>OH  
 B) 50 mM Triethylamine (pH 10.0)  
 A/B = 30/70, v/v  
 Flow Rate : 1.0 mL/min  
 Col. Temp. : 50 °C

**Analytical Conditions**

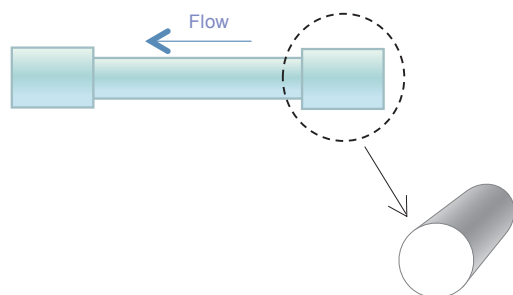
Eluent : A) CH<sub>3</sub>CN  
 B) H<sub>2</sub>O  
 A/B = 65/35, v/v  
 Flow Rate : 1.0 mL/min  
 Col. Temp. : 40 °C  
 Detection : UV 254 nm  
 Sample : Naphthalene

### Experience the InertSustain! (Inertness and Sustainability)

Highly end-capped ODS column such as InertSustain C18 offers an opportunity to flush out contaminants from the column surface easily using an organic solvent. Coffee melanoidins are brown heterogeneous polymers contained in coffee. Its components are not clarified yet, but it is considered to contain several ionic compounds, which a poorly end-capped column will adsorb those ionic compounds leading to short column lifetime.

As for ODS column, which is commonly used for HPLC and LC/MS/MS, its inertness has an influence not only on peak shape but also detection sensitivity and durability. It is highly recommended to use highly end-capped column which provides good peak shape for both basic and acidic compounds such as InertSustain C18.

The packing material was visually confirmed by removing the column



	Brand A	InertSustain C18
Before Experiment		
↓		
Injection of Coffee		
↓		
After loading Coffee		
↓		
Washing the column with CH <sub>3</sub> CN 100 %, 10 min.		

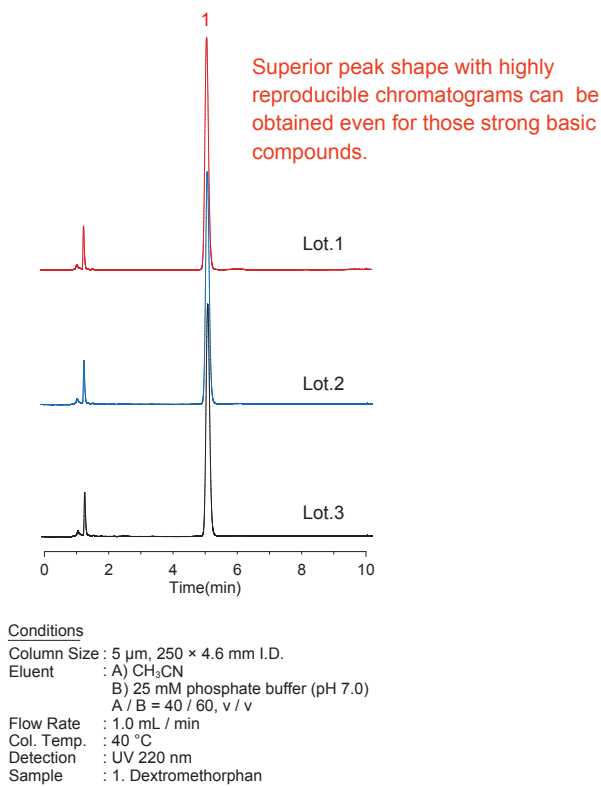
Ionic contaminants were hard to be washed out from the Column

# InertSustain C18

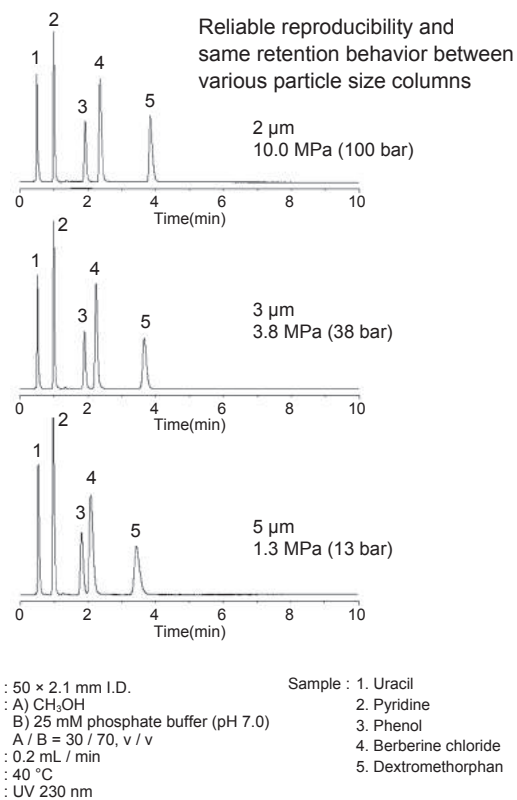
## Reliable Reproducibility, Performance and Quality

Rigorous quality control of physical properties and strict chromatographic tests for inertness and selectivity, contribute to the production of InertSustain C18 with an outstanding reproducibility and long column lifetime.

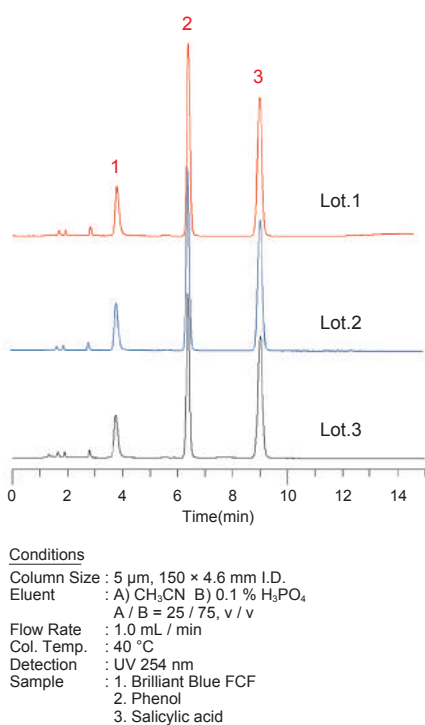
**Figure 1 : Strong Basic Compound Test**



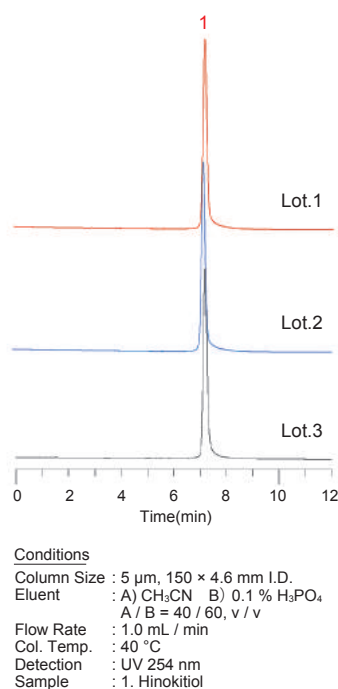
**Same Retention Behavior between Various Particle Sizes**



**Figure 2 : Strong Acidic Compound Test**



**Figure 3 : Strong Chelating Compound Test**



## Analytical Columns

Particle Size: 2 µm	Length \ I.D. (mm)	2.1	3.0		
	30	5020-14351	5020-14361		
	50	5020-14352	5020-14362		
	75	5020-14353	5020-14363		
	100	5020-14354	5020-14364		
	150	5020-14355	5020-14365		
HPSeries Particle Size: 3 µm 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: 3 µm	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
	125	5020-07417	5020-07427	5020-07437	5020-07447
	150	5020-07415	5020-07425	5020-07435	5020-07445
250	5020-07416	5020-07426	5020-07436	5020-07446	
Particle Size: 5 µm	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
	125	5020-07317	5020-07327	5020-07337	5020-07348
	150	5020-07315	5020-07325	5020-07335	5020-07345
250	5020-07316	5020-07326	5020-07336	5020-07346	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-19250	5020-19249	5020-19300	5020-19299
1.5, 2.1		1.5	5020-19350	5020-19349	5020-19400	5020-19399
2.1, 3.0		3.0	5020-19150	5020-19149	5020-19200	5020-19199
4.0, 4.6		4.0	5020-19050	5020-19049	5020-19100	5020-19099
2.1, 3.0	20	3.0	5020-19550	5020-19549	5020-19600	5020-19599
4.0, 4.6		4.0	5020-19450	5020-19449	5020-19500	5020-19499
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

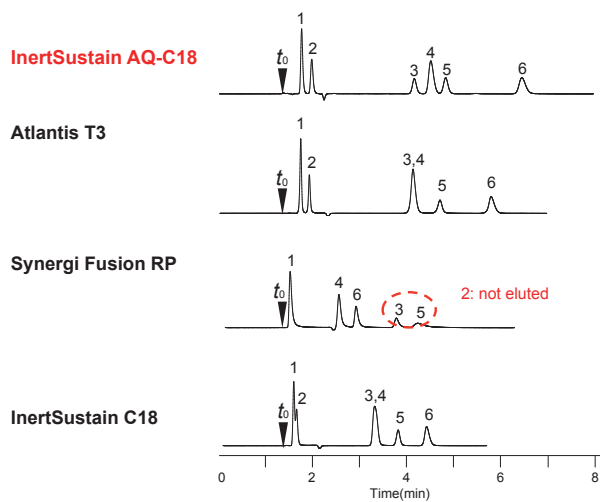
# InertSustain AQ-C18

- Base Material : High Purity ES Silica Gel
- Particle Size : 1.9  $\mu\text{m}$ , 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 350  $\text{m}^2/\text{g}$
- Pore Size : 100  $\text{\AA}$  (10 nm)
- Pore Volume : 0.85 mL/g
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 13%
- USP Code : L1, L96
- pH Range : 1 - 10



InertSustain AQ-C18 columns are designed to achieve strong retention for highly polar compounds, which is the most challenging goals in developing reversed phase methods. The optimization of bonding of the C18 groups at equal distance to the silica gel enable InertSustain AQ-C18 to offer significant retention for highly polar compounds even under water rich mobile phases.

**Figure 1 : Superior Retention for Highly Polar Compound**



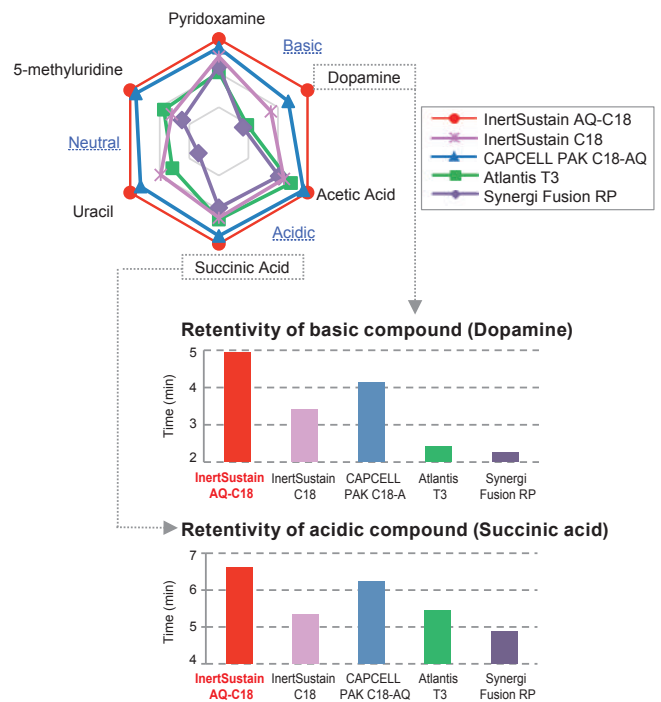
**Conditions**

Column : 5  $\mu\text{m}$ , 150  $\times$  4.6 mm I.D.  
 Eluent : 0.1 % HCOOH in H<sub>2</sub>O  
 Flow Rate : 1.0 mL/min  
 Col. Temp. : 40  $^{\circ}\text{C}$   
 Detection : UV 210 nm

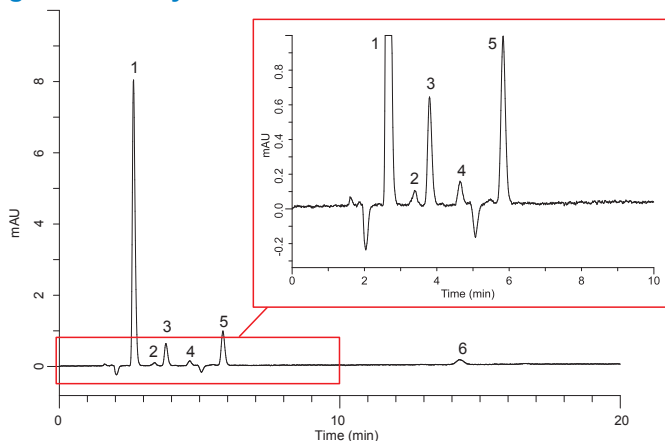
**Sample :**

1. Pyridoxamine (Vitamin B6)
2. Thiamin (Vitamin B1)
3. Nicotinic acid (Vitamin B3)
4. Pyridoxal (Vitamin B6)
5. Nicotinamide (Vitamin B3)
6. Pyridoxine (Vitamin B6)

**Figure 2: InertSustain AQ-C18 Provided Strong Retention for all Basic, Neutral and Acidic Compounds under 100% Water Mobile Phase**



**Figure 3 : Analysis of Nucleotide in Fish Meat**



**Conditions**

Column : InertSustain AQ-C18 (5  $\mu\text{m}$ , 150  $\times$  4.6 mm I.D.)  
 Eluent : 50 mM K<sub>2</sub>HPO<sub>4</sub> in H<sub>2</sub>O (pH 7.0, H<sub>3</sub>PO<sub>4</sub>)\*  
 Flow Rate : 1.0 mL/min  
 Col.Temp. : 40  $^{\circ}\text{C}$   
 Detection : UV 260 nm  
 Injection Vol. : 1  $\mu\text{L}$

- Sample :**
1. IMP
  2. ATP
  3. ADP
  4. AMP
  5. Hyp
  6. Ino (each 5 mg/L)

\* ; Equilibrate the column CH<sub>3</sub>CN/H<sub>2</sub>O=1/1,v/v after the analysis.  
 When storing the column for a long period of time, store it with 100% CH<sub>3</sub>CN 100%.

## Analytical Columns

Particle Size: 1.9 µm	Length \ I.D. (mm)	2.1	3.0		
	50	5020-89938	5020-89941		
	100	5020-89939	5020-89942		
	150	5020-89940	5020-89943		
HP Series Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	30	5020-89920	5020-89926	5020-89932	
	50	5020-89921	5020-89927	5020-89933	
	75	5020-89922	5020-89928	5020-89934	
	100	5020-89923	5020-89929	5020-89935	
	150	5020-89924	5020-89930	5020-89936	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-89871	5020-89877		
	50	5020-89872	5020-89878		
	75	5020-89873	5020-89879		
	100	5020-89874	5020-89880		
	150	5020-89875	5020-89881		
	250	5020-89876	5020-89882		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-89831	5020-89839	5020-89847	5020-89855
	50	5020-89832	5020-89840	5020-89848	5020-89856
	75	5020-89833	5020-89841	5020-89849	5020-89857
	100	5020-89834	5020-89842	5020-89850	5020-89858
125	5020-89835	5020-89843	5020-89851	5020-89859	
150	5020-89836	5020-89844	5020-89852	5020-89860	
250	5020-89837	5020-89845	5020-89853	5020-89861	
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-89741	5020-89747		
	50	5020-89742	5020-89748		
	75	5020-89743	5020-89749		
	100	5020-89744	5020-89750		
	150	5020-89745	5020-89751		
	250	5020-89746	5020-89752		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-89701	5020-89709	5020-89717	5020-89725
	50	5020-89702	5020-89710	5020-89718	5020-89726
	75	5020-89703	5020-89711	5020-89719	5020-89727
	100	5020-89704	5020-89712	5020-89720	5020-89728
125	5020-89705	5020-89713	5020-89721	5020-89729	
150	5020-89706	5020-89714	5020-89722	5020-89730	
250	5020-89707	5020-89715	5020-89723	5020-89731	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-89910	5020-89808	5020-89911	5020-89809
1.5, 2.1		1.5	5020-89912	5020-89810	5020-89913	5020-89811
2.1, 3.0		3.0	5020-89908	5020-89806	5020-89909	5020-89807
4.0, 4.6		4.0	5020-89906	5020-89804	5020-89907	5020-89805
2.1, 3.0	20	3.0	5020-89916	5020-89814	5020-89917	5020-89815
4.0, 4.6		4.0	5020-89914	5020-89812	5020-89915	5020-89813
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

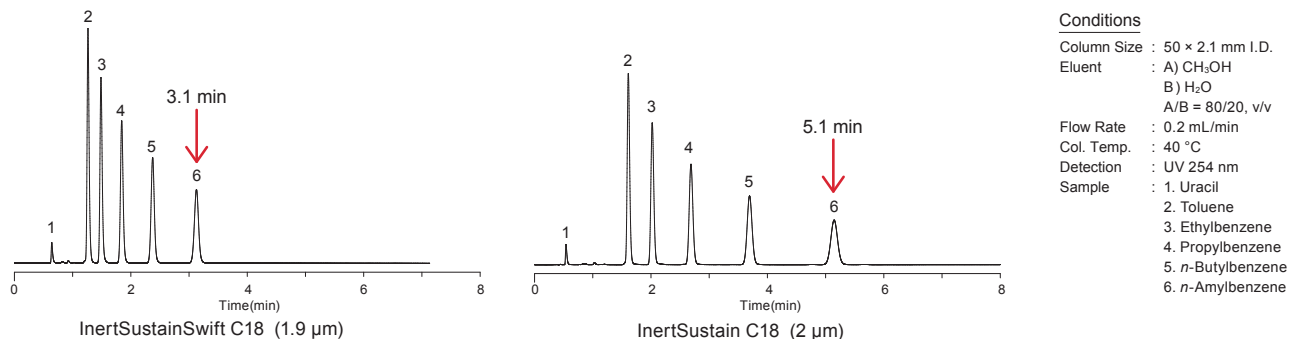
# InertSustainSwift C18

- Silica : High Purity ES Silica Gel
- Particle Size : 1.9  $\mu\text{m}$ , 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 200  $\text{m}^2/\text{g}$
- Pore Size : 200  $\text{\AA}$  (20 nm)
- Pore Volume : 1.00 mL/g
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 9.0 %
- USP Code : L1
- pH Range : 1.0 - 10.0

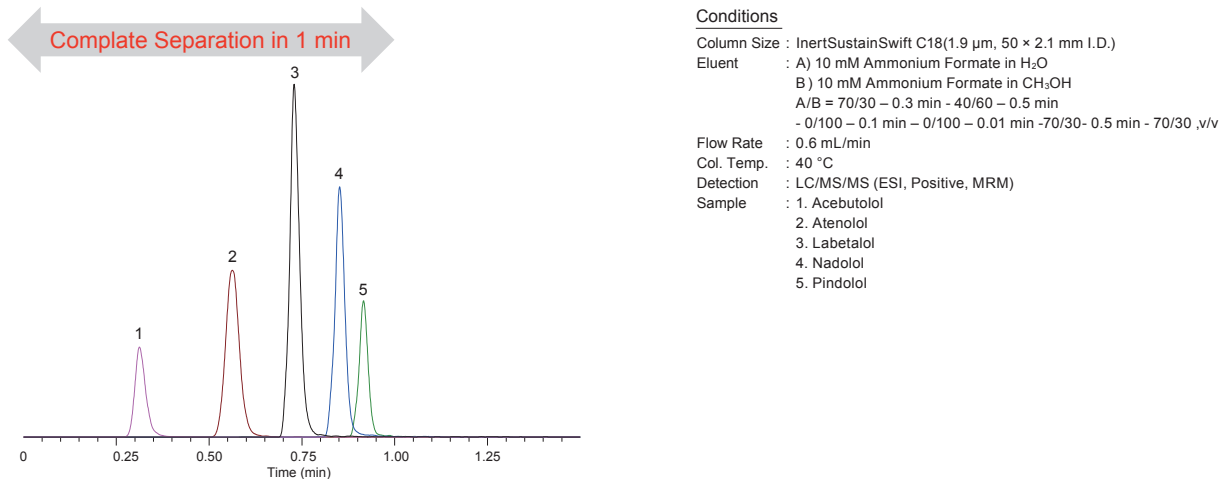


As shown in Figure 1, InertSustainSwift C18 maintains the same extreme inertness, wide pH range and provide rapid separations with symmetric peaks. The optimization of surface area, pore size and chemical bonding delivers superior peak shapes (Figure 2). Figure 3 proves InertSustainSwift C18 is also ideal for LC/MS/MS applications which offer highly sensitive results and enables MS compatible buffers to be used due to the extremely inert silica gel.

