Inertsil ODS-EP Technical Information

Advantages of Inertsil ODS-EP

- The selectivity is completely different from those of conventional columns such as ODS column due to its specific polar group in the stationary phase.

- Durability can be obtained by the high density bonding.

- Superior peak shapes of both acids and bases can be obtained because of neutral bonded phase and low residual silanol groups.

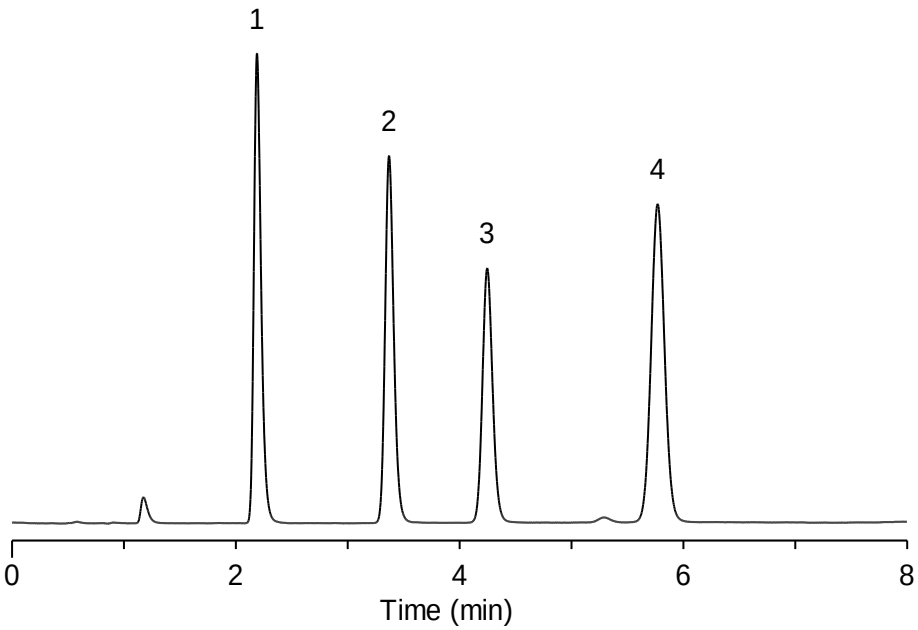
- Silica gel of high-purity is used as the support material, which minimizes effects of any remaining metal ions.

- Specifications of Inertsil ODS-EP

	Support Silica Gel					Chemical Modification	
	Partical diameter	Shape	Specific surface area	Pore diameter	Purity	Bonded group	ODS Carbon content
Inertsil ODS-EP	5 μ m	Spherical	450m^2/g	100Å	99.999	Embededpolar Octadecyl group	9 %

(1) Naphthalene sample

~ for measurement retention and peak shape ~

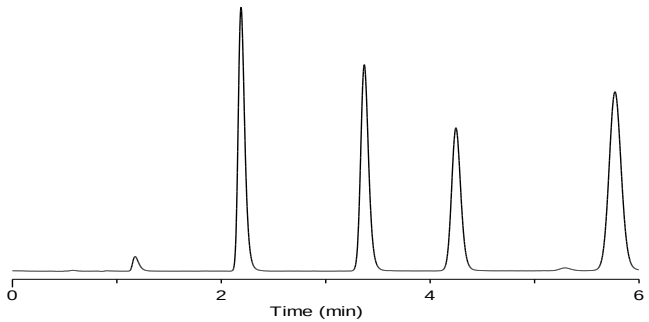


Inertsil ODS-EP

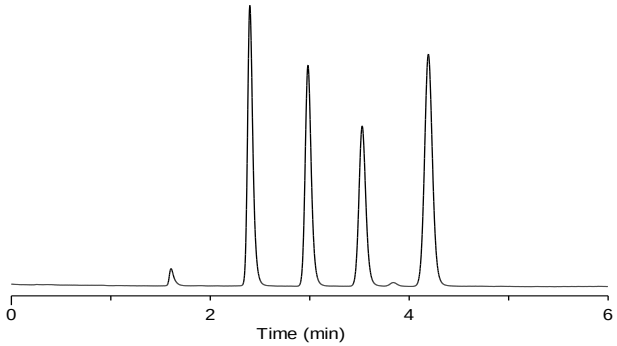
Conditions
Column dimensions:
4.6 mm I.D x 150 mm length
Mobile phase:
Acetonitrile : Water =65 : 35
Flow rate: 1 ml / min
Column temperature: 40℃
Detection: UV 254 nm