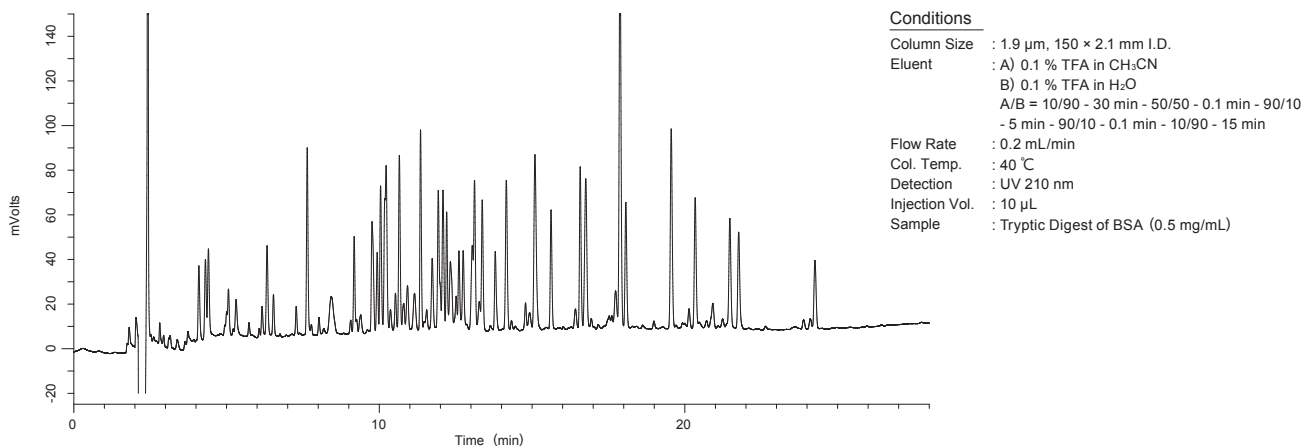
**Figure 1 : Comparison of Retentivity**



**Figure 2 : Rapid LC/MS/MS Analysis of Basic Drugs**



**Figure 3 : Analysis of BSA Digests**





## Analytical Columns

Particle Size: 1.9 µm	Length \ I.D. (mm)	2.1	3.0		
	50	5020-88228	5020-88233		
	100	5020-88230	5020-88235		
	150	5020-88231	5020-88236		
HP Series Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	50	5020-88210	5020-88216	5020-88222	
	100	5020-88212	5020-88218	5020-88224	
	150	5020-88213	5020-88219	5020-88225	
	250	5020-88214	5020-88220	5020-88226	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-88160	5020-88166		
	50	5020-88161	5020-88167		
	75	5020-88162	5020-88168		
	100	5020-88163	5020-88169		
	150	5020-88164	5020-88170		
	250	5020-88165	5020-88171		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-88124	5020-88131	5020-88138	5020-88145
	50	5020-88125	5020-88132	5020-88139	5020-88146
	75	5020-88126	5020-88133	5020-88140	5020-88147
	100	5020-88127	5020-88134	5020-88141	5020-88148
125	5020-88253	5020-88254	5020-88255	5020-88256	
150	5020-88128	5020-88135	5020-88142	5020-88149	
250	5020-88129	5020-88136	5020-88143	5020-88150	
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-88038	5020-88044		
	50	5020-88039	5020-88045		
	75	5020-88040	5020-88046		
	100	5020-88041	5020-88047		
	150	5020-88042	5020-88048		
	250	5020-88043	5020-88049		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-88001	5020-88008	5020-88015	5020-88022
	50	5020-88002	5020-88009	5020-88016	5020-88023
	75	5020-88003	5020-88010	5020-88017	5020-88024
	100	5020-88004	5020-88011	5020-88018	5020-88025
125	5020-88249	5020-88250	5020-88251	5020-88252	
150	5020-88005	5020-88012	5020-88019	5020-88026	
250	5020-88006	5020-88013	5020-88020	5020-88027	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-88199	5020-88105	5020-88200	5020-88106
1.5, 2.1		1.5	5020-88201	5020-88107	5020-88202	5020-88108
2.1, 3.0		3.0	5020-88197	5020-88103	5020-88198	5020-88104
4.0, 4.6		4.0	5020-88195	5020-88101	5020-88196	5020-88102
2.1, 3.0	20	3.0	5020-88205	5020-88111	5020-88206	5020-88112
4.0, 4.6		4.0	5020-88203	5020-88109	5020-88204	5020-88110
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

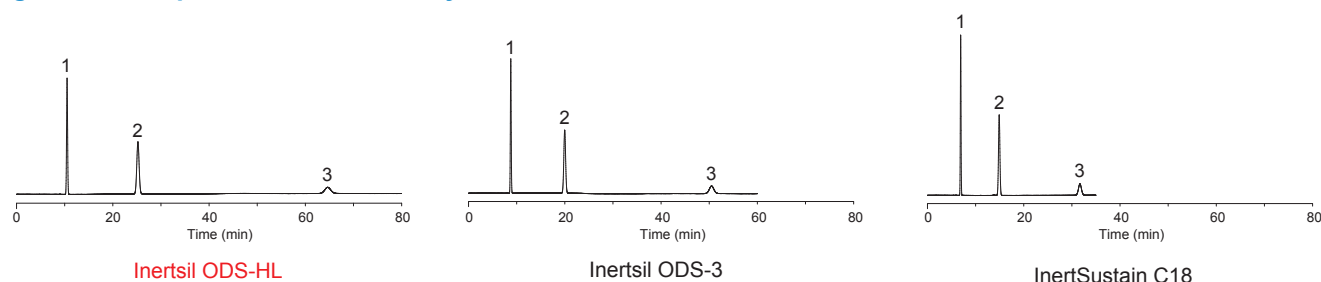
# Inertsil ODS-HL

- **Base Material** : 3 Series High Purity Silica Gel
- **Particle Size** : 3  $\mu\text{m}$ , 5  $\mu\text{m}$ , 10  $\mu\text{m}$
- **Surface Area** : 450  $\text{m}^2/\text{g}$
- **Pore Size** : 100  $\text{\AA}$  (10 nm)
- **Pore Volume** : 1.05  $\text{mL/g}$
- **Functional Group** : Octadecyl
- **End-capping** : Yes
- **Carbon Loading** : 23%
- **USP Code** : L1
- **pH Range** : 2 - 7.5



Inertsil ODS-HL employs a highly inert packing material which provides pure hydrophobic interaction between analytes without generating any secondary interaction delivering sharp peaks.

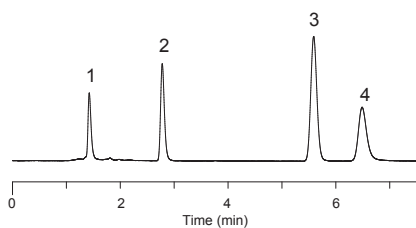
**Figure 1 : Comparison of Retentivity**



**Conditions**  
 Column Size : 5  $\mu\text{m}$ , 150  $\times$  4.6 mm I.D.      Sample : 1. Vitamin K2 (MK-4)  
 Eluent :  $\text{CH}_3\text{CN}$       2. Vitamin K1  
 Flow Rate : 1.0  $\text{mL/min}$       3. Vitamin K2 (MK-7)  
 Col. Temp. : 40  $^\circ\text{C}$       (50  $\text{mg/L}$  each)  
 Detection : UV 270 nm  
 Injection Vol. : 5  $\mu\text{L}$

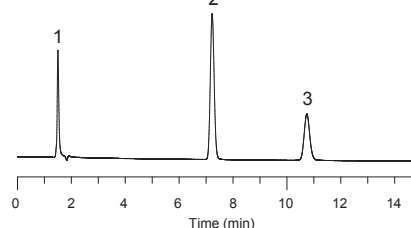
**Figure 2 : Benefits of Highly Inert Packing Material**

**Bisic Compound Test**



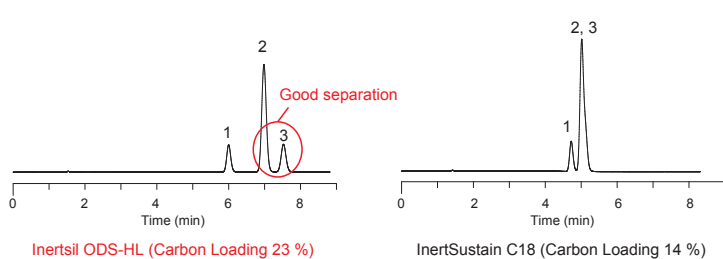
**Conditions**  
 Column Size : 5  $\mu\text{m}$ , 150  $\times$  4.6 mm I.D.      Sample : 1. Uracil  
 Eluent : A)  $\text{CH}_3\text{CN}$       2. Pyridine  
           B) 25 mM  $\text{K}_2\text{HPO}_4$  (pH 7.0)      3. Phenol  
           A/B = 30/70, v/v      4. Berberine  
 Flow Rate : 1.0  $\text{mL/min}$   
 Col.Temp. : 40  $^\circ\text{C}$   
 Detection : UV 230 nm

**Acidic Compound Test**

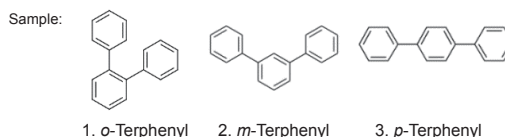


**Conditions**  
 Column Size : 5  $\mu\text{m}$ , 150  $\times$  4.6 mm I.D.      Sample : 1. Uracil  
 Eluent : A)  $\text{CH}_3\text{CN}$       2. Phenol  
           B) 0.1 %  $\text{H}_3\text{PO}_4$       3. Salicylic acid  
           A/B = 25/75, v/v  
 Flow Rate : 1.0  $\text{mL/min}$   
 Col.Temp. : 40  $^\circ\text{C}$   
 Detection : UV 230 nm

**Figure 3 : High - Density Bouding of C18 Phase Delivers Alternative Selectivity to Conventional C18 Columns**



**Conditions**  
 Column Size : 5  $\mu\text{m}$ , 150  $\times$  4.6 mm I.D.  
 Eluent : A)  $\text{CH}_3\text{CN}$  B)  $\text{H}_2\text{O}$   
           A/B = 85/15, v/v  
 Flow Rate : 1.0  $\text{mL/min}$   
 Col.Temp. : 40  $^\circ\text{C}$   
 Detection : UV 254 nm



## Analytical Columns

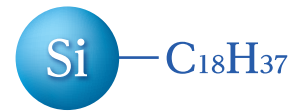
HP Series Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	30	5020-87315	5020-87321	5020-87327	
	50	5020-87316	5020-87322	5020-87328	
	75	5020-87317	5020-87323	5020-87329	
	100	5020-87318	5020-87324	5020-87330	
	150	5020-87319	5020-87325	5020-87331	
	250	5020-87320	5020-87326	5020-87332	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-87266	5020-87272		
	50	5020-87267	5020-87273		
	75	5020-87268	5020-87274		
	100	5020-87269	5020-87275		
	150	5020-87270	5020-87276		
	250	5020-87271	5020-87277		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-87226	5020-87234	5020-87242	5020-87250
	50	5020-87227	5020-87235	5020-87243	5020-87251
	75	5020-87228	5020-87236	5020-87244	5020-87252
	100	5020-87229	5020-87237	5020-87245	5020-87253
	125	5020-87230	5020-87238	5020-87246	5020-87254
	150	5020-87231	5020-87239	5020-87247	5020-87255
250	5020-87232	5020-87240	5020-87248	5020-87256	
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-87142	5020-87148		
	50	5020-87143	5020-87149		
	75	5020-87144	5020-87150		
	100	5020-87145	5020-87151		
	150	5020-87146	5020-87152		
	250	5020-87147	5020-87153		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-87102	5020-87110	5020-87118	5020-87126
	50	5020-87103	5020-87111	5020-87119	5020-87127
	75	5020-87104	5020-87112	5020-87120	5020-87128
	100	5020-87105	5020-87113	5020-87121	5020-87129
	125	5020-87106	5020-87114	5020-87122	5020-87130
	150	5020-87107	5020-87115	5020-87123	5020-87131
250	5020-87108	5020-87116	5020-87124	5020-87132	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-87305	5020-87209	5020-87306	5020-87210
1.5, 2.1		1.5	5020-87307	5020-87211	5020-87308	5020-87212
2.1, 3.0		3.0	5020-87303	5020-87207	5020-87304	5020-87208
4.0, 4.6	20	4.0	5020-87301	5020-87205	5020-87302	5020-87206
2.1, 3.0		3.0	5020-87311	5020-87215	5020-87312	5020-87216
4.0, 4.6		4.0	5020-87309	5020-87213	5020-87310	5020-87214
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

# Inertsil ODS-4

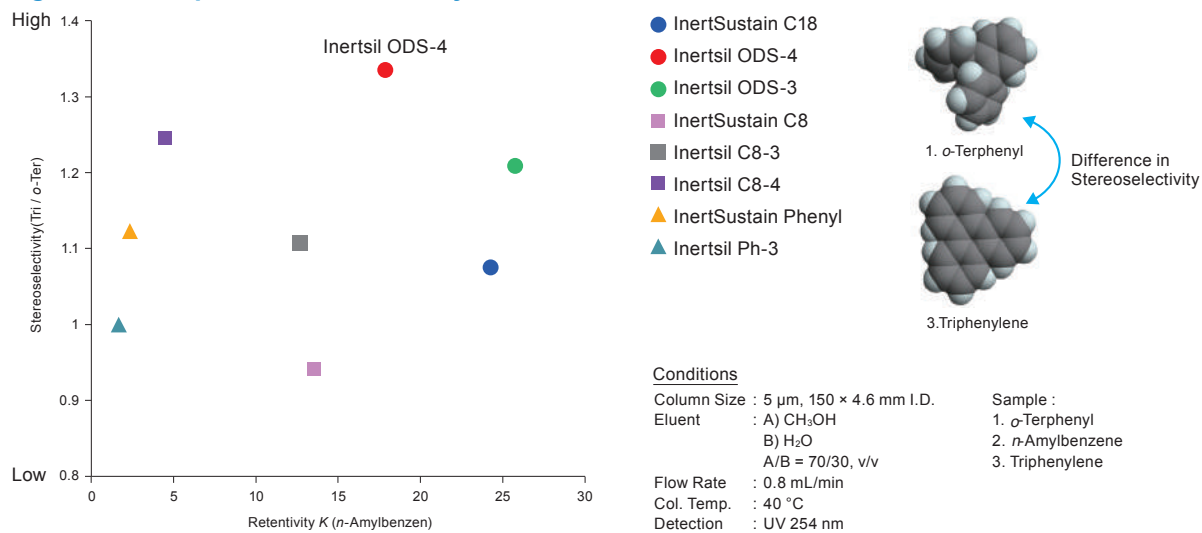
- Silica : 3 Series High Purity Silica Gel
- Particle Size : 2 µm, 3 µm, 5 µm
- Surface Area : 450 m<sup>2</sup>/g
- Pore Size : 100 Å (10 nm)
- Pore Volume : 1.05 mL/g
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 11 %
- USP Code : L1
- pH Range : 2 - 7.5



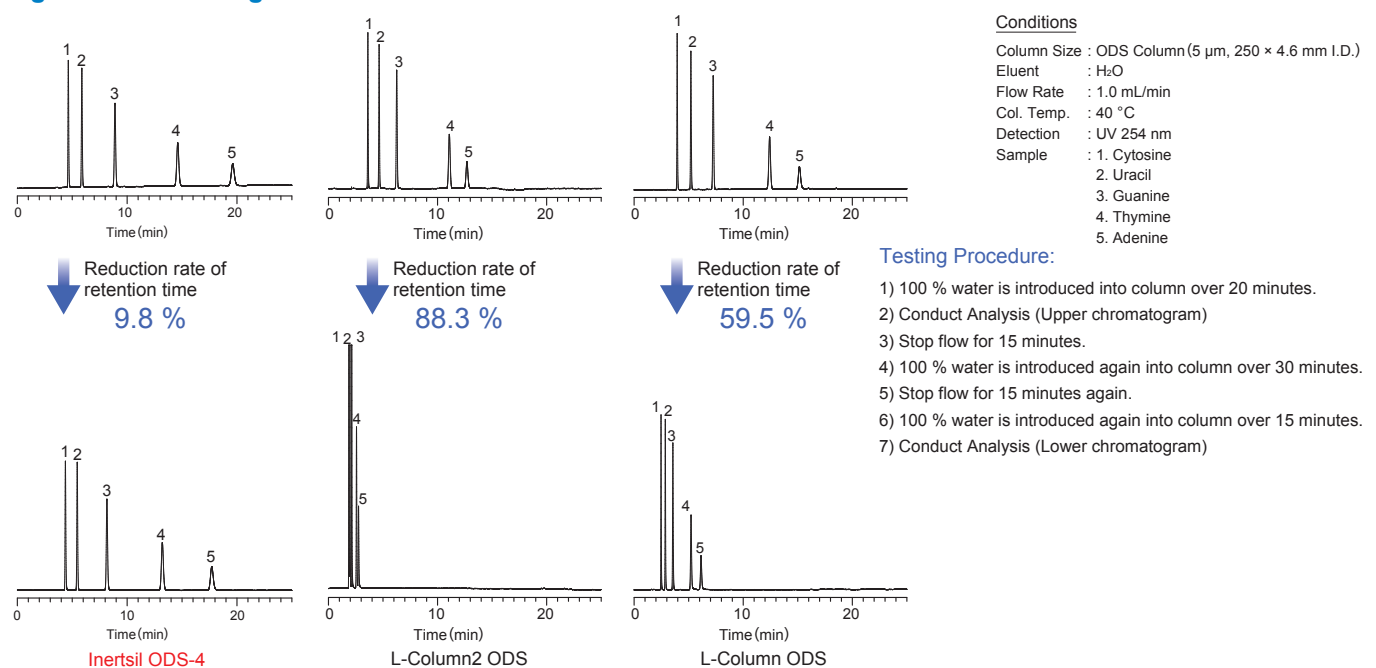
Inertsil ODS-4 delivers the same extreme inertness to any type of compounds just like InertSustain C18 along with unprecedented stability under 100 % aqueous mobile phases for qualitative and quantitative analysis.

However, as the base silica gel and carbon loading are different on Inertsil ODS-4, differences in selectivity can be observed for certain analytes.

**Figure 1 : Comparison of Selectivity Between Various GL Sciences' Columns**



**Figure 2 : Dewetting Test**



## Analytical Columns

Particle Size: 2 $\mu\text{m}$	Length \ I.D. (mm)	2.1	3.0		
	30	5020-81200	5020-81210		
	50	5020-81202	5020-81212		
	75	5020-81203	5020-81213		
	100	5020-81204	5020-81214		
	150	5020-81205	5020-81215		
HPSeries Particle Size: 3 $\mu\text{m}$ 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	30	5020-14061	5020-14064	5020-14067	
	50	5020-14062	5020-14065	5020-14068	
	75	5020-14063	5020-14066	5020-14069	
	100	5020-14001	5020-14004	5020-14007	
	150	5020-14002	5020-14005	5020-14008	
	250	5020-14003	5020-14006	5020-14009	
Particle Size: 3 $\mu\text{m}$	Length \ I.D. (mm)	1.0	1.5		
	30	5020-81111	5020-81121		
	50	5020-81112	5020-81122		
	75	5020-81113	5020-81123		
	100	5020-81114	5020-81124		
	150	5020-81115	5020-81125		
	250	5020-81116	5020-81126		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-04011	5020-04021	5020-04031	5020-04041
	50	5020-04012	5020-04022	5020-04032	5020-04042
	75	5020-04013	5020-04023	5020-04033	5020-04043
	100	5020-04014	5020-04024	5020-04034	5020-04044
	125	5020-04017	5020-04027	5020-04037	5020-04047
	150	5020-04015	5020-04025	5020-04035	5020-04045
250	5020-04016	5020-04026	5020-04036	5020-04046	
Particle Size: 5 $\mu\text{m}$	Length \ I.D. (mm)	1.0	1.5		
	30	5020-81011	5020-81021		
	50	5020-81012	5020-81022		
	75	5020-81013	5020-81023		
	100	5020-81014	5020-81024		
	150	5020-81015	5020-81025		
	250	5020-81016	5020-81026		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-03911	5020-03921	5020-03931	5020-03941
	50	5020-03912	5020-03922	5020-03932	5020-03942
	75	5020-03913	5020-03923	5020-03933	5020-03943
	100	5020-03914	5020-03924	5020-03934	5020-03944
	125	5020-03917	5020-03927	5020-03937	5020-03947
	150	5020-03915	5020-03925	5020-03935	5020-03945
	250	5020-03916	5020-03926	5020-03936	5020-03946

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 $\mu\text{m}$	5 $\mu\text{m}$	3 $\mu\text{m}$	5 $\mu\text{m}$
1.0	10	1.0	5020-19202	5020-19201	5020-19252	5020-19251
1.5, 2.1		1.5	5020-19302	5020-19301	5020-19352	5020-19351
2.1, 3.0		3.0	5020-19102	5020-19101	5020-19152	5020-19151
4.0, 4.6		4.0	5020-19002	5020-19001	5020-19052	5020-19051
2.1, 3.0	20	3.0	5020-19502	5020-19501	5020-19552	5020-19551
4.0, 4.6		4.0	5020-19402	5020-19401	5020-19452	5020-19451
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

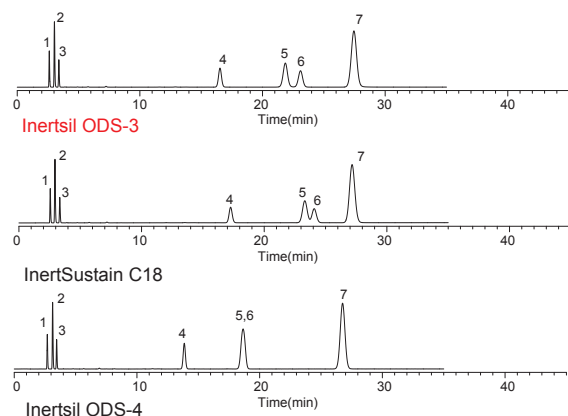
# Inertsil ODS-3

- Silica : 3 Series High Purity Silica Gel
- Particle Size : 2 µm, 3 µm, 4 µm, 5 µm, 10 µm
- Surface Area : 450 m<sup>2</sup>/g
- Pore Size : 100 Å (10 nm)
- Pore Volume : 1.05 mL/g
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 15 %
- USP Code : L1
- pH Range : 2 - 7.5



Inertsil ODS-3 is still GL Sciences' most popular phase and continues to be used widely and reliably for long established methods in pharmaceutical, and contract research labs. As shown in Figure 1, Inertsil ODS-3 has a relatively strong retentivity compared to commercially available ODS columns. In addition, the introduction of higher surface area silica provide high preparative loading capacity without sacrificing peak shape which is illustrated in Figure 2.

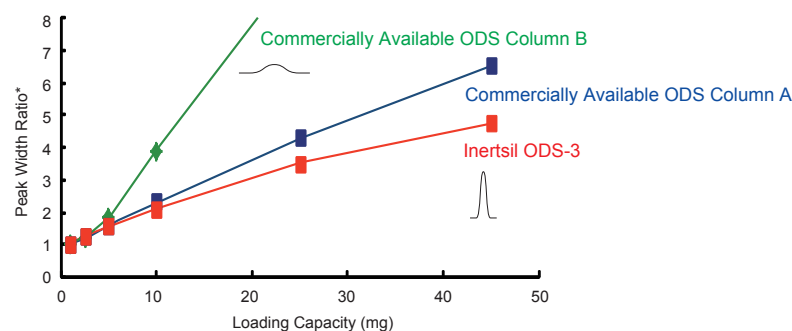
**Figure 1 : Comparison of Retentivity**



**Conditions**

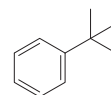
Column Size : 5 µm, 250 × 4.6 mm I.D. Sample :  
 Eluent : A) CH<sub>3</sub>OH 1. Uracil  
 B) H<sub>2</sub>O 2. Caffeine  
 A/B = 80/20, v/v 3. Phenol  
 Flow Rate : 1.0 mL/min 4. Butylbenzene  
 Col.Temp. : 40 °C 5. *o*-Terphenyl  
 Detection : UV 254 nm 6. Amylbenzene  
 7. Triphenylene

**Figure 2 : Comparison of Loading Capacity**



**Conditions**

Column Size : 5 µm, 250 × 4.6 mm I.D.  
 Eluent : A) CH<sub>3</sub>OH  
 B) H<sub>2</sub>O  
 A/B = 90/10, v/v  
 Flow Rate : 1.0 mL/min  
 Col. Temp. : 40 °C  
 Detection : UV 270 nm  
 Sample : *tert*-Butylbenzene (100 mg/mL)



\* The loading capacity varies depending on the column I.D. size and length.

**Analytical Columns**

	Length \ I.D. (mm)	2.1	3.0	
	Particle Size: 2 µm	30	5020-84650	5020-84660
50		5020-84652	5020-84662	
75		5020-84653	5020-84663	
100		5020-84654	5020-84664	
150		5020-84655	5020-84665	
HPSeries Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6
	30	5020-14081	5020-14084	5020-14087
	50	5020-14082	5020-14085	5020-14088
	75	5020-14083	5020-14086	5020-14089
	100	5020-14011	5020-14014	5020-14017
	150	5020-14012	5020-14015	5020-14018
	250	5020-14013	5020-14016	5020-14019

## Analytical Columns

Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	33	5020-84411	5020-84421		
	50	5020-84412	5020-84422		
	75	5020-84413	5020-84423		
	100	5020-84414	5020-84424		
	150	5020-13360	5020-13350		
	250	5020-	5020-		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	33	5020-04411	5020-04421	5020-04431	5020-04441
	50	5020-04412	5020-04422	5020-04432	5020-01774
	75	5020-04413	5020-04423	5020-04433	5020-01770
	100	5020-04414	5020-04424	5020-01790	5020-01775
	125	5020-04417	5020-04427	5020-01791	5020-01776
150	5020-04415	5020-04425	5020-04435	5020-01771	
250	5020-04416	5020-04426	5020-04436	5020-01772	
Particle Size: 4 µm	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	33	5020-04611	5020-04621	5020-04631	5020-04641
	50	5020-04612	5020-04622	5020-04632	5020-04642
	75	5020-04613	5020-04623	5020-04633	5020-04643
	100	5020-04614	5020-04624	5020-04634	5020-04644
	125	5020-04617	5020-04627	5020-04637	5020-04647
	150	5020-04615	5020-04625	5020-04635	5020-04645
	250	5020-04616	5020-04626	5020-04636	5020-04646
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	33	5020-84511	5020-84521		
	50	5020-84512	5020-84522		
	75	5020-84513	5020-84523		
	100	5020-84514	5020-84524		
	150	5020-13251	5020-13241		
	250	5020-13252	5020-13242		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	33	5020-04511	5020-04521	5020-04531	5020-04541
	50	5020-04512	5020-04522	5020-04532	5020-01763
	75	5020-04513	5020-04523	5020-04533	5020-01764
	100	5020-04514	5020-04524	5020-01766	5020-01765
	125	5020-04515	5020-04525	5020-01767	5020-01768
150	5020-01741	5020-01751	5020-01761	5020-01731	
250	5020-01742	5020-01752	5020-01762	5020-01732	
Particle Size: 10 µm	Length \ I.D. (mm)	4.6			
	150	5020-01631			
	250	5020-01632			

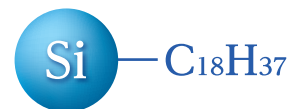
## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)			Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)		
			Particle Size			Particle Size		
			3 µm	4 µm	5 µm	3 µm	4 µm	5 µm
1.0	10	1.0	5020-19205	5020-19204	5020-19203	5020-19255	5020-19254	5020-19253
1.5, 2.1		1.5	5020-19305	5020-19304	5020-19303	5020-19355	5020-19354	5020-19353
2.1, 3.0		3.0	5020-19105	5020-19104	5020-19103	5020-19155	5020-19154	5020-19153
4.0, 4.6		4.0	5020-19005	5020-19004	5020-19003	5020-19055	5020-19054	5020-19053
2.1, 3.0	20	3.0	5020-19505	5020-19504	5020-19503	5020-19555	5020-19554	5020-19553
4.0, 4.6		4.0	5020-19405	5020-19404	5020-19403	5020-19455	5020-19454	5020-19453
Holder for Cartridge Guard Column E			For 10 mm Length			5020-08500		
			For 20 mm Length			5020-08550		

# Inertsil ODS-4V

(Specifically Qualified HPLC columns for GLP/GMP Compliance Validation)

- Silica : 3 Series High Purity Silica Gel
- Particle Size : 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 450  $\text{m}^2/\text{g}$
- Pore Size : 100 Å (10 nm)
- Pore Volume : 1.05  $\text{mL/g}$
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 11 %
- USP Code : L1
- pH Range : 2 - 7.5

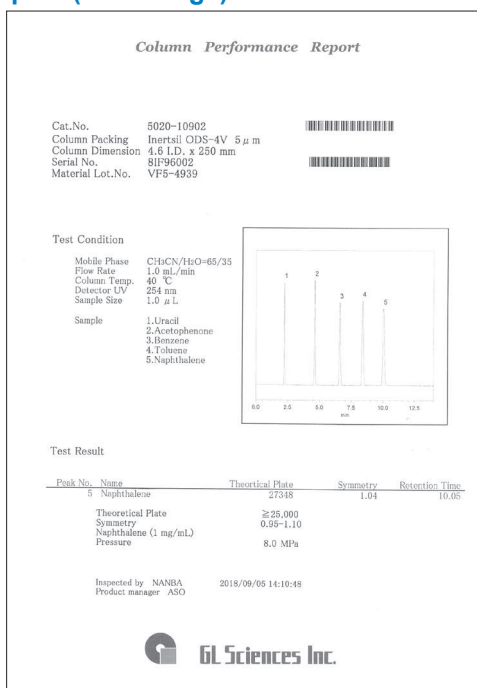


Inertsil ODS-4 columns have proven superior worldwide for analysis of strong pharmaceutical bases, acids, chelating compounds, and zwitterions. The long-awaited validated Inertsil ODS-4V has now been added to our product lineup.

Each Inertsil ODS-4V is delivered with a Manufacturer's Validation Certificate showing the detailed results of every QA and QC step in manufacturing.

By choosing Inertsil ODS-4V, you can be assured that you are using one of the most trusted and enduring HPLC columns for validation.

## Details of Column Performance Report (Front Page)



## Analytical Columns

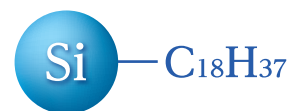
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
Particle Size: 3 $\mu\text{m}$	50	5020-30212	5020-30222	5020-30232	5020-30242
	75	5020-30213	5020-30223	5020-30233	5020-30243
	100	5020-30214	5020-30224	5020-30234	5020-30244
	150	5020-30215	5020-30225	5020-30235	5020-30245
	250	5020-30216	5020-30226	5020-30236	5020-30246
Particle Size: 5 $\mu\text{m}$	Length \ I.D. (mm)	3.0	4.0	4.6	
	150	5020-10921	5020-10911	5020-10901	
	250	5020-10922	5020-10912	5020-10902	



# Inertsil ODS-3V

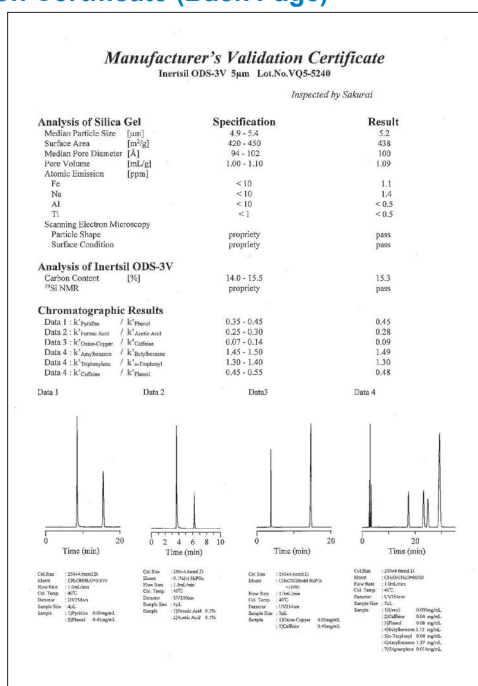
(Specifically Qualified HPLC columns for GLP/GMP Compliance Validation)

- Silica : 3 Series High Purity Silica Gel
- Particle Size : 3 µm, 5 µm
- Surface Area : 450 m<sup>2</sup>/g
- Pore Size : 100 Å (10 nm)
- Pore Volume : 1.05 mL/g
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 15 %
- USP Code : L1
- pH Range : 2 - 7.5



Inertsil ODS-3V offers all of the outstanding chromatographic benefits of Inertsil ODS-3 with the added benefit of a more thoroughly documented, validated QC procedure consistent with the demands of GLP/GMP compliance. Each Inertsil ODS-3V is delivered with a Manufacturer's Validation Certificate showing the detailed results of every QA and QC step in manufacturing. The use of Inertsil ODS-3V columns provides an extra measure of assurance of consistent performance from column to column and batch to batch. Inertsil ODS-3V columns are also available in 3-column-sets packed with your choice of 3 different silica batches or a single silica batch to assist in reproducibility studies.

## Details of Manufacturer's Validation Certificate (Back Page)



## Analytical Columns

Particle Size: 3 µm	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	50	5020-30112	5020-30122	5020-30132	5020-30142
75	5020-30113	5020-30123	5020-30133	5020-30143	
100	5020-30114	5020-30124	5020-30134	5020-30144	
150	5020-30115	5020-30125	5020-30135	5020-30145	
250	5020-30116	5020-30126	5020-30136	5020-30146	
Particle Size: 5 µm	Length \ I.D. (mm)	3.0	4.0	4.6	
	150	5020-01821	5020-01811	5020-01801	
	250	5020-01822	5020-01812	5020-01802	

## Validation Packs (3-Column-Sets)

Inertsil ODS-3V columns are also available in 3-column-sets packed with your choice of 3 different silica batches or a single silica batch to assist in reproducibility studies. Choose the column dimension and one of the following batch requirements. All three columns with single batch 2. Two columns with single batch and other a different batch 3. All three columns with different batches.

Particle Size: 5 µm	Length \ I.D. (mm)	3.0	4.0	4.6
	150	5020-	5020-	5020-
	250	5020-	5020-	5020-

# Inertsil ODS-SP

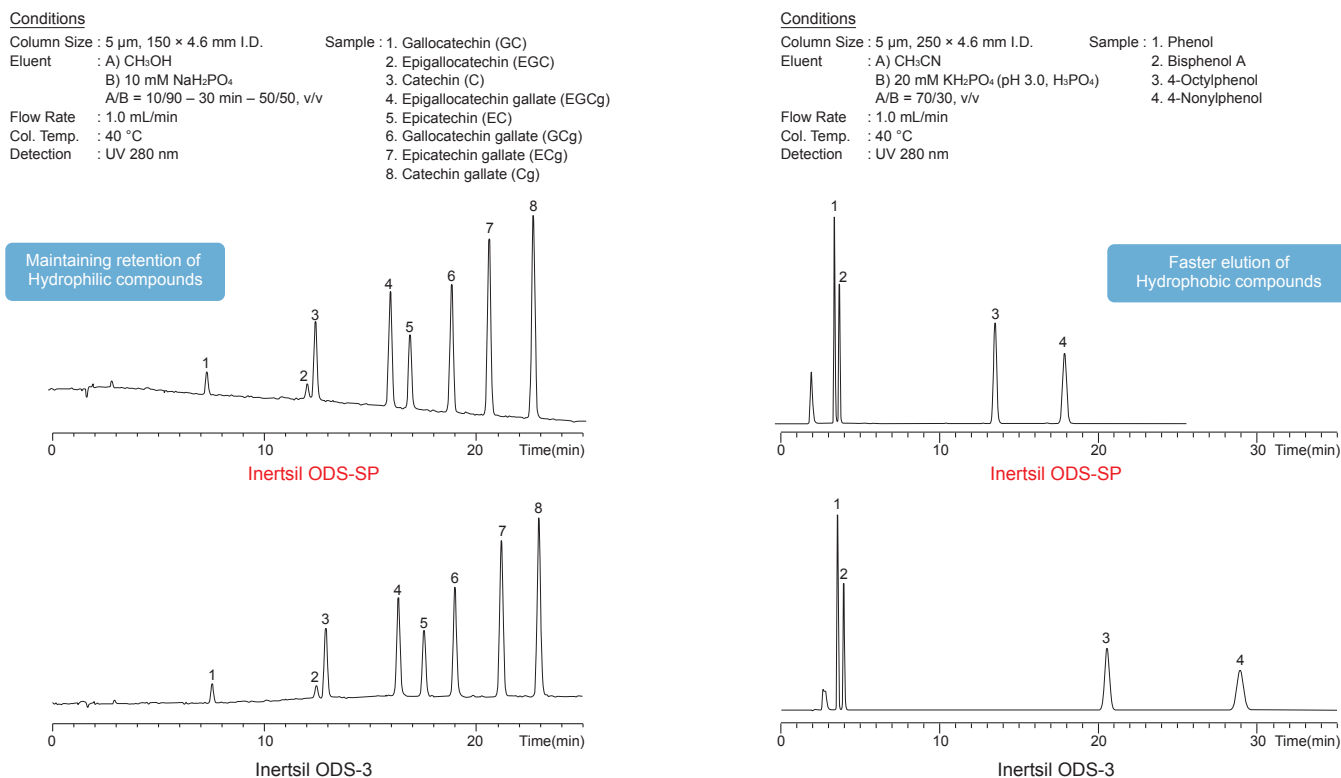
- Silica : 3 Series High Purity Silica Gel
- Particle Size : 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 450  $\text{m}^2/\text{g}$
- Pore Size : 100  $\text{\AA}$  (10 nm)
- Pore Volume : 1.05  $\text{mL/g}$
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 8.5 %
- USP Code : L1
- pH Range : 2 - 7.5



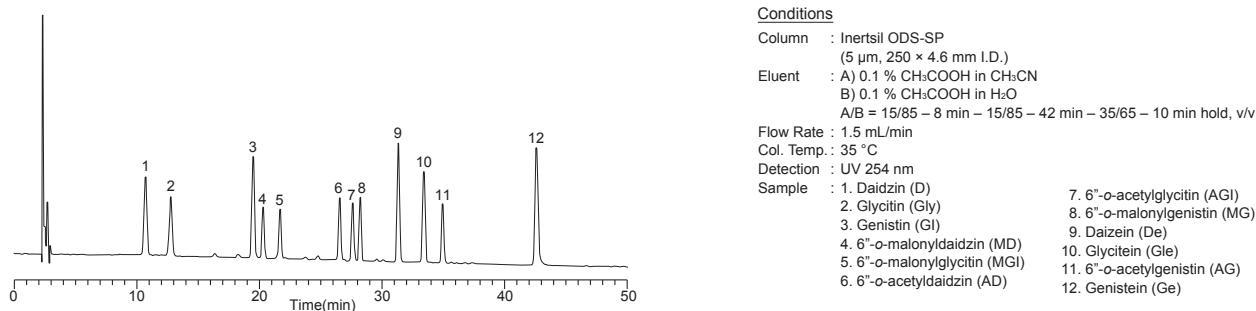
As shown in Figure 1, Inertsil ODS-SP is super base deactivated and optimally bonded to retain hydrophilic compounds without excessive retention of hydrophobic compounds achieving better separations faster than before.

As the carbon load of Inertsil ODS-SP is relatively low, it is compatible with 100 % aqueous eluents and offer faster equilibration of column for gradient analysis.

**Figure 1 : Comparison of Retention Behavior between Inertsil ODS-3 and Inertsil ODS-SP**



**Figure 2 : Simultaneous Analysis of Soybean Isoflavone**



## Analytical Columns

HP Series Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6
		30	5020-14091	5020-14094
	50	5020-14092	5020-14095	5020-14098
	75	5020-14093	5020-14096	5020-14099
	100	5020-14021	5020-14024	5020-14027
	150	5020-14022	5020-14025	5020-14028
	250	5020-14023	5020-14026	5020-14029

Particle Size: 3 µm	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	20	5020-02811	5020-02821	5020-02831	5020-02841
	50	5020-02812	5020-02822	5020-02832	5020-02842
	75	5020-02813	5020-02823	5020-02833	5020-02843
	100	5020-02814	5020-02824	5020-02834	5020-02844
	150	5020-02815	5020-02825	5020-02835	5020-02845
	250	5020-02816	5020-02826	5020-02836	5020-02846

Particle Size: 5 µm	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	20	5020-02711	5020-02721	5020-02731	5020-02741
	50	5020-02712	5020-02722	5020-02732	5020-02742
	75	5020-02713	5020-02723	5020-02733	5020-02743
	100	5020-02714	5020-02724	5020-02734	5020-02744
	150	5020-02715	5020-02725	5020-02735	5020-02745
	250	5020-02716	5020-02726	5020-02736	5020-02746

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-19207	5020-19206	5020-19257	5020-19256
1.5, 2.1		1.5	5020-19307	5020-19306	5020-19357	5020-19356
2.1, 3.0		3.0	5020-19107	5020-19106	5020-19157	5020-19156
4.0, 4.6		4.0	5020-19007	5020-19006	5020-19057	5020-19056
2.1, 3.0	20	3.0	5020-19507	5020-19506	5020-19557	5020-19556
4.0, 4.6		4.0	5020-19407	5020-19406	5020-19457	5020-19456
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index

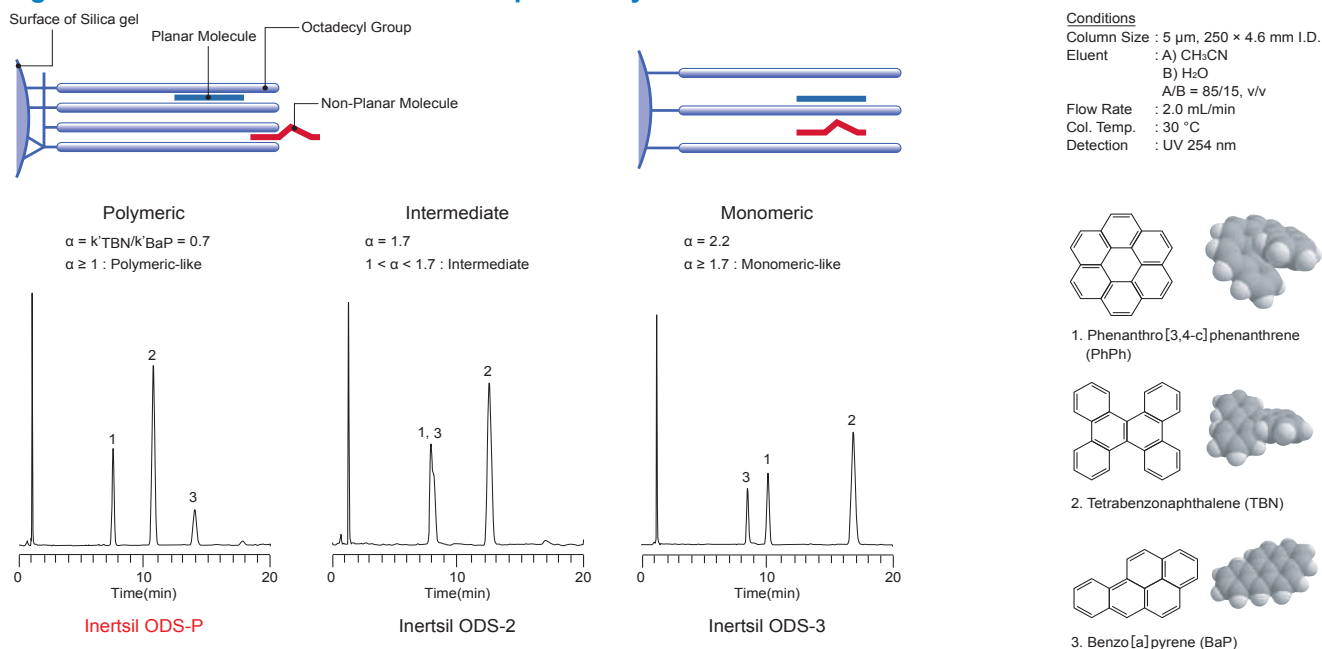
# Inertsil ODS-P

- Silica : 3 Series High Purity Silica Gel
- Particle Size : 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 450  $\text{m}^2/\text{g}$
- Pore Size : 100  $\text{\AA}$  (10 nm)
- Pore Volume : 1.05  $\text{mL/g}$
- Functional Group : Octadecyl
- End-capping : None
- Carbon Loading : 29 %
- USP Code : L1
- pH Range : 2 - 7.5