Peak identification
1. Acetophenone
2. Benzene
3. Toluene
4. Naphthalene

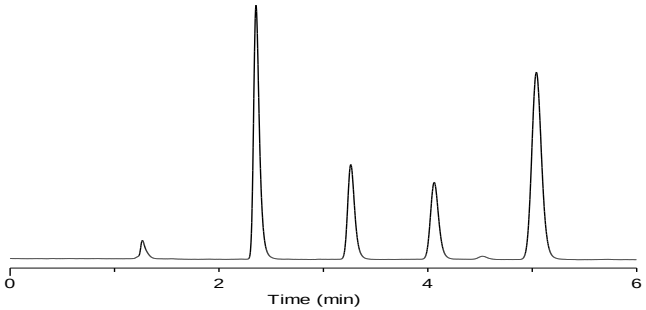
Comparison of retention between Inertsil ODS-EP and commercial embedded columns



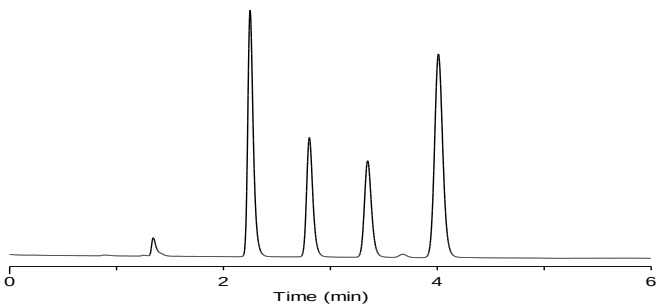
Inertsil ODS-EP



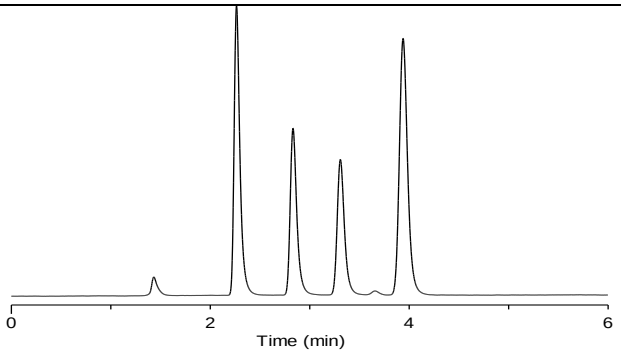
Discovery RP Amide C16



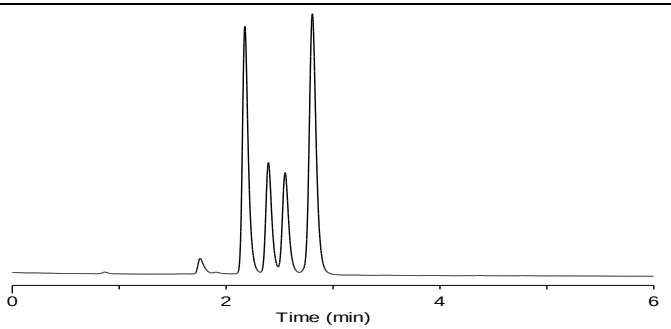
Symmetry Shield RP18



Zorbax Bonus-RP

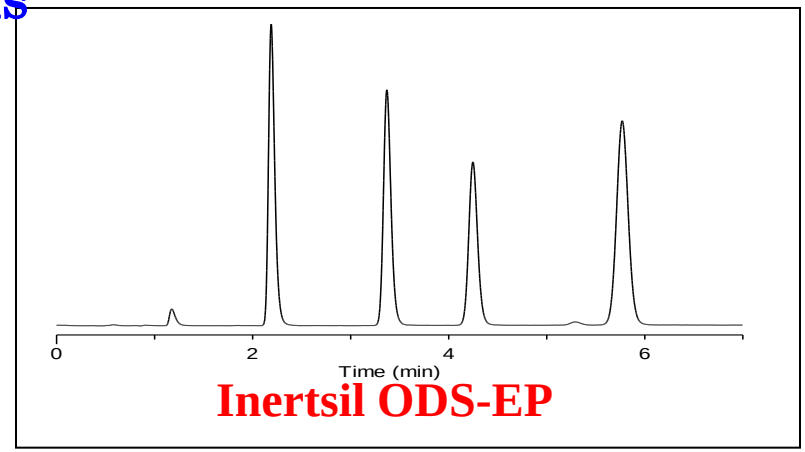


Xterra RP18

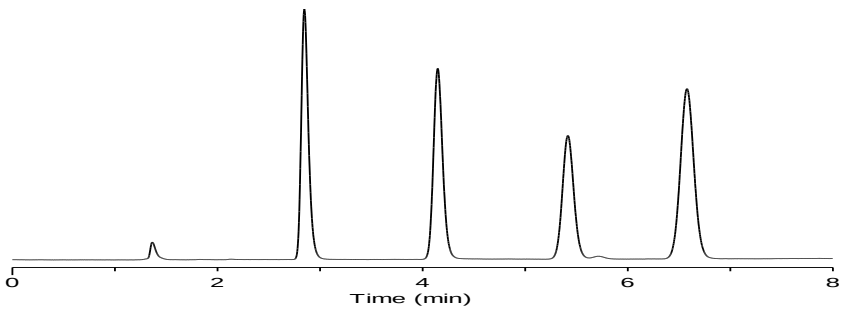


Hypersil HyPURITY Advance

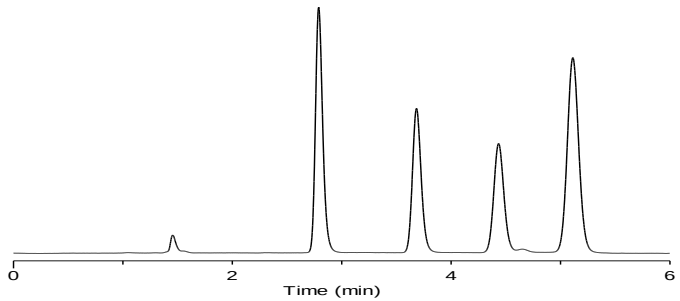
Comparison of retention between Inertsil ODS-EP and other type commercial columns