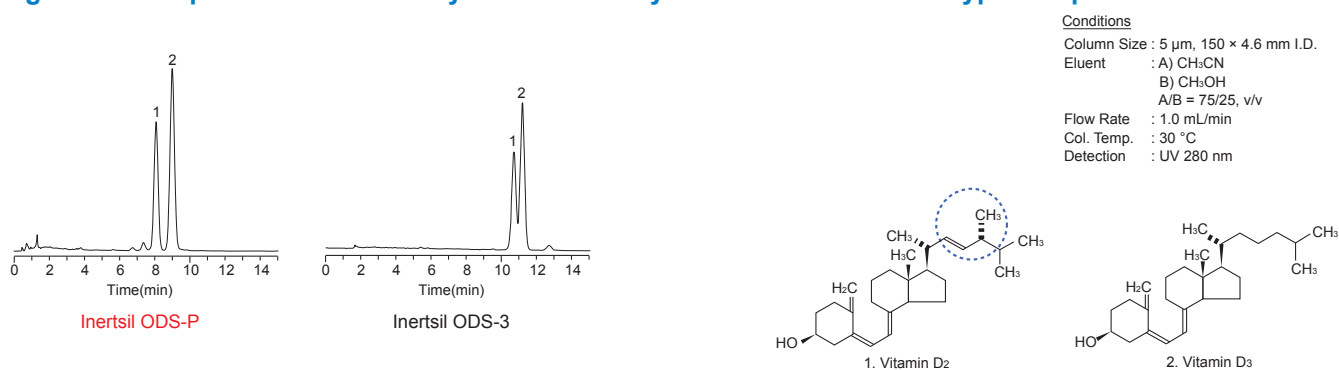


GL Sciences offers a polymerically bonded ODS-P phase which provide high steric selectivity for separation of planar and non-planar compounds as shown in Figure 1. This polymeric type C18 column delivers complete baseline separation of structurally similar compounds such as vitamins D2 and D3 which is illustrated in Figure 2. Inertsil ODS-P columns are also ideal for the HPLC analysis of 16 PAH compounds, listed as target pollutants by the US EPA.

**Figure 1 : Classification of Inertsil ODS phases by Standard Reference Material 869**



**Figure 2 : Comparison of Selectivity between a Polymeric and Monomeric type C18 phase**



## Analytical Columns

Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	33	5020-84731	5020-84741		
	50	5020-84732	5020-84742		
	75	5020-84733	5020-84743		
	100	5020-84734	5020-84744		
	150	5020-84735	5020-84745		
	250	5020-84736	5020-84746		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	33	5020-04661	5020-04671	5020-04681	5020-04691
	50	5020-04662	5020-04672	5020-04682	5020-04692
	75	5020-04663	5020-04673	5020-04683	5020-04693
	100	5020-04664	5020-04674	5020-04684	5020-04694
	150	5020-04665	5020-04675	5020-04685	5020-04695
	250	5020-04666	5020-04676	5020-04686	5020-04696
	Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5	
33		5020-84711	5020-84721		
50		5020-84712	5020-84722		
75		5020-84713	5020-84723		
100		5020-84714	5020-84724		
150		5020-84715	5020-84725		
250		5020-84716	5020-84726		
Length \ I.D. (mm)		2.1	3.0	4.0	4.6
33		5020-04711	5020-04721	5020-04731	5020-04741
50		5020-04712	5020-04722	5020-04732	5020-04742
75		5020-04713	5020-04723	5020-04733	5020-04743
100		5020-04714	5020-04724	5020-04734	5020-04744
150		5020-04715	5020-04725	5020-04735	5020-02001
250		5020-04716	5020-04726	5020-04736	5020-02002

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-19209	5020-19208	5020-19259	5020-19258
1.5, 2.1		1.5	5020-19309	5020-19308	5020-19359	5020-19358
2.1, 3.0		3.0	5020-19109	5020-19108	5020-19159	5020-19158
4.0, 4.6		4.0	5020-19009	5020-19008	5020-19059	5020-19058
2.1, 3.0	20	3.0	5020-19509	5020-19508	5020-19559	5020-19558
4.0, 4.6		4.0	5020-19409	5020-19408	5020-19459	5020-19458
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index

# Inertsil ODS-EP

- Silica : 3 Series High Purity Silica Gel
- Particle Size : 5  $\mu\text{m}$
- Surface Area : 450  $\text{m}^2/\text{g}$
- Pore Size : 100  $\text{\AA}$  (10 nm)
- Pore Volume : 1.05  $\text{mL/g}$
- Functional Group : Octadecyl
- End-capping : No
- Carbon Loading : 9 %
- USP Code : L1
- pH Range : 2 - 7.5



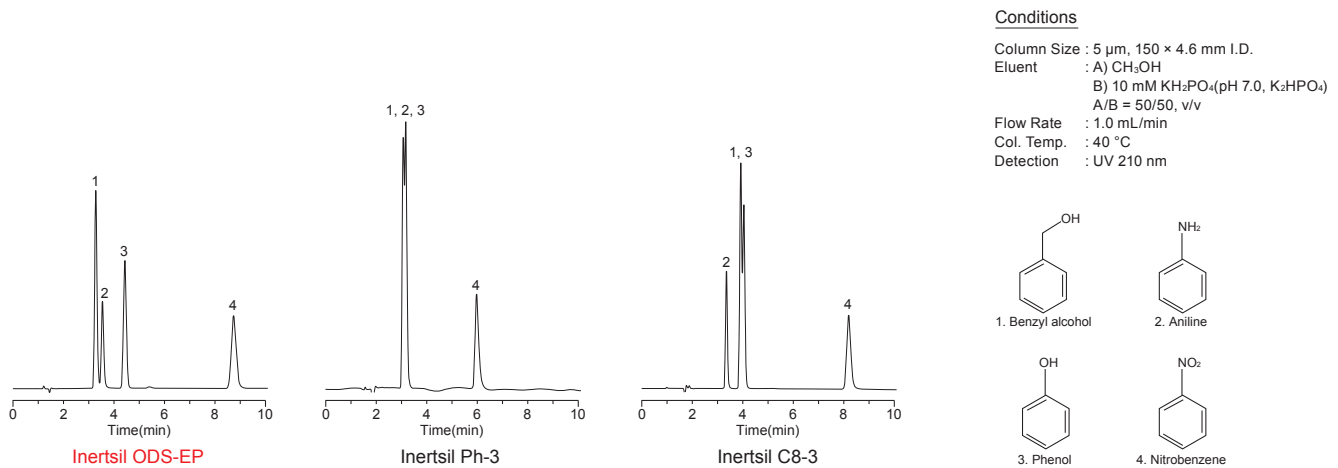
PG : Polar Group

Inertsil ODS-EP contains a polar functional group embedded between the silica surface and the C18 group.

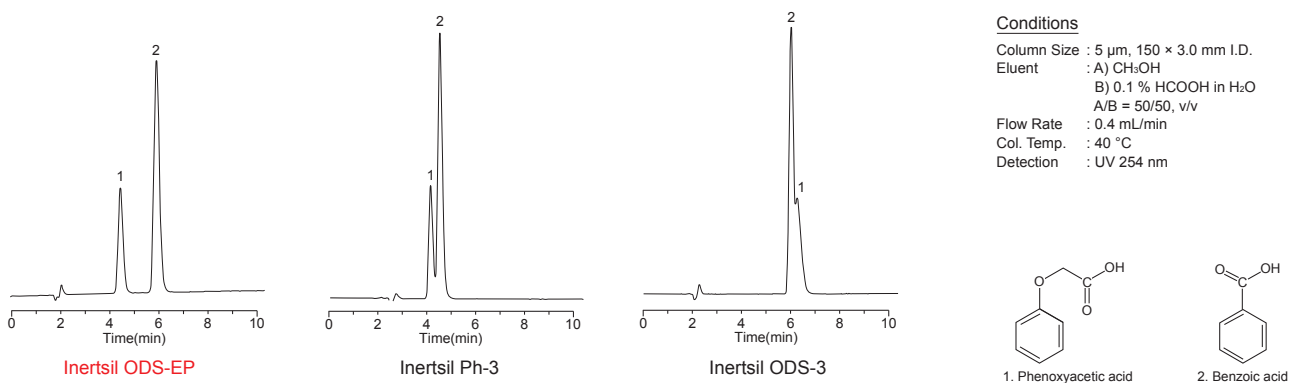
The embedded polar group makes the C18 phase stable in 100 % aqueous eluents without "phase collapse."

This phase is also extremely "base deactivated" and provides superior peak shape for acids and bases in organic eluents as well as acidified eluents typically used in LC/MS.

**Figure 1 : Comparison of Selectivity**



**Figure 2 : Unique Selectivity of an Embedded Polar C18 Phase**



## Analytical Columns

Particle Size: 5 µm	Length \ I.D. (mm)		1.0	1.5		
	33		5020-18211	5020-18221		
	50		5020-18212	5020-18222		
	75		5020-18213	5020-18223		
	100		5020-18214	5020-18224		
	150		5020-18215	5020-18225		
	250		5020-18216	5020-18226		
	Length \ I.D. (mm)		2.1	3.0	4.0	4.6
	33		5020-02611	5020-02621	5020-02631	5020-02641
	50		5020-02612	5020-02622	5020-02632	5020-02642
75		5020-02613	5020-02623	5020-02633	5020-02643	
100		5020-02614	5020-02624	5020-02634	5020-02644	
150		5020-02615	5020-02625	5020-02635	5020-02645	
250		5020-02616	5020-02626	5020-02636	5020-02646	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			5 µm		5 µm	
1.0	10	1.0	5020-19210	5020-19260		
1.5, 2.1		1.5	5020-19310	5020-19360		
2.1, 3.0		3.0	5020-19110	5020-19160		
4.0, 4.6		4.0	5020-19010	5020-19060		
2.1, 3.0	20	3.0	5020-19510	5020-19560		
4.0, 4.6		4.0	5020-19410	5020-19460		
Holder for Cartridge Guard Column E			For 10 mm Length		5020-08500	
			For 20 mm Length		5020-08550	

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

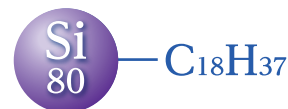
Capillary Columns

Applications

Cat. No. Index

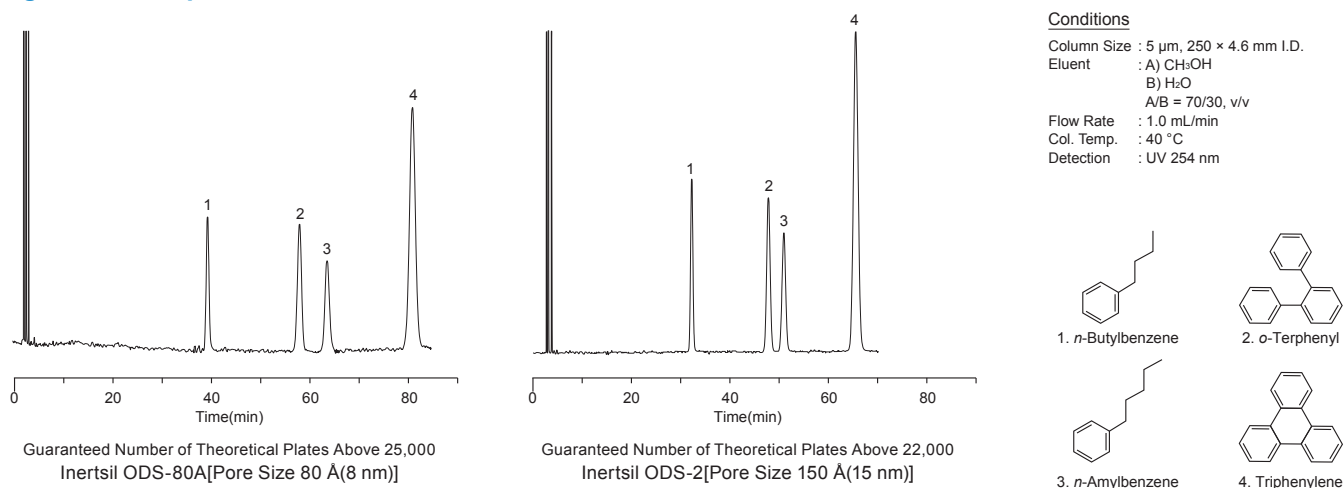
# Inertsil ODS-80A

- Silica : 2 Series High Purity Silica Gel
- Particle Size : 5  $\mu\text{m}$
- Surface Area : 450  $\text{m}^2/\text{g}$
- Pore Size : 80 Å (8 nm)
- Pore Volume : 0.80 mL/g
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 17.5 %
- USP Code : L1
- pH Range : 2 - 7.5



A relatively small pore size of 80 Å with high surface area silica delivers high number of theoretical plates for small molecule samples. GL Sciences' InertSustain C18 and Inertsil ODS-4 were a major advancement on the Inertsil ODS-80A columns, and generally provide superior chromatography and alternative selectivity to the Inertsil ODS-80A. We recommend InertSustain C18 or Inertsil ODS-4 columns for all new method development.

**Figure 1 : Comparison with Inertsil ODS-2**



## Analytical Columns

Particle Size: 5 $\mu\text{m}$	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	150	5020-01621	5020-01622	5020-01623	5020-01624
250	5020-01625	5020-01626	5020-01627	5020-01628	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)	Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)
			Particle Size	Particle Size
			5 $\mu\text{m}$	5 $\mu\text{m}$
2.1, 3.0	10	3.0	5020-19140	5020-19190
4.0, 4.6		4.0	5020-19040	5020-19090
2.1, 3.0	20	3.0	5020-19540	5020-19590
4.0, 4.6		4.0	5020-19440	5020-19490
Holder for Cartridge Guard Column E			For 10 mm Length	5020-08500
			For 20 mm Length	5020-08550

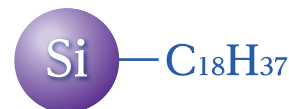




Reversed Phase Columns
HILIC Columns
Normal Phase Columns
SEC Columns
Ion Exchange Columns
Application Specific Columns
Guard Columns
Preparative Columns
Capillary Columns
Applications
Cat. No. Index

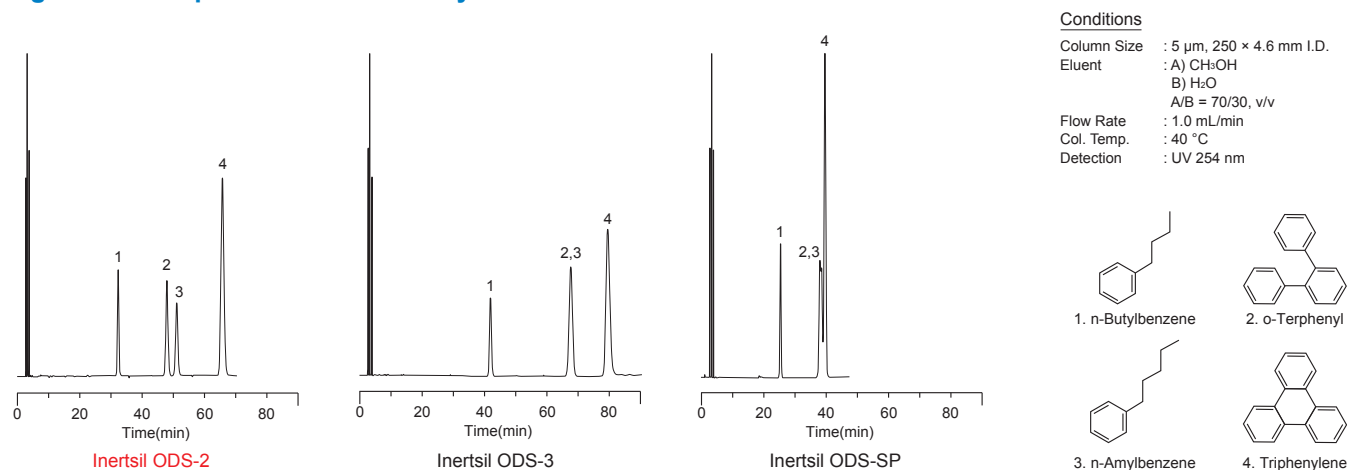
# Inertsil ODS-2

- Silica : 2 Series High Purity Silica Gel
- Particle Size : 5  $\mu\text{m}$
- Surface Area : 320  $\text{m}^2/\text{g}$
- Pore Size : 150 Å (15 nm)
- Pore Volume : 1.20  $\text{mL/g}$
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 18.5 %
- USP Code : L1
- pH Range : 2 - 7.5



Inertsil ODS-2 columns have a pore size of 150 Å offering symmetric peaks for bases, acids with low pressure. When Inertsil ODS-2 was introduced in 1987s, this HPLC transformed the entire industry. Inertsil ODS-2 was the first HPLC phase created using ultra high purity silica, which produced superior base deactivation. Until this phase was eclipsed by the performance of its sibling Inertsil ODS-4, it was GL Sciences' most popular phase and continues to be used widely and reliably for long established methods in pharmaceutical and environmental labs. We recommend Inertsil ODS-4 columns for all new method development.

Figure 1 : Comparison of Retentivity



## Analytical Columns

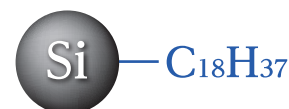
Particle Size: 5 $\mu\text{m}$	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	150	5020-01121	5020-01122	5020-01123	5020-01124
250	5020-01125	5020-01126	5020-01127	5020-01128	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			5 $\mu\text{m}$		5 $\mu\text{m}$	
2.1, 3.0	10	3.0	5020-19135	5020-19185		
4.0, 4.6		4.0	5020-19035	5020-19085		
2.1, 3.0	20	3.0	5020-19535	5020-19585		
4.0, 4.6		4.0	5020-19435	5020-19485		
Holder for Cartridge Guard Column E			For 10 mm Length		5020-08500	
			For 20 mm Length		5020-08550	

# Inertsil ODS

- Silica : Spherical Silica Gel
- Particle Size : 5 µm, 10 µm
- Surface Area : 350 m<sup>2</sup>/g
- Pore Size : 100 Å (10 nm)
- Pore Volume : 1.00 mL/g
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 14 %
- USP Code : L1
- pH Range : 2 - 7.5



Inertsil ODS columns are general purpose, reversed phase C18 columns available in 5 µm and 10 µm particle sizes. It was the first ODS bonded phase introduced from GL Sciences back in 1986.

We recommend InertSustain C18 or Inertsil ODS-4 columns for all new method development.

## Analytical Columns

Particle Size: 5 µm	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	150	5020-02121	5020-02122	5020-02123	5020-02124
250	5020-02125	5020-02126	5020-02127	5020-02128	
Particle Size: 10 µm	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	150	5020-02221	5020-02222	5020-02223	5020-02224
	250	5020-02225	5020-02226	5020-02227	5020-02228

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			5 µm	10 µm	5 µm	10 µm
2.1, 3.0	10	3.0	5020-19141	5020-19142	5020-19191	5020-19192
4.0, 4.6		4.0	5020-19041	5020-19042	5020-19091	5020-19092
2.1, 3.0	20	3.0	5020-19541	5020-19542	5020-19591	5020-19592
4.0, 4.6		4.0	5020-19441	5020-19442	5020-19491	5020-19492
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index

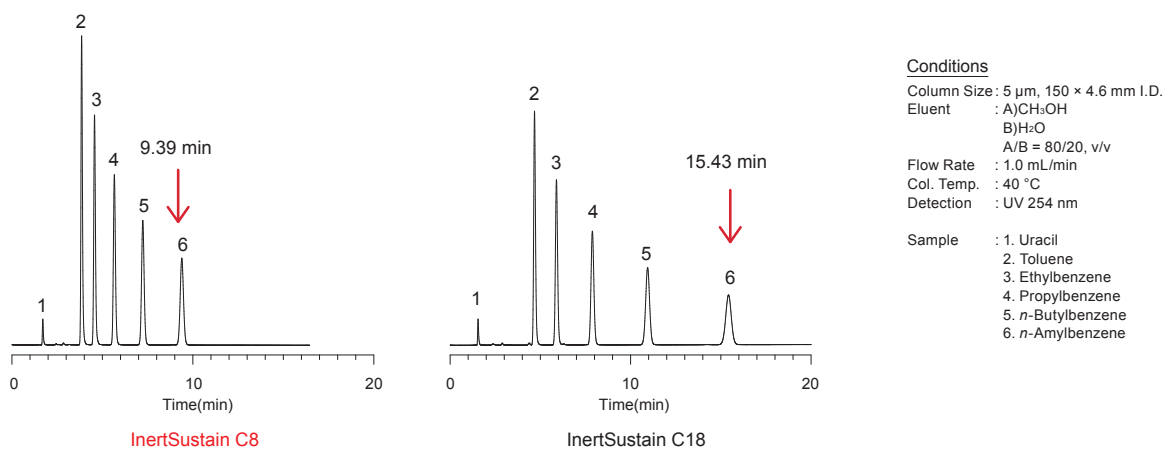
# InertSustain C8

- Silica : High Purity ES Silica Gel
- Particle Size : 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 350  $\text{m}^2/\text{g}$
- Pore Size : 100  $\text{\AA}$  (10 nm)
- Pore Volume : 0.85  $\text{mL/g}$
- Functional Group : Octyl
- End-capping : Yes
- Carbon Loading : 8 %
- USP Code : L7
- pH Range : 1 - 10

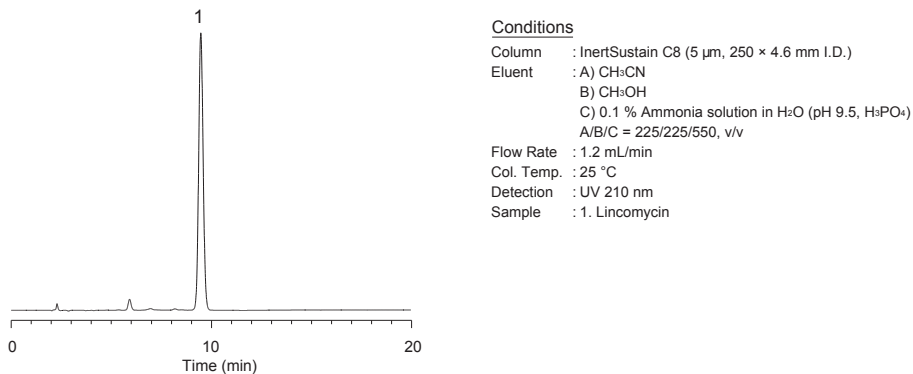


InertSustain C8 is an octyl group (C8) bonded column delivering the same extreme inertness to any type of compounds just like InertSustain C18, which enables rapid analysis of highly hydrophobic compounds delivering symmetric peaks at a wide range of pH.

**Figure 1 : Comparison of Retentivity**



**Figure 2 : Analysis of Lincomycin under Basic Condition**



## Analytical Columns

Particle Size: 2 µm	Length \ I.D. (mm)	2.1	3.0		
	30	5020-16235	5020-16240		
	50	5020-16236	5020-16241		
	75	5020-16237	5020-16242		
	100	5020-16238	5020-16243		
HPSeries Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	30	5020-16217	5020-16223	5020-16229	
	50	5020-16218	5020-16224	5020-16230	
	75	5020-16219	5020-16225	5020-16231	
	100	5020-16220	5020-16226	5020-16232	
	150	5020-16221	5020-16227	5020-16233	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-16168	5020-16174		
	50	5020-16169	5020-16175		
	75	5020-16170	5020-16176		
	100	5020-16171	5020-16177		
	150	5020-16172	5020-16178		
	250	5020-16173	5020-16179		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-16132	5020-16139	5020-16146	5020-16153
	50	5020-16133	5020-16140	5020-16147	5020-16154
	75	5020-16134	5020-16141	5020-16148	5020-16155
	100	5020-16135	5020-16142	5020-16149	5020-16156
	125	5020-16855	5020-16856	5020-16857	5020-16858
	150	5020-16136	5020-16143	5020-16150	5020-16157
250	5020-16137	5020-16144	5020-16151	5020-16158	
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-16039	5020-16045		
	50	5020-16040	5020-16046		
	75	5020-16041	5020-16047		
	100	5020-16042	5020-16048		
	150	5020-16043	5020-16049		
	250	5020-16044	5020-16050		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-16002	5020-16009	5020-16016	5020-16023
	50	5020-16003	5020-16010	5020-16017	5020-16024
	75	5020-16004	5020-16011	5020-16018	5020-16025
	100	5020-16005	5020-16012	5020-16019	5020-16026
	125	5020-16851	5020-16852	5020-16853	5020-16854
	150	5020-16006	5020-16013	5020-16020	5020-16027
250	5020-16007	5020-16014	5020-16021	5020-16028	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-16207	5020-16106	5020-16208	5020-16107
1.5, 2.1		1.5	5020-16209	5020-16108	5020-16210	5020-16109
2.1, 3.0		3.0	5020-16205	5020-16104	5020-16206	5020-16105
4.0, 4.6		4.0	5020-16203	5020-16102	5020-16204	5020-16103
2.1, 3.0	20	3.0	5020-16213	5020-16112	5020-16214	5020-16113
4.0, 4.6		4.0	5020-16211	5020-16110	5020-16212	5020-16111
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

Reversed Phase Columns  
HILIC Columns  
Normal Phase Columns  
SEC Columns  
Ion Exchange Columns  
Application Specific Columns  
Guard Columns  
Preparative Columns  
Capillary Columns  
Applications  
Cat. No. Index

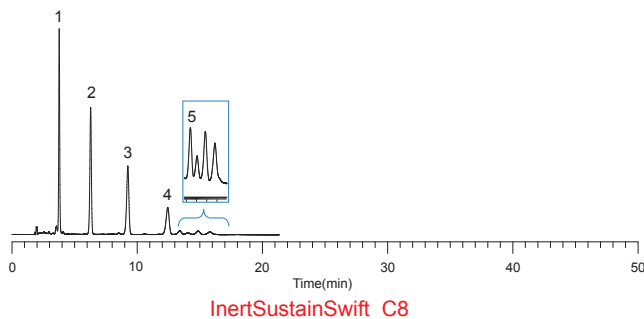
# InertSustainSwift C8

- Base Material : High Purity ES Silica Gel
- Particle Size : 1.9  $\mu\text{m}$ , 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 200  $\text{m}^2/\text{g}$
- Pore Size : 200 Å (20 nm)
- Pore Volume : 1.00 mL/g
- Functional Group : Octyl
- End-capping : Yes
- Carbon Loading : 6%
- USP Code : L7
- pH Range : 1 - 10



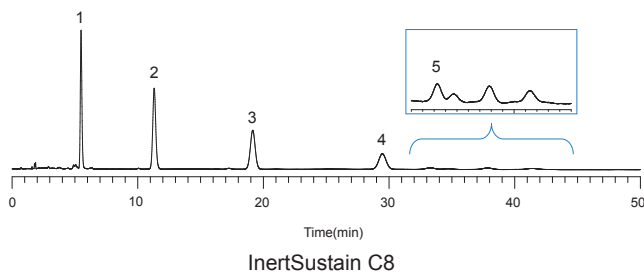
InertSustainSwift C8 is an octyl group (C8) bonded column offering the same extreme inertness to any type of compounds just like InertSustainSwift C18, which is ideal for analyzing low polarity analytes. In addition, the optimized 200 Å pore size silica enables to analyze and retain peptides and oligonucleotides which have a molecular weight from several kDa to several dozen kDa.

**Figure 1 : Comparison of Retentivity**

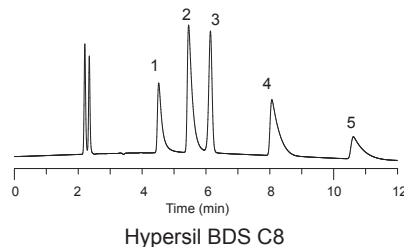
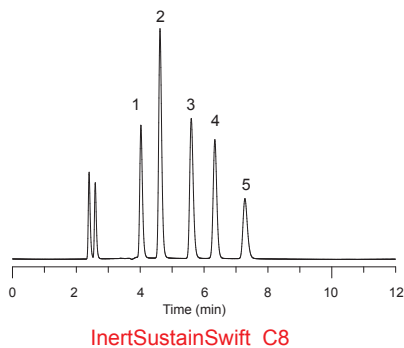


**Conditions**

- Column Size : 5  $\mu\text{m}$  150  $\times$  4.6 mm I.D.
- Eluent : A) H<sub>2</sub>O  
B) CH<sub>3</sub>CN  
A/B = 10/90, v/v
- Flow Rate : 1.0 mL/min
- Col. Temp : 40 °C
- Detection : UV 300 nm
- Sample : 1. Retinol (Vitamin A)  
2. Cholecalciferol (Vitamin D3)  
3.  $\alpha$ -tocopherol (Vitamin E)  
4. Phylloquinone (Vitamin K1)  
5. Impurities of 1



**Figure 2 : Analysis of Antihistamines**



**Conditions**

- Column Size : 5  $\mu\text{m}$  250  $\times$  4.6 mm I.D.
- Eluent : A) CH<sub>3</sub>CN  
B) 25 mM K<sub>2</sub>HPO<sub>4</sub> (pH 7.0, KH<sub>2</sub>PO<sub>4</sub>)  
A/B = 60/40, v/v
- Flow Rate : 1.0 mL/min
- Col. Temp : 40 °C
- Detection : 230 nm
- Injection.Vol. : 5  $\mu\text{L}$
- Sample : 1. Chlorpheniramine  
2. Triprolidine  
3. Homochlorcyclizine  
4. Hydroxyzine  
5. Clemastine

## Analytical Columns

Particle Size: 1.9 µm	Length \ I.D. (mm)	2.1	3.0		
	50	5020-88533	5020-88536		
	100	5020-88534	5020-88537		
	150	5020-88535	5020-88538		
HP Series Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	50	5020-88515	5020-88519	5020-88523	
	100	5020-88516	5020-88520	5020-88524	
	150	5020-88517	5020-88521	5020-88525	
	250	5020-88518	5020-88522	5020-88526	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-88466	5020-88472		
	50	5020-88467	5020-88473		
	75	5020-88468	5020-88474		
	100	5020-88469	5020-88475		
	150	5020-88470	5020-88476		
	250	5020-88471	5020-88477		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-88426	5020-88434	5020-88442	5020-88450
	50	5020-88427	5020-88435	5020-88443	5020-88451
	75	5020-88428	5020-88436	5020-88444	5020-88452
	100	5020-88429	5020-88437	5020-88445	5020-88453
	125	5020-88430	5020-88438	5020-88446	5020-88454
	150	5020-88431	5020-88439	5020-88447	5020-88455
250	5020-88432	5020-88440	5020-88448	5020-88456	
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-88342	5020-88348		
	50	5020-88343	5020-88349		
	75	5020-88344	5020-88350		
	100	5020-88345	5020-88351		
	150	5020-88346	5020-88352		
	250	5020-88347	5020-88353		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-88302	5020-88310	5020-88318	5020-88326
	50	5020-88303	5020-88311	5020-88319	5020-88327
	75	5020-88304	5020-88312	5020-88320	5020-88328
	100	5020-88305	5020-88313	5020-88321	5020-88329
	125	5020-88306	5020-88314	5020-88322	5020-88330
	150	5020-88307	5020-88315	5020-88323	5020-88331
	250	5020-88308	5020-88316	5020-88324	5020-88332

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-88505	5020-88409	5020-88506	5020-88410
1.5, 2.1		1.5	5020-88507	5020-88411	5020-88508	5020-88412
2.1, 3.0		3.0	5020-88503	5020-88407	5020-88504	5020-88408
4.0, 4.6		4.0	5020-88501	5020-88405	5020-88502	5020-88406
2.1, 3.0	20	3.0	5020-88511	5020-88415	5020-88512	5020-88416
4.0, 4.6		4.0	5020-88509	5020-88413	5020-88510	5020-88414
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

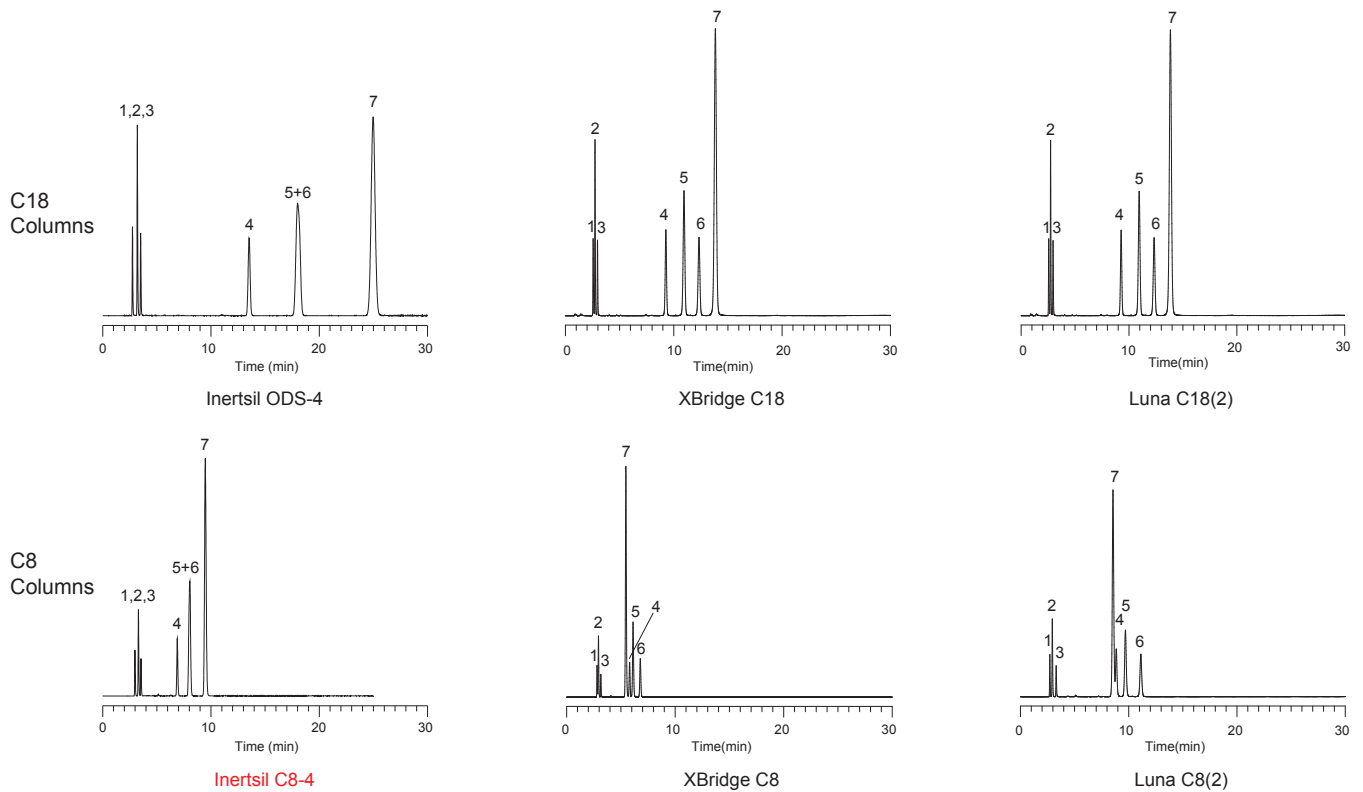
# Inertsil C8-4

- Silica : 3 Series High Purity Silica Gel
- Particle Size : 2 µm, 3 µm, 5 µm
- Surface Area : 450 m<sup>2</sup>/g
- Pore Size : 100 Å (10 nm)
- Pore Volume : 1.05 mL/g
- Functional Group : Octyl
- End-capping : Yes
- Carbon Loading : 5 %
- USP Code : L7
- pH Range : 2 - 7.5



Many chromatographers prefer a C8 column when an ODS phase shows excessive retention values. Inertsil C8-4 provides the same separation pattern (selectivity) and extreme inertness to any type of compounds just like Inertsil ODS-4, which enables easy method transfer from ODS-4 to C8-4 while other commercially available ODS and C8 columns can show dramatically different selectivity even though they are part of the same brand/series.

**Figure 1 : Comparison of Separation Pattern between C18 and C8 Columns**



**Conditions**

Column Size : 5 µm, 250 × 4.6 mm I.D.	1. Uracil	(0.005 mg/mL)
Eluent : A) CH <sub>3</sub> OH	2. Caffeine	(0.04 mg/mL)
B) H <sub>2</sub> O	3. Phenol	(0.08 mg/mL)
A / B = 80/20, v/v	4. <i>n</i> -Butylbenzene	(1.12 mg/mL)
Flow Rate : 1.0 mL/min	5. <i>o</i> -Terphenyl	(0.04 mg/mL)
Col. Temp. : 40 °C	6. <i>n</i> -Amylbenzene	(1.37 mg/mL)
Detection : UV 254 nm	7. Triphenylene	(0.014 mg/mL)
Injection Vol. : 5 µL		



## Analytical Columns

Particle Size: 2 µm	Length \ I.D. (mm)	2.1	3.0		
	30	5020-81280	5020-81290		
	50	5020-81282	5020-81292		
	75	5020-81283	5020-81293		
	100	5020-81284	5020-81294		
	150	5020-81285	5020-81295		
HPSeries Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	30	5020-14071	5020-14074	5020-14077	
	50	5020-14072	5020-14075	5020-14078	
	75	5020-14073	5020-14076	5020-14079	
	100	5020-14051	5020-14054	5020-14057	
	150	5020-14052	5020-14055	5020-14058	
	250	5020-14053	5020-14056	5020-14059	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-81261	5020-81271		
	50	5020-81262	5020-81272		
	75	5020-81263	5020-81273		
	100	5020-81264	5020-81274		
	150	5020-81265	5020-81275		
	250	5020-81266	5020-81276		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-03971	5020-03978	5020-03985	5020-03992
	50	5020-03972	5020-03979	5020-03986	5020-03993
	75	5020-03973	5020-03980	5020-03987	5020-03994
	100	5020-03974	5020-03981	5020-03988	5020-03995
	125	5020-03977	5020-03984	5020-03991	5020-03998
	150	5020-03975	5020-03982	5020-03989	5020-03996
250	5020-03976	5020-03983	5020-03990	5020-03997	
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-81221	5020-81231		
	50	5020-81222	5020-81232		
	75	5020-81223	5020-81233		
	100	5020-81224	5020-81234		
	150	5020-81225	5020-81235		
	250	5020-81226	5020-81236		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-04051	5020-04061	5020-04071	5020-04081
	50	5020-04052	5020-04062	5020-04072	5020-04082
	75	5020-04053	5020-04063	5020-04073	5020-04083
	100	5020-04054	5020-04064	5020-04074	5020-04084
	125	5020-04057	5020-04067	5020-04077	5020-04080
	150	5020-04055	5020-04065	5020-04075	5020-04085
250	5020-04056	5020-04066	5020-04076	5020-04086	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-19247	5020-19246	5020-19297	5020-19296
1.5, 2.1		1.5	5020-19347	5020-19346	5020-19397	5020-19396
2.1, 3.0		3.0	5020-19147	5020-19146	5020-19197	5020-19196
4.0, 4.6		4.0	5020-19047	5020-19046	5020-19097	5020-19096
2.1, 3.0	20	3.0	5020-19547	5020-19546	5020-19597	5020-19596
4.0, 4.6		4.0	5020-19447	5020-19446	5020-19497	5020-19496
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index

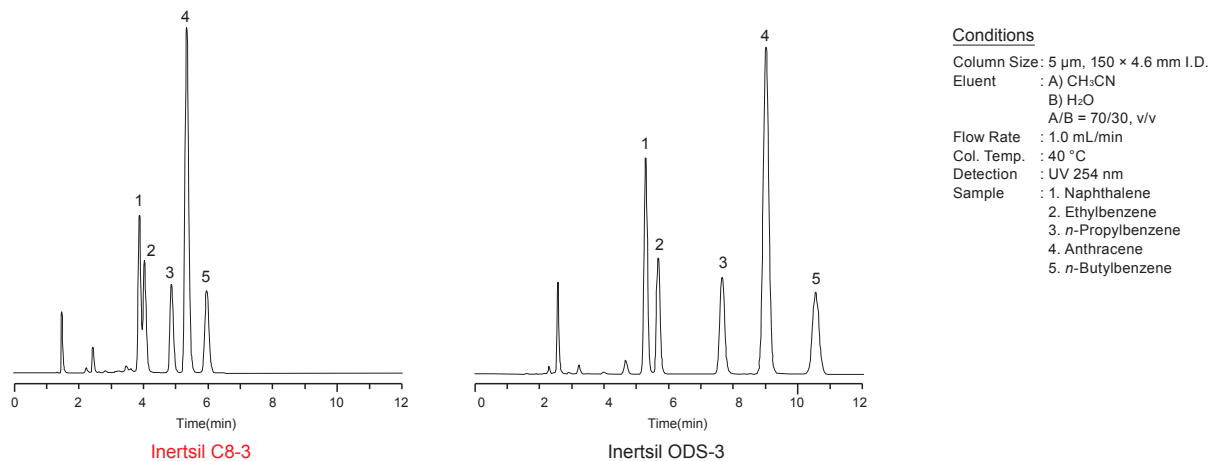
# Inertsil C8-3

- Silica : 3 Series High Purity Silica Gel
- Particle Size : 2  $\mu\text{m}$ , 3  $\mu\text{m}$ , 5  $\mu\text{m}$ , 10  $\mu\text{m}$
- Surface Area : 450  $\text{m}^2/\text{g}$
- Pore Size : 100  $\text{\AA}$  (10 nm)
- Pore Volume : 1.05  $\text{mL/g}$
- Functional Group : Octyl
- End-capping : Yes
- Carbon Loading : 9 %
- USP Code : L7
- pH Range : 2 - 7.5

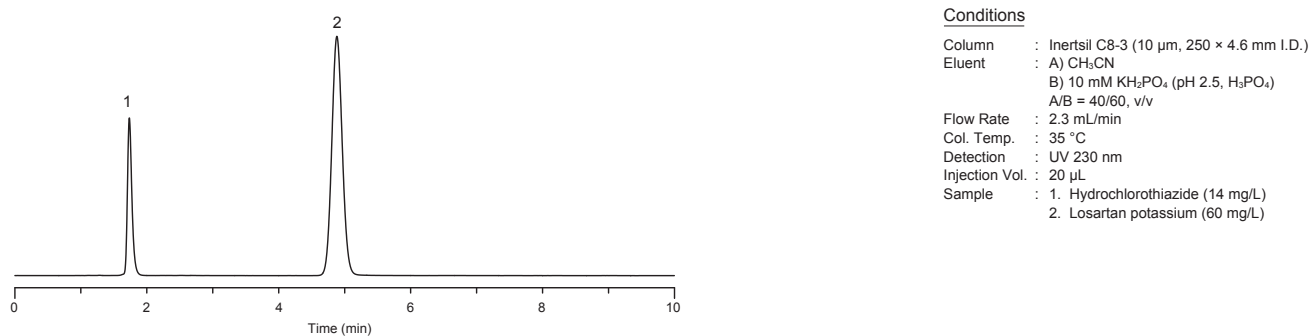


The same base silica gel and bonding technology that is used for Inertsil ODS-3 is also employed for Inertsil C8-3. The difference between the two phases is just the length of the hydrocarbon ligands. As shown in Figure 2, 10  $\mu\text{m}$  particle size columns are also available to meet the requirement of various pharmacopeia methods. We recommend InertSustain C8 columns for all new method development.

**Figure 1 : Comparison of Retentivity**



**Figure 2 : Analysis of Losartan Potassium and Hydrochlorothiazide Tablets, Dissolution Test (Based on the Condition of United States Pharmacopeia 36-NF 31)**



## Analytical Columns

Particle Size: 2 µm	Length \ I.D. (mm)	2.1	3.0		
	30	5020-84930	5020-84935		
	50	5020-84931	5020-84936		
	75	5020-84932	5020-84937		
	100	5020-84933	5020-84938		
	150	5020-84934	5020-84939		
HP Series Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	30	5020-14101	5020-14104	5020-14107	
	50	5020-14102	5020-14105	5020-14108	
	75	5020-14103	5020-14106	5020-14109	
	100	5020-14031	5020-14034	5020-14037	
	150	5020-14032	5020-14035	5020-14038	
	250	5020-14033	5020-14036	5020-14039	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	33	5020-84811	5020-84821		
	50	5020-84812	5020-84822		
	75	5020-84813	5020-84823		
	100	5020-84814	5020-84824		
	150	5020-13522	5020-13520		
	250	5020-	5020-		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	33	5020-04811	5020-04821	5020-04831	5020-04841
	50	5020-04812	5020-04822	5020-04832	5020-04842
	75	5020-04813	5020-04823	5020-04833	5020-01910
	100	5020-04814	5020-04824	5020-01913	5020-04844
	125	5020-04817	5020-04827	5020-04837	5020-04845
	150	5020-04815	5020-04825	5020-04835	5020-01911
250	5020-04816	5020-04826	5020-04836	5020-01912	
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	33	5020-84911	5020-84921		
	50	5020-84912	5020-84922		
	75	5020-84913	5020-84923		
	100	5020-84914	5020-84924		
	150	5020-13512	5020-13510		
	250	5020-84916	5020-84926		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	33	5020-04911	5020-04921	5020-04931	5020-04941
	50	5020-04912	5020-04922	5020-04932	5020-04942
	75	5020-04913	5020-04923	5020-04933	5020-04943
	100	5020-04914	5020-04924	5020-04934	5020-04944
	125	5020-04917	5020-04927	5020-04935	5020-04945
	150	5020-04915	5020-04925	5020-01902	5020-01900
250	5020-04916	5020-04926	5020-01903	5020-01901	
Particle Size: 10 µm	Length \ I.D. (mm)	4.6			
	150	5020-01641			
	250	5020-01642			

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-19215	5020-19214	5020-19265	5020-19264
1.5, 2.1		1.5	5020-19315	5020-19314	5020-19365	5020-19364
2.1, 3.0		3.0	5020-19115	5020-19114	5020-19165	5020-19164
4.0, 4.6		4.0	5020-19015	5020-19014	5020-19065	5020-19064
2.1, 3.0	20	3.0	5020-19515	5020-19514	5020-19565	5020-19564
4.0, 4.6		4.0	5020-19415	5020-19414	5020-19465	5020-19464
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

# Inertsil C8

- Silica : 2 Series High Purity Silica Gel
- Particle Size : 5  $\mu\text{m}$
- Surface Area : 320  $\text{m}^2/\text{g}$
- Pore Size : 150 Å (15 nm)
- Pore Volume : 1.20  $\text{mL/g}$
- Functional Group : Octyl
- End-capping : Yes
- Carbon Loading : 10.5 %
- USP Code : L7
- pH Range : 2 - 7.5



Inertsil C8 columns have a pore size of 150 Å and it is recommended for rapid analysis of highly hydrophobic compounds. We recommend InertSustain C8 or Inertsil C8-4 columns for all new method development.

## Analytical Columns

Particle Size: 5 $\mu\text{m}$	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	150	5020-01221	5020-01222	5020-01223	5020-01224
250	5020-01225	5020-01226	5020-01227	5020-01228	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)	Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)
			Particle Size	Particle Size
			5 $\mu\text{m}$	5 $\mu\text{m}$
2.1, 3.0	10	3.0	5020-19136	5020-19186
4.0, 4.6		4.0	5020-19036	5020-19086
2.1, 3.0	20	3.0	5020-19536	5020-19586
4.0, 4.6		4.0	5020-19436	5020-19486
Holder for Cartridge Guard Column E			For 10 mm Length	5020-08500
			For 20 mm Length	5020-08550



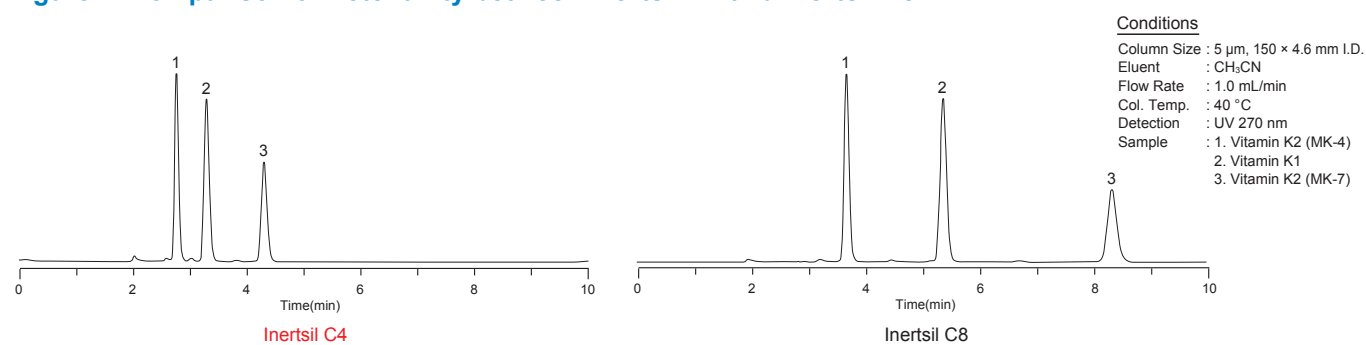
# Inertsil C4

- Silica : 2 Series High Purity Silica Gel
- Particle Size : 5  $\mu\text{m}$
- Surface Area : 320  $\text{m}^2/\text{g}$
- Pore Size : 150 Å (15 nm)
- Pore Volume : 1.20  $\text{mL/g}$
- Functional Group : Butyl
- End-capping : Yes
- Carbon Loading : 7.5 %
- USP Code : L26
- pH Range : 2 - 7.5



Inertsil C4 columns have a pore size of 150 Å and is recommended for rapid analysis of highly hydrophobic compounds such as fat-soluble vitamins.

**Figure 1: Comparison of Retentivity between Inertsil C4 and Inertsil C8**



## Analytical Columns

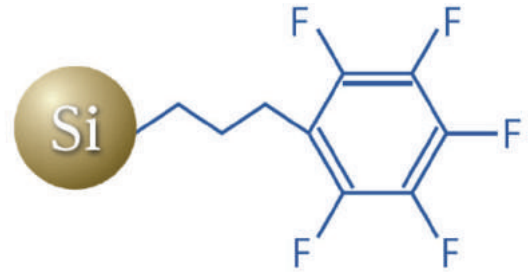
Particle Size: 5 $\mu\text{m}$	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	150	5020-01421	5020-01422	5020-01423	5020-01424
250	5020-01425	5020-01426	5020-01427	5020-01428	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)	Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)
			Particle Size	Particle Size
2.1, 3.0	10	3.0	5020-19138	5020-19188
		4.0	5020-19038	5020-19088
2.1, 3.0	20	3.0	5020-19538	5020-19588
		4.0	5020-19438	5020-19488
Holder for Cartridge Guard Column E			For 10 mm Length	5020-08500
			For 20 mm Length	5020-08550

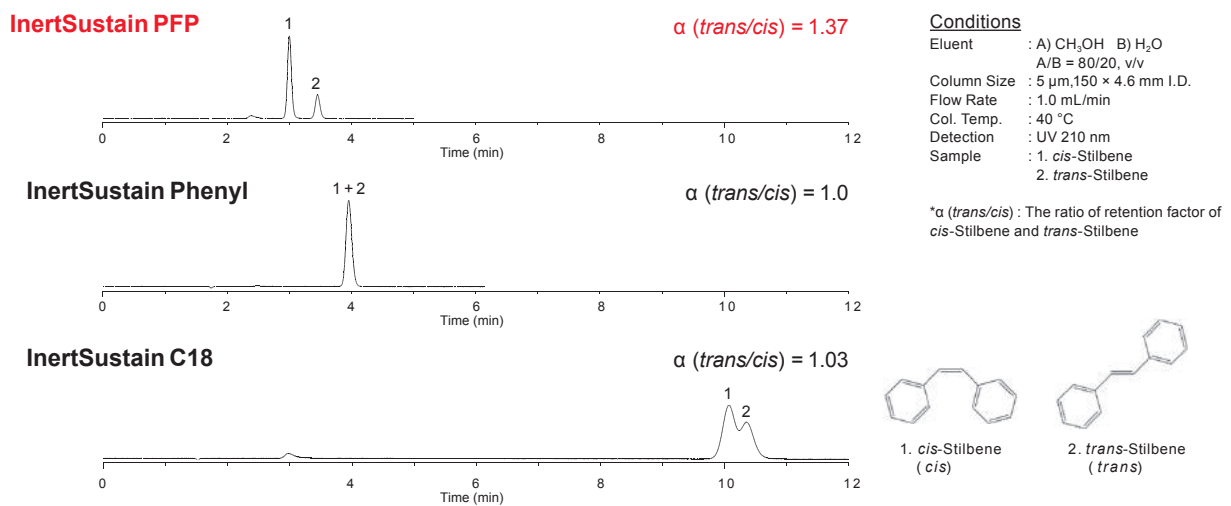
# InertSustain PFP

- Base Material : High Purity ES Silica Gel
- Particle Size : 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 350  $\text{m}^2/\text{g}$
- Pore Size : 100  $\text{\AA}$  (10  $\text{nm}$ )
- Pore Volume : 0.85  $\text{mL/g}$
- Functional Group : Pentafluorophenyl
- End-capping : Yes
- Carbon Loading : 10%
- USP Code : L43
- pH Range : 2 - 7.5

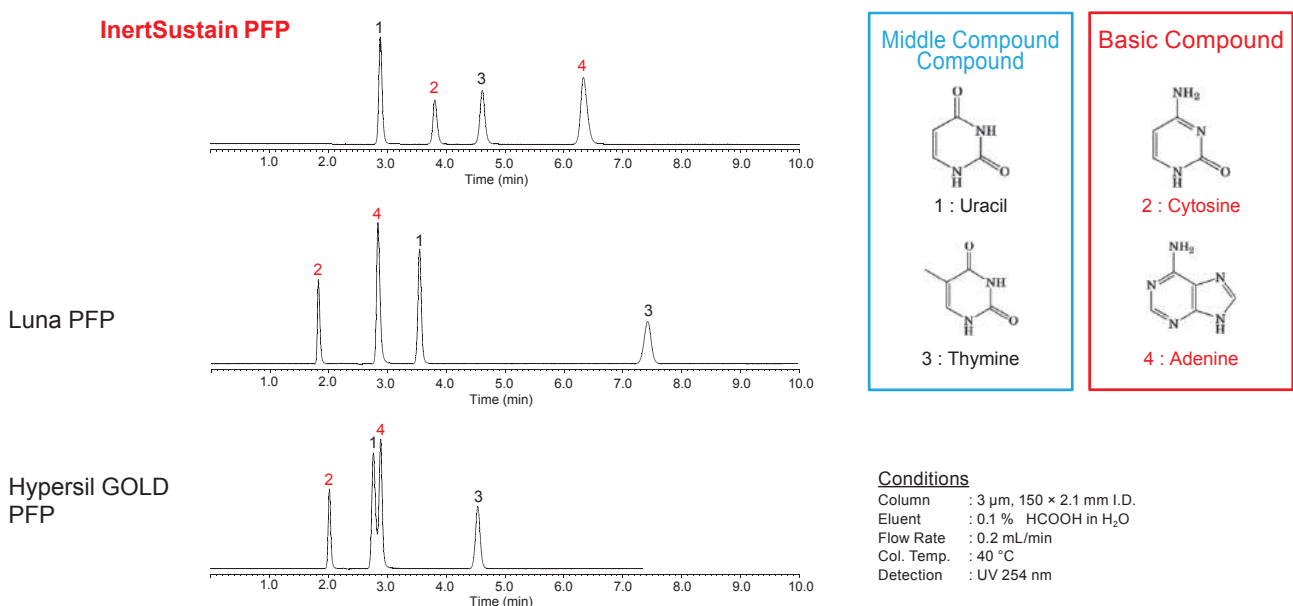


InertSustain PFP columns are bonded with pentafluorophenyl groups to our newly developed ES silica gel, which delivers unique separation patterns with excellent peak shape and sensitivity. The chromatographic difference stems from the fact that the PFP phases provide interactions such as  $\pi$ - $\pi$ , dipole, hydrogen bonding, and ionic interactions unlike conventional PFP columns.

**Figure 1 : Comparison of selectivity between reversed phase columns**



**Figure 2: Comparison of high polarity compounds analysis**



## Analytical Columns

HP Series Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	30	5020-87917	5020-87923	5020-87929	
	50	5020-87918	5020-87924	5020-87930	
	75	5020-87919	5020-87925	5020-87931	
	100	5020-87920	5020-87926	5020-87932	
	150	5020-87921	5020-87927	5020-87933	
	250	5020-87922	5020-87928	5020-87934	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-87868	5020-87874		
	50	5020-87869	5020-87875		
	75	5020-87870	5020-87876		
	100	5020-87871	5020-87877		
	150	5020-87872	5020-87878		
	250	5020-87873	5020-87879		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-87828	5020-87836	5020-87844	5020-87852
	50	5020-87829	5020-87837	5020-87845	5020-87853
	75	5020-87830	5020-87838	5020-87846	5020-87854
	100	5020-87831	5020-87839	5020-87847	5020-87855
	125	5020-87832	5020-87840	5020-87848	5020-87856
	150	5020-87833	5020-87841	5020-87849	5020-87857
	250	5020-87834	5020-87842	5020-87850	5020-87858
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-87741	5020-87747		
	50	5020-87742	5020-87748		
	75	5020-87743	5020-87749		
	100	5020-87744	5020-87750		
	150	5020-87745	5020-87751		
	250	5020-87746	5020-87752		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-87701	5020-87709	5020-87717	5020-87725
	50	5020-87702	5020-87710	5020-87718	5020-87726
	75	5020-87703	5020-87711	5020-87719	5020-87727
	100	5020-87704	5020-87712	5020-87720	5020-87728
	125	5020-87705	5020-87713	5020-87721	5020-87729
	150	5020-87706	5020-87714	5020-87722	5020-87730
	250	5020-87707	5020-87715	5020-87723	5020-87731

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-87907	5020-87807	5020-87908	5020-87808
1.5, 2.1		1.5	5020-87909	5020-87809	5020-87910	5020-87810
2.1, 3.0		3.0	5020-87905	5020-87805	5020-87906	5020-87806
4.0, 4.6		4.0	5020-87903	5020-87803	5020-87904	5020-87804
2.1, 3.0	20	3.0	5020-87913	5020-87813	5020-87914	5020-87814
4.0, 4.6		4.0	5020-87911	5020-87811	5020-87912	5020-87812
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

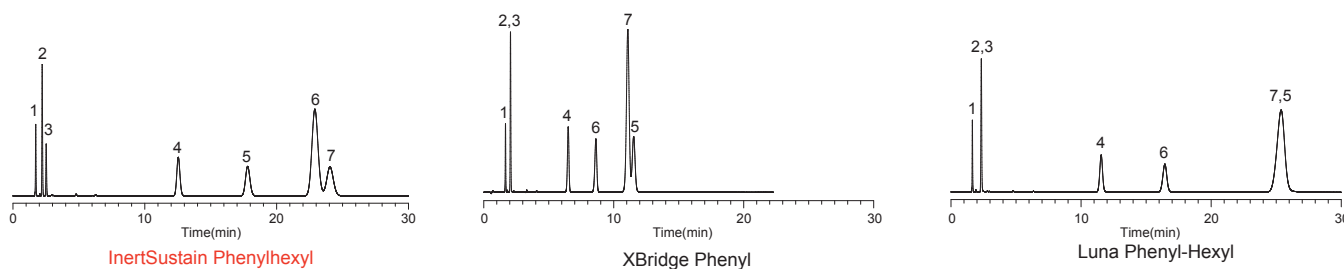
# InertSustain Phenylhexyl

- Silica : High Purity ES Silica Gel
- Particle Size : 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 350  $\text{m}^2/\text{g}$
- Pore Size : 100  $\text{\AA}$  (10 nm)
- Pore Volume : 0.85  $\text{mL/g}$
- Functional Group : Phenylhexyl
- End-capping : Yes
- Carbon Loading : 9.0 %
- USP Code : L11
- pH Range : 1 - 10



InertSustain Phenylhexyl columns are bonded with phenylhexyl groups, which employs a phenyl ring with a hexyl (6-carbon) linker and is densely bonded to our newly developed ES silica gel delivering complementary selectivity to straight alkyl-chain columns, but with industry leading inertness, lot-to-lot reproducibility and low back pressure.

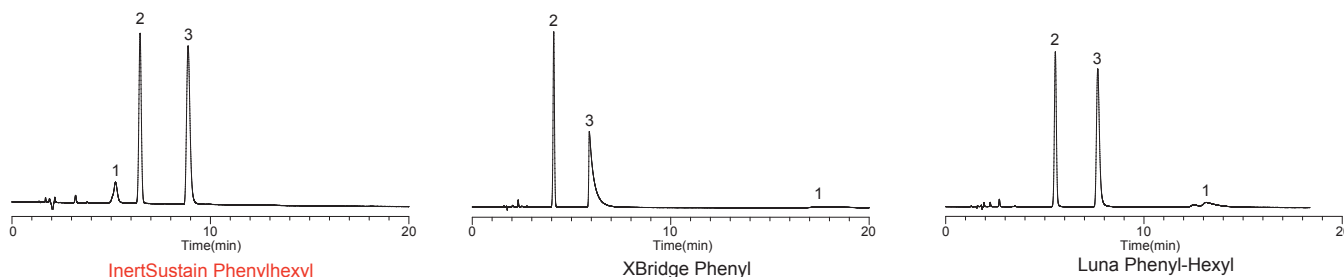
**Figure 1 : Comparison of Selectivity**



**Conditions**

Column Size : 5 $\mu\text{m}$ , 150 $\times$ 4.6 mm I.D.	Sample : 1. Uracil
Eluent : A) $\text{CH}_3\text{OH}$	2. Caffeine
B) $\text{H}_2\text{O}$	3. Phenol
A/B = 70/30, v/v	4. Butylbenzene
Flow Rate : 1.0 $\text{mL/min}$	5. o-Terphenyl
Col. Temp. : 40 $^\circ\text{C}$	6. Amylbenzene
Detection : UV 254 nm	7. Triphenylene

**Figure 2 : Analysis of Acidic Compounds**



**Conditions**

Column Size : 5 $\mu\text{m}$ , 150 $\times$ 4.6 mm I.D.	Sample : 1. Brilliant Blue FCF
Eluent : A) $\text{CH}_3\text{CN}$	2. Phenol
B) 0.1% $\text{H}_3\text{PO}_4$	3. Salicylic acid
A/B = 25/75, v/v	
Flow Rate : 1.0 $\text{mL/min}$	
Col. Temp. : 40 $^\circ\text{C}$	
Detection : UV 254 nm	



## Analytical Columns

HP Series Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D.(mm)	2.1	3.0	4.6	
	30	5020-89209	5020-89215	5020-89221	
	50	5020-89210	5020-89216	5020-89222	
	75	5020-89211	5020-89217	5020-89223	
	100	5020-89212	5020-89218	5020-89224	
	150	5020-89213	5020-89219	5020-89225	
	250	5020-89214	5020-89220	5020-89226	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-89160	5020-89166		
	50	5020-89161	5020-89167		
	75	5020-89162	5020-89168		
	100	5020-89163	5020-89169		
	150	5020-89164	5020-89170		
	250	5020-89165	5020-89171		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-89124	5020-89131	5020-89138	5020-89145
	50	5020-89125	5020-89132	5020-89139	5020-89146
	75	5020-89126	5020-89133	5020-89140	5020-89147
	100	5020-89127	5020-89134	5020-89141	5020-89148
	150	5020-89128	5020-89135	5020-89142	5020-89149
	250	5020-89129	5020-89136	5020-89143	5020-89150
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-89038	5020-89044		
	50	5020-89039	5020-89045		
	75	5020-89040	5020-89046		
	100	5020-89041	5020-89047		
	150	5020-89042	5020-89048		
	250	5020-89043	5020-89049		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-89001	5020-89008	5020-89015	5020-89022
	50	5020-89002	5020-89009	5020-89016	5020-89023
	75	5020-89003	5020-89010	5020-89017	5020-89024
	100	5020-89004	5020-89011	5020-89018	5020-89025
	150	5020-89005	5020-89012	5020-89019	5020-89026
	250	5020-89006	5020-89013	5020-89020	5020-89027

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-89199	5020-89105	5020-89200	5020-89106
1.5, 2.1		1.5	5020-89201	5020-89107	5020-89202	5020-89108
2.1, 3.0		3.0	5020-89197	5020-89103	5020-89198	5020-89104
4.0, 4.6		4.0	5020-89195	5020-89101	5020-89196	5020-89102
2.1, 3.0	20	3.0	5020-89205	5020-89111	5020-89206	5020-89112
4.0, 4.6		4.0	5020-89203	5020-89109	5020-89204	5020-89110
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index

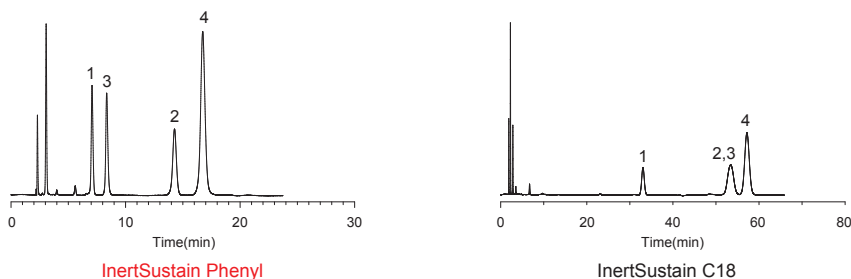
# InertSustain Phenyl

- Silica : High Purity ES Silica Gel
- Particle Size : 2  $\mu\text{m}$ , 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 350  $\text{m}^2/\text{g}$
- Pore Size : 100  $\text{\AA}$  (10 nm)
- Pore Volume : 0.85  $\text{mL/g}$
- Functional Group : Phenyl
- End-capping : No
- Carbon Loading : 10 %
- USP Code : L11
- pH Range : 2 - 7.5



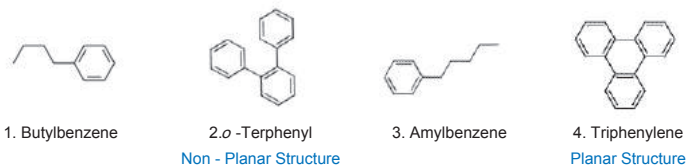
InertSustain Phenyl delivers an extremely unique reverse phase characteristics that are critical to resolving compounds that could not be separated on a C18 or C8 phase. InertSustain Phenyl provides not only pi-pi interactions, but also hydrogen bonding secondary interactions, which results in retaining polar compounds at the same time. As the phenyl groups are directly bonded to the silica gel, InertSustain Phenyl is compatible with the analysis of structural isomers due to its high stereo-selectivity (Figure 2) while other alkyl phenyl type columns fails to separate.

**Figure 1 : Comparison of Selectivity**

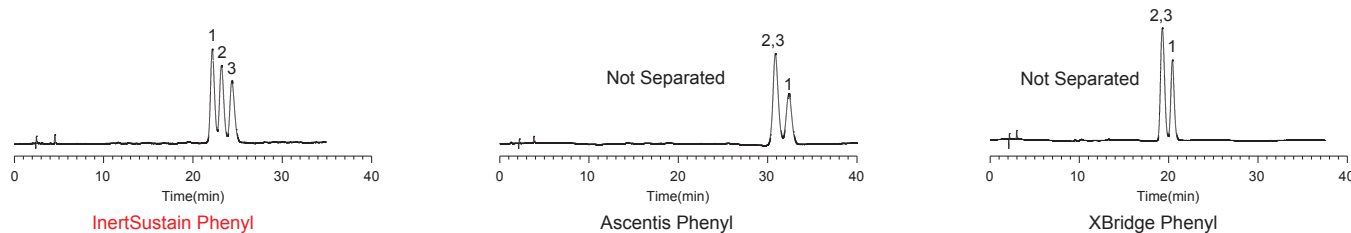


**Conditions**

Column Size : 5  $\mu\text{m}$ , 150  $\times$  4.6 mm I.D.  
 Eluent : A)  $\text{CH}_3\text{OH}$   
           B)  $\text{H}_2\text{O}$   
           A/B = 70/30, v/v  
 Flow Rate : 0.8  $\text{mL/min}$   
 Col. Temp. : 40  $^\circ\text{C}$   
 Detection : UV 254 nm

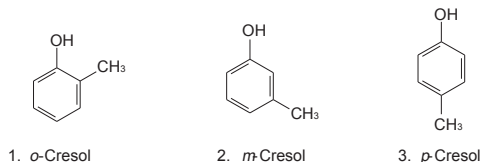


**Figure 2 : Analysis of Structural Isomers (Positional Isomers of Cresol)**



**Conditions**

Column Size : 5  $\mu\text{m}$ , 150  $\times$  4.6 mm I.D.  
 Eluent : A)  $\text{CH}_3\text{OH}$   
           B)  $\text{H}_2\text{O}$   
           A/B = 20/80, v/v  
 Col. Temp. : 40  $^\circ\text{C}$   
 Flow Rate : 0.8  $\text{mL/min}$   
 Detection : UV 254 nm



## Analytical Columns

Particle Size: 2 µm	Length \ I.D.(mm)	2.1	3.0		
	30	5020-16535	5020-16540		
	50	5020-16536	5020-16541		
	75	5020-16537	5020-16542		
	100	5020-16538	5020-16543		
HPSeries Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	30	5020-16517	5020-16523	5020-16529	
	50	5020-16518	5020-16524	5020-16530	
	75	5020-16519	5020-16525	5020-16531	
	100	5020-16520	5020-16526	5020-16532	
	150	5020-16521	5020-16527	5020-16533	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-16468	5020-16474		
	50	5020-16469	5020-16475		
	75	5020-16470	5020-16476		
	100	5020-16471	5020-16477		
	150	5020-16472	5020-16478		
	250	5020-16473	5020-16479		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-16432	5020-16439	5020-16446	5020-16453
	50	5020-16433	5020-16440	5020-16447	5020-16454
	75	5020-16434	5020-16441	5020-16448	5020-16455
	100	5020-16435	5020-16442	5020-16449	5020-16456
	150	5020-16436	5020-16443	5020-16450	5020-16457
250	5020-16437	5020-16444	5020-16451	5020-16458	
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-16339	5020-16345		
	50	5020-16340	5020-16346		
	75	5020-16341	5020-16347		
	100	5020-16342	5020-16348		
	150	5020-16343	5020-16349		
	250	5020-16344	5020-16350		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-16302	5020-16309	5020-16316	5020-16323
	50	5020-16303	5020-16310	5020-16317	5020-16324
	75	5020-16304	5020-16311	5020-16318	5020-16325
	100	5020-16305	5020-16312	5020-16319	5020-16326
	150	5020-16306	5020-16313	5020-16320	5020-16327
250	5020-16307	5020-16314	5020-16321	5020-16328	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-16507	5020-16406	5020-16508	5020-16407
1.5, 2.1		1.5	5020-16509	5020-16408	5020-16510	5020-16409
2.1, 3.0		3.0	5020-16505	5020-16404	5020-16506	5020-16405
4.0, 4.6		4.0	5020-16503	5020-16402	5020-16504	5020-16403
2.1, 3.0	20	3.0	5020-16513	5020-16412	5020-16514	5020-16413
4.0, 4.6		4.0	5020-16511	5020-16410	5020-16512	5020-16411
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

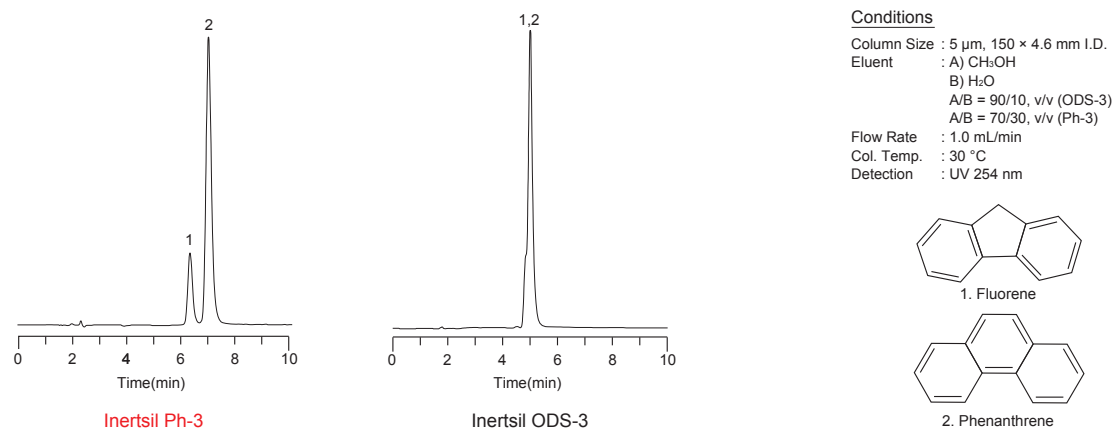
# Inertsil Ph-3

- Silica : 3 Series High Purity Silica Gel
- Particle Size : 2  $\mu\text{m}$ , 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 450  $\text{m}^2/\text{g}$
- Pore Size : 100  $\text{\AA}$  (10 nm)
- Pore Volume : 1.05  $\text{mL/g}$
- Functional Group : Phenyl Groups
- End-capping : No
- Carbon Loading : 9.5 %
- USP Code : L11
- pH Range : 2 - 7.5

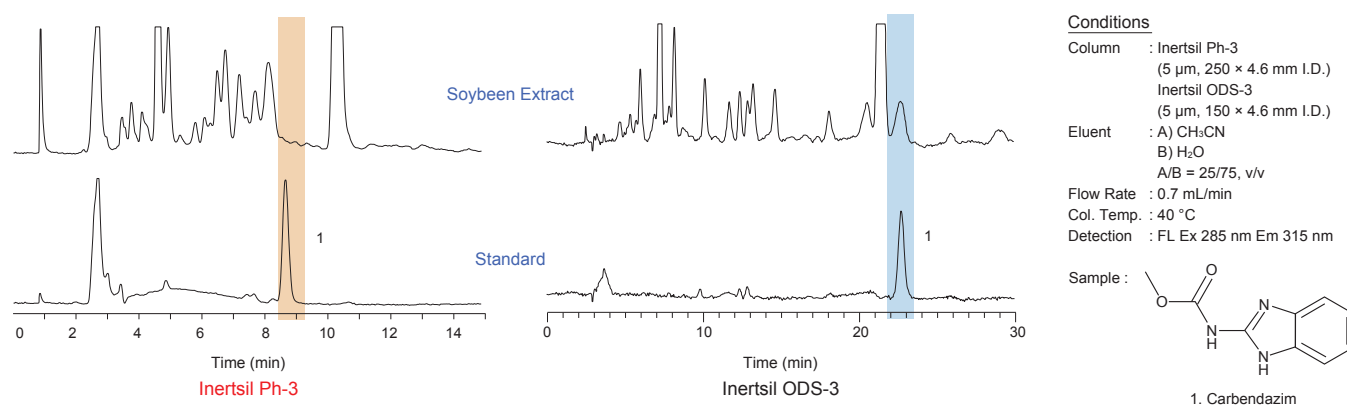


Just like InertSustain Phenyl, Inertsil Ph-3 have phenyl groups directly bonded to the silica gel which provides pure reverse phase characteristics that are critical to resolving highly polar compounds like acidic and basic pharmaceuticals. The near perfect phenyl phase coverage on this material results in symmetric, narrow peaks for even the most polar compounds while using simple eluents like aqueous acetonitrile or methanol.

**Figure 1 : Comparison of Selectivity with Inertsil ODS-3**



**Figure 2 : Application on Pesticide Detection Test**



### Analytical Columns

Particle Size: 2 µm	Length \ I.D. (mm)	2.1	3.0		
	30	5020-85130	5020-85135		
	50	5020-85131	5020-85136		
	75	5020-85132	5020-85137		
	100	5020-85133	5020-85138		
	150	5020-85134	5020-85139		
HPSeries Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	30	5020-14111	5020-14114	5020-14117	
	50	5020-14112	5020-14115	5020-14118	
	75	5020-14113	5020-14116	5020-14119	
	100	5020-14041	5020-14044	5020-14047	
	150	5020-14042	5020-14045	5020-14048	
	250	5020-14043	5020-14046	5020-14049	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	33	5020-85011	5020-85021		
	50	5020-85012	5020-85022		
	75	5020-85013	5020-85023		
	100	5020-85014	5020-85024		
	150	5020-13622	5020-13620		
	250	5020-	5020-		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	33	5020-05011	5020-05021	5020-05031	5020-05041
	50	5020-05012	5020-05022	5020-05032	5020-05042
	75	5020-05013	5020-05023	5020-05033	5020-01930
100	5020-05014	5020-05024	5020-01933	5020-05044	
150	5020-05015	5020-05025	5020-05035	5020-01931	
250	5020-05016	5020-05026	5020-05036	5020-01932	
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	33	5020-85111	5020-85121		
	50	5020-85112	5020-85122		
	75	5020-85113	5020-85123		
	100	5020-85114	5020-85124		
	150	5020-13612	5020-13610		
	250	5020-85116	5020-85126		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	33	5020-05111	5020-05121	5020-05131	5020-05141
	50	5020-05112	5020-05122	5020-05132	5020-05142
	75	5020-05113	5020-05123	5020-05133	5020-05143
100	5020-05114	5020-05124	5020-05134	5020-05144	
150	5020-05115	5020-05125	5020-01922	5020-01920	
250	5020-05116	5020-05126	5020-01923	5020-01921	

### Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-19217	5020-19216	5020-19267	5020-19266
1.5, 2.1		1.5	5020-19317	5020-19316	5020-19367	5020-19366
2.1, 3.0		3.0	5020-19117	5020-19116	5020-19167	5020-19166
4.0, 4.6		4.0	5020-19017	5020-19016	5020-19067	5020-19066
2.1, 3.0	20	3.0	5020-19517	5020-19516	5020-19567	5020-19566
4.0, 4.6		4.0	5020-19417	5020-19416	5020-19467	5020-19466
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

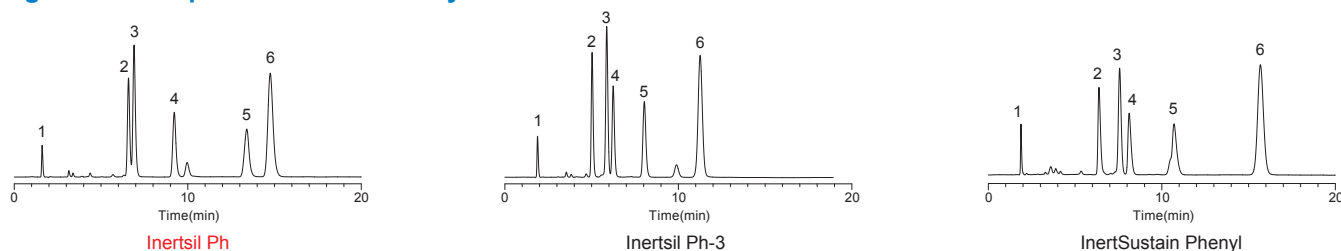
# Inertsil Ph

- Silica : 2 Series High Purity Silica Gel
- Particle Size : 5  $\mu\text{m}$
- Surface Area : 320  $\text{m}^2/\text{g}$
- Pore Size : 150  $\text{\AA}$  (15 nm)
- Pore Volume : 1.20  $\text{mL/g}$
- Functional Group : Phenethyl
- End-capping : Yes
- Carbon Loading : 10 %
- USP Code : L11
- pH Range : 2 - 7



Inertsil Ph has phenethyl groups bonded to silica gel which offers weak pi-pi interactions. As it is modified with phenethyl groups, hydrophobic interactions between alkyl chain and analytes play an important role in separation as well as  $\pi$ - $\pi$  interactions. To change the selectivity or elution pattern drastically, InertSustain Phenyl is recommended as it provides strong pi-pi interactions, resulting in resolving compounds that could not be separated on a C18 or C8 phase.

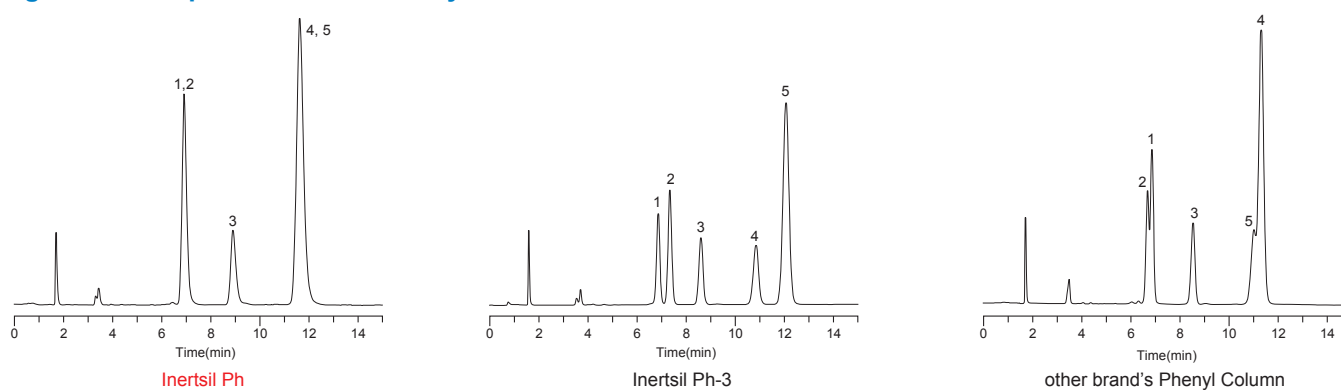
**Figure 1 : Comparison of Selectivity**



**Conditions**

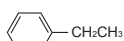
Column Size : 5 $\mu\text{m}$ , 150 $\times$ 4.6 mm I.D.	Sample :
Eluent : A) $\text{CH}_3\text{OH}$	1. Uracil
B) $\text{H}_2\text{O}$	2. Ethylbenzene
A/B = 60/40, v/v	3. Naphthalene
Flow Rate : 1.0 $\text{mL/min}$	4. Propylbenzene
Col. Temp. : 40 $^\circ\text{C}$	5. Butylbenzene
Detection : UV 254 nm	6. Anthracene

**Figure 2 : Comparison of Selectivity**



**Conditions**

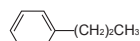
Column Size : 5 $\mu\text{m}$ , 150 $\times$ 4.6 mm I.D.
Eluent : A) $\text{CH}_3\text{CN}$
B) $\text{H}_2\text{O}$
A/B = 50/50, v/v
Flow Rate : 1.0 $\text{mL/min}$
Col. Temp. : 40 $^\circ\text{C}$
Detection : UV 254 nm



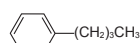
1. Ethylbenzene



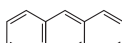
2. Naphthalene



3. n-Propylbenzene



4. n-Butylbenzene



5. Anthracene

## Analytical Columns

Particle Size: 5 µm	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	150	5020-01321	5020-01322	5020-01323	5020-01324
	250	5020-01325	5020-01326	5020-01327	5020-01328

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)	Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)
			Particle Size	Particle Size
			5 µm	5 µm
2.1, 3.0	10	3.0	5020-19137	5020-19187
4.0, 4.6		4.0	5020-19037	5020-19087
2.1, 3.0	20	3.0	5020-19537	5020-19587
4.0, 4.6		4.0	5020-19437	5020-19487
Holder for Cartridge Guard Column E			For 10 mm Length	5020-08500
			For 20 mm Length	5020-08550



Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index

# InertSustain Cyano

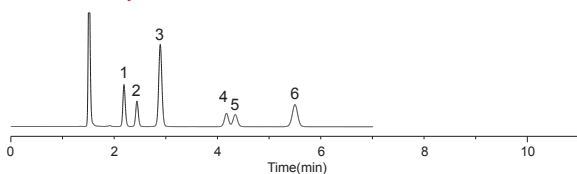
- **Base Material** : High Purity ES Silica Gel
- **Particle Size** : 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- **Surface Area** : 350  $\text{m}^2/\text{g}$
- **Pore Size** : 100  $\text{\AA}$  (10 nm)
- **Pore Volume** : 0.85  $\text{mL/g}$
- **Functional Group** : Cyanopropyl
- **End-capping** : Yes
- **Carbon Loading** : 8%
- **USP Code** : L10
- **pH Range** : 2 - 7.5



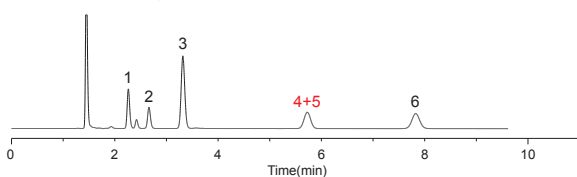
In general, the stability and reproducibility of the Cyano phase available in the market are poor. Many batch-to-batch or lot-to-lot reproducibility issues are occurring at many laboratories. The InertSustain Cyano columns were developed to resolve these problems and are designed using the most modern LC column technology available providing them to be extremely inert, stable and reproducible. The InertSustain Cyano columns are highly recommended for all pharmacopeia methods requiring a Cyano phase to be used. (Ex: USP L10)

**Figure 1 : Comparison of Selectivity**

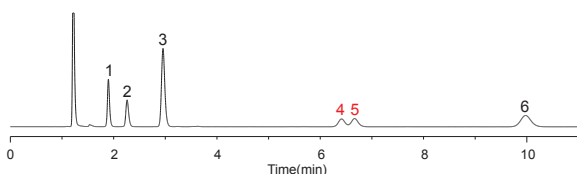
InertSustain Cyano



InertSustain Phenyl



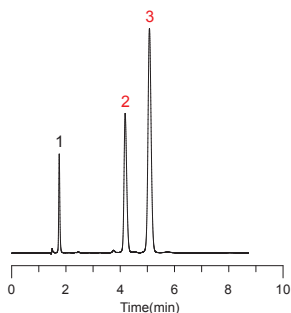
InertSustain C18



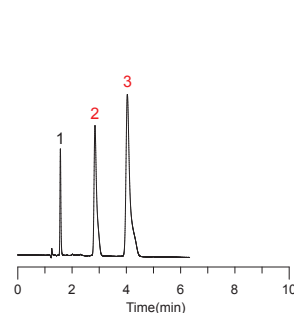
Conditions

Column Size : 5  $\mu\text{m}$ , 150  $\times$  4.6 mm I.D.  
 Eluent : A)  $\text{CH}_3\text{CN}$  B) 0.1%  $\text{H}_3\text{PO}_4$   
 A/B = 25/75, v/v  
 Flow Rate : 1.0 mL/min  
 Col. Temp. : 40  $^\circ\text{C}$   
 Detection : UV 280 nm  
 Sample : 1. 4-Hydroxybenzamide  
 2. Hydroquinone  
 3. 4-Hydroxybenzoic acid  
 4. Phenol  
 5. 4-Hydroxybenzoinitoril  
 6. *p*-Nitrophenol

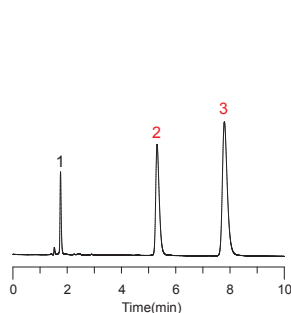
**Figure 2 : Comparison of Basic Compounds Analysis**



InertSustain Cyano



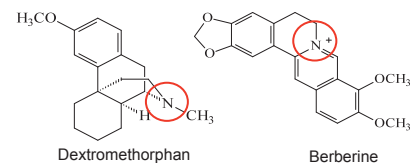
ZORBAX SB-CN



XSelect HSS CN

Conditions

Column Size : 5  $\mu\text{m}$ , 150  $\times$  4.6 mm I.D.  
 Eluent : A)  $\text{CH}_3\text{CN}$  B) 0.1%  $\text{H}_3\text{PO}_4$   
 A/B = 25/75, v/v  
 Flow Rate : 1.0 mL/min  
 Col. Temp. : 40  $^\circ\text{C}$   
 Detection : UV 230 nm  
 Sample : 1. Uracil  
 2. Dextromethorphan  
 3. Berberine





## Analytical Columns

HP Series Particle Size: 3 µm 50 MPa (500 bar)	Length \ I.D. (mm)	2.1	3.0	4.6	
	30	5020-89459	5020-89465	5020-89471	
	50	5020-89460	5020-89466	5020-89472	
	75	5020-89461	5020-89467	5020-89473	
	100	5020-89462	5020-89468	5020-89474	
	150	5020-89463	5020-89469	5020-89475	
	250	5020-89464	5020-89470	5020-89476	
Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-89410	5020-89416		
	50	5020-89411	5020-89417		
	75	5020-89412	5020-89418		
	100	5020-89413	5020-89419		
	150	5020-89414	5020-89420		
	250	5020-89415	5020-89421		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-89374	5020-89381	5020-89388	5020-89395
	50	5020-89375	5020-89382	5020-89389	5020-89396
	75	5020-89376	5020-89383	5020-89390	5020-89397
	100	5020-89377	5020-89384	5020-89391	5020-89398
150	5020-89378	5020-89385	5020-89392	5020-89399	
250	5020-89379	5020-89386	5020-89393	5020-89400	
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	30	5020-89288	5020-89294		
	50	5020-89289	5020-89295		
	75	5020-89290	5020-89296		
	100	5020-89291	5020-89297		
	150	5020-89292	5020-89298		
	250	5020-89293	5020-89299		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	30	5020-89251	5020-89258	5020-89265	5020-89272
	50	5020-89252	5020-89259	5020-89266	5020-89273
	75	5020-89253	5020-89260	5020-89267	5020-89274
	100	5020-89254	5020-89261	5020-89268	5020-89275
150	5020-89255	5020-89262	5020-89269	5020-89276	
250	5020-89256	5020-89263	5020-89270	5020-89277	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-89449	5020-89355	5020-89450	5020-89356
1.5, 2.1		1.5	5020-89451	5020-89357	5020-89452	5020-89358
2.1, 3.0		3.0	5020-89447	5020-89353	5020-89448	5020-89354
4.0, 4.6		4.0	5020-89445	5020-89351	5020-89446	5020-89352
2.1, 3.0	20	3.0	5020-89455	5020-89361	5020-89456	5020-89362
4.0, 4.6		4.0	5020-89453	5020-89359	5020-89454	5020-89360
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index

# Inertsil WP300 C18

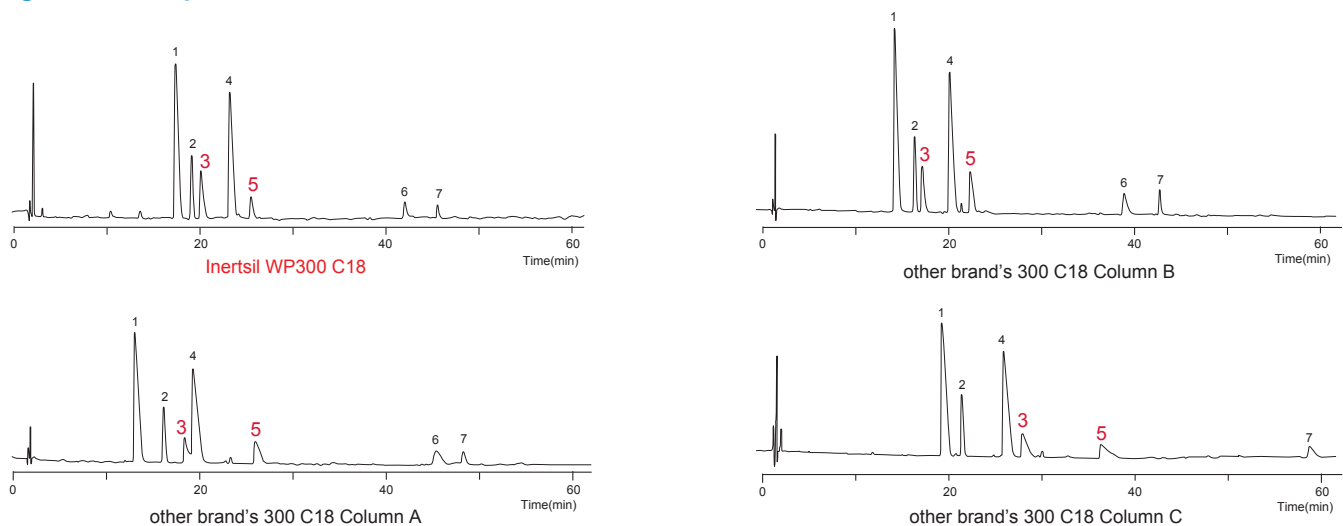
- Silica : WP300 Series High Purity Silica Gel
- Particle Size : 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- Surface Area : 150  $\text{m}^2/\text{g}$
- Pore Size : 300 Å (30 nm)
- Pore Volume : 1.05  $\text{mL/g}$
- Functional Group : Octadecyl
- End-capping : Yes
- Carbon Loading : 9 %
- USP Code : L1
- pH Range : 2 - 7.5



Inertsil WP300 C18 (wide pore size of 300 Å) columns bring the same legendary performance of Inertsil's narrow-pore HPLC products to columns designed specifically for the reproducible separations of proteins and peptides.

The results of GL Sciences' original end-capping technique are shown in Figure 1, which provide high efficiency and good peak shape for proteins and peptides.

**Figure 1 : Comparison with Other Brands**



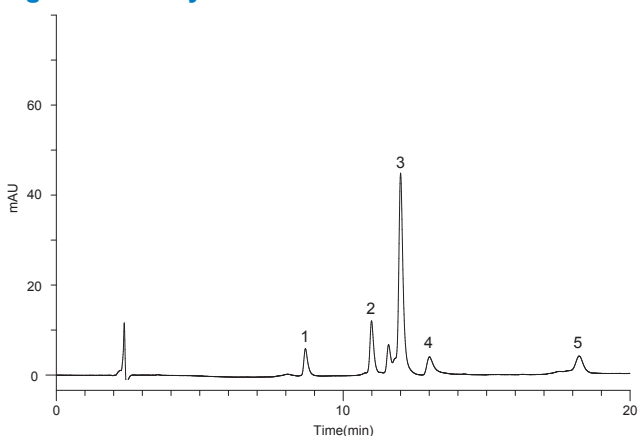
**Conditions**

Column Size : 5  $\mu\text{m}$ , 150  $\times$  4.6 mm I.D.  
 Eluent : A) 0.05 % HCOOH in ( $\text{CH}_3\text{CN}/\text{H}_2\text{O} = 90/10$ , v/v)  
 B) 0.05 % HCOOH in  $\text{H}_2\text{O}$   
 A/B = 10/90 – 60 min – 40/60, v/v

Flow Rate : 2.0  $\text{mL}/\text{min}$   
 Col. Temp. : 30  $^\circ\text{C}$   
 Detection : UV 254 nm

Sample : 1. Methionine Enkephalin (Tyr-Gly-Gly-Phe-Met, MW 574)  
 2. Oxytocin (Cys-Tyr-Ile-Gln-Asn-Cys-Pro-Leu-Gly-NH<sub>2</sub>, MW 1,007)  
 3. Angiotensin II (Asp-Arg-Val-Tyr-Ile-His-Pro-Phe, MW 1,032)  
 4. Leucin Enkephalin (Tyr-Gly-Gly-Phe-Leu, MW 556)  
 5. Angiotensin I (Asp-Arg-Val-Tyr-Ile-His-Pro-Phe-His-Leu, MW 1,297)  
 6. Insulin (MW 6,000)  
 7. Insulin Chain B (MW 3,496)

**Figure 2 : Analysis of Proteins**



**Conditions**

Column : Inertsil WP300 C18 (5  $\mu\text{m}$ , 150  $\times$  3.0 mm I.D.)  
 Eluent : A) 0.1 % TFA in  $\text{CH}_3\text{CN}$   
 B) 0.1 % TFA in  $\text{H}_2\text{O}$   
 A/B = 20/80 – 20 min – 70/30, v/v

Flow Rate : 0.4  $\text{mL}/\text{min}$   
 Col. Temp. : 40  $^\circ\text{C}$   
 Detection : UV 280 nm  
 Injection Vol. : 10  $\mu\text{L}$   
 Sample : 1. Ribonuclease B  
 2. Cytochrome C  
 3. Lysozyme  
 4. BSA  
 5. Ovalbumin

## Analytical Columns

Particle Size: 3 $\mu$ m	Length \ I.D. (mm)	2.1	3.0	4.6		
	50	5020-41100	5020-	5020-41103		
	150	5020-41101	5020-41102	5020-41104		
	250	5020-	5020-	5020-41105		
Particle Size: 5 $\mu$ m	Length \ I.D. (mm)	1.0	1.5			
	33	5020-85811	5020-85821			
	50	5020-85812	5020-85822			
	75	5020-85813	5020-85823			
	100	5020-85814	5020-85824			
	150	5020-85815	5020-85825			
	250	5020-85816	5020-85826			
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6	
	33	5020-05811	5020-05821	5020-05831	5020-05841	
	50	5020-05812	5020-05822	5020-05832	5020-05842	
	75	5020-05813	5020-05823	5020-05833	5020-05843	
	100	5020-05814	5020-05824	5020-05834	5020-05844	
	150	5020-05815	5020-05825	5020-05835	5020-05845	
	250	5020-05816	5020-05826	5020-05836	5020-05846	

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)	Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)
			Particle Size	Particle Size
			5 $\mu$ m	5 $\mu$ m
1.0	10	1.0	5020-19228	5020-19278
1.5, 2.1		1.5	5020-19328	5020-19378
2.1, 3.0		3.0	5020-19128	5020-19178
4.0, 4.6		4.0	5020-19028	5020-19078
2.1, 3.0	20	3.0	5020-19528	5020-19578
4.0, 4.6		4.0	5020-19428	5020-19478
Holder for Cartridge Guard Column E	For 10 mm Length			5020-08500
	For 20 mm Length			5020-08550

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index

# Inertsil WP300 C8

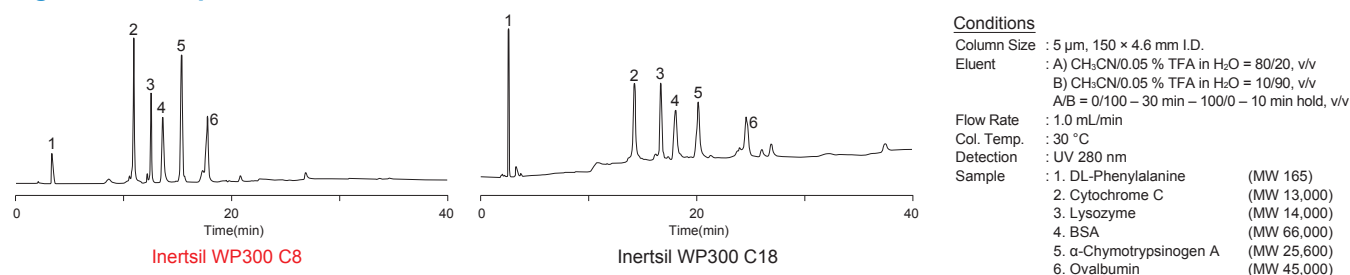
- Silica : WP300 Series High Purity Silica Gel
- Particle Size : 5  $\mu\text{m}$
- Surface Area : 150  $\text{m}^2/\text{g}$
- Pore Size : 300 Å (30 nm)
- Pore Volume : 1.05  $\text{mL/g}$
- Functional Group : Octyl
- End-capping : Yes
- Carbon Loading : 4 %
- USP Code : L7
- pH Range : 2 - 7.5



Inertsil WP300 C8 (wide pore size of 300 Å) columns bring the same legendary performance of Inertsil's narrow-pore HPLC products to columns designed specifically for the reproducible rapid separations of proteins and peptides.

As shown in Figure 1, Inertsil WP300 C8 delivers rapid analysis with sharper peaks compared to Inertsil WP300 C18.

**Figure 1 : Comparison with Inertsil WP300 C18**



## Analytical Columns

Particle Size: 5 $\mu\text{m}$	Length \ I.D. (mm)	1.0	1.5		
	33	5020-85711	5020-85721		
50	5020-85712	5020-85722			
75	5020-85713	5020-85723			
100	5020-85714	5020-85724			
150	5020-85715	5020-85725			
250	5020-85716	5020-85726			
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	33	5020-05711	5020-05721	5020-05731	5020-05741
	50	5020-05712	5020-05722	5020-05732	5020-05742
	75	5020-05713	5020-05723	5020-05733	5020-05743
	100	5020-05714	5020-05724	5020-05734	5020-05744
	150	5020-05715	5020-05725	5020-05735	5020-05745
	250	5020-05716	5020-05726	5020-05736	5020-05746

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			5 $\mu\text{m}$		5 $\mu\text{m}$	
1.0	10	1.0	5020-19229	5020-19279		
1.5, 2.1		1.5	5020-19329	5020-19379		
2.1, 3.0		3.0	5020-19129	5020-19179		
4.0, 4.6		4.0	5020-19029	5020-19079		
2.1, 3.0	20	3.0	5020-19529	5020-19579		
4.0, 4.6		4.0	5020-19429	5020-19479		
Holder for Cartridge Guard Column E			For 10 mm Length		5020-08500	
			For 20 mm Length		5020-08550	

# Inertsil WP300 C4

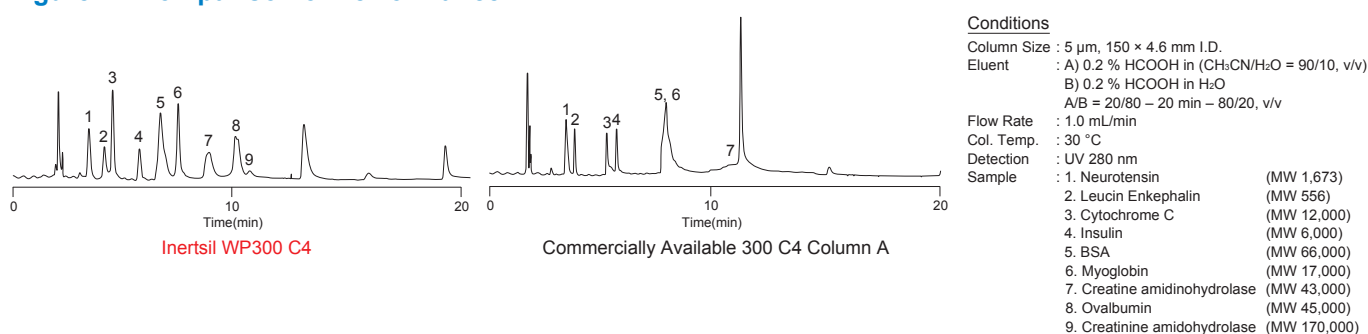
- Silica : WP300 Series High Purity Silica Gel
- Particle Size : 5 µm
- Surface Area : 150 m<sup>2</sup>/g
- Pore Size : 300 Å (30 nm)
- Pore Volume : 1.05 mL/g
- Functional Group : Butyl
- End-capping : No
- Carbon Loading : 3 %
- USP Code : L26
- pH Range : 2 - 7.5



PG : Polar Group

Inertsil WP300 C4 is a butyl group bonded phase utilizing silica gel with wide pores (300 Å). Also, an optimal polar group is embedded between silica surface and butyl group, which reduces adsorption of basic compounds and fat-soluble proteins. Inertsil WP300 C4 is recommended for the analysis of large, highly fat-soluble proteins and peptides as illustrated in Figure 1.

**Figure 1 : Comparison of Performance**

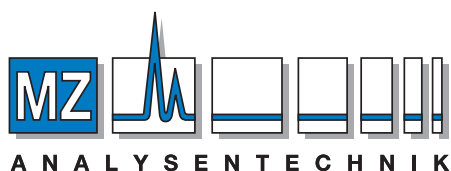


## Analytical Columns

Particle Size: 5 µm	Length \ I.D. (mm)	1.0		1.5					
		33	5020-86111	5020-86121					
	50	5020-86112	5020-86122						
	75	5020-86113	5020-86123						
	100	5020-86114	5020-86124						
	150	5020-86115	5020-86125						
	250	5020-86116	5020-86126						
Particle Size: 5 µm	Length \ I.D. (mm)	2.1		3.0		4.0		4.6	
		33	5020-05861	5020-05871	5020-05881	5020-05891			
	50	5020-05862	5020-05872	5020-05882	5020-05892				
	75	5020-05863	5020-05873	5020-05883	5020-05893				
	100	5020-05864	5020-05874	5020-05884	5020-05894				
	150	5020-05865	5020-05875	5020-05885	5020-05895				
	250	5020-05866	5020-05876	5020-05886	5020-05896				

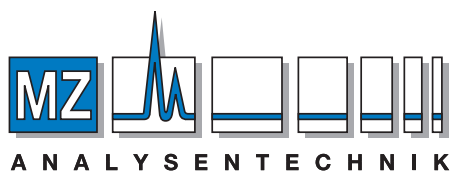
## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			5 µm		5 µm	
1.0	10	1.0	5020-19230	5020-19280		
1.5, 2.1		1.5	5020-19330	5020-19380		
2.1, 3.0		3.0	5020-19130	5020-19180		
4.0, 4.6	20	4.0	5020-19030	5020-19080		
2.1, 3.0		3.0	5020-19530	5020-19580		
4.0, 4.6		4.0	5020-19430	5020-19480		
Holder for Cartridge Guard Column E			For 10 mm Length		5020-08500	
			For 20 mm Length		5020-08550	



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