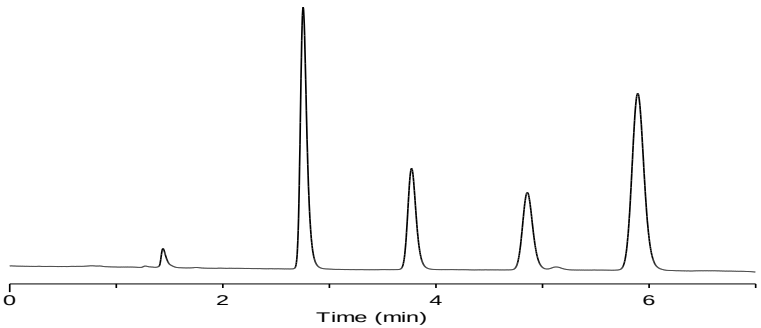
Inertsil ODS-EP



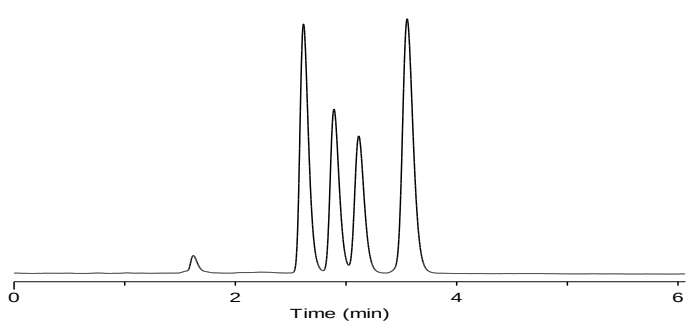
Inertsil ODS-3



Inertsil C8-3

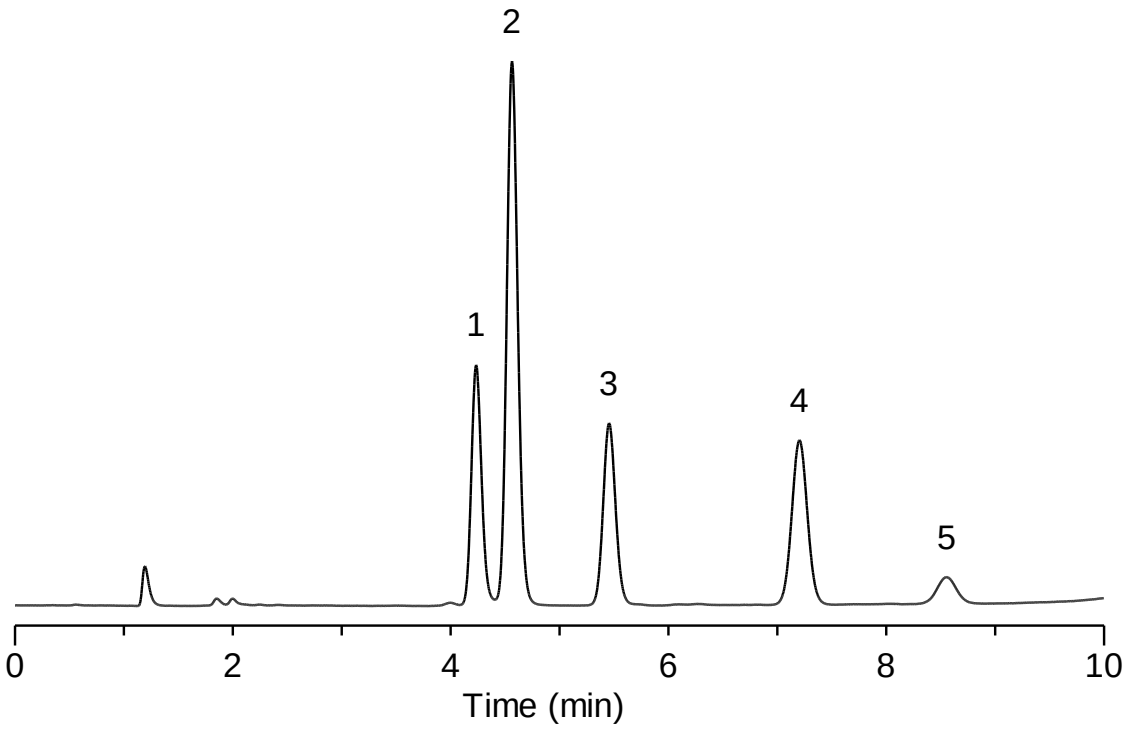


Aqua C18(polar endcapping)



Inertsil Ph-3

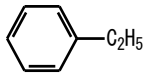
(2) Selectivity test sample ~ for measurement selectivity ~



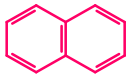
Inertsil ODS-EP

Conditions
Column dimensions:
4.6 mm I.D x 150 mm length
Mobile phase:
Acetonitrile : Water = 70 : 30
Flow rate: 1 ml / min
Column temperature: 40℃
Detection: UV 265 nm

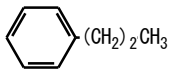
Peak identification
1. Ethylbenzene



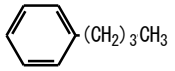
2. Naphthalene



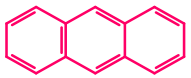
3. n-Propylbenzene



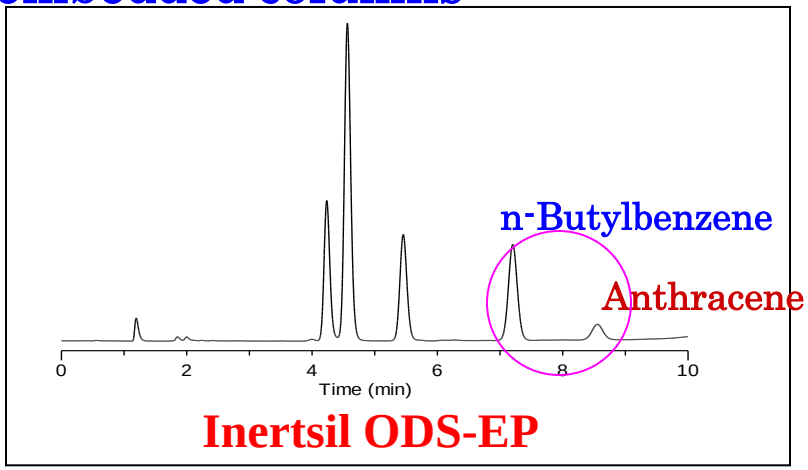
4. n-Butylbenzene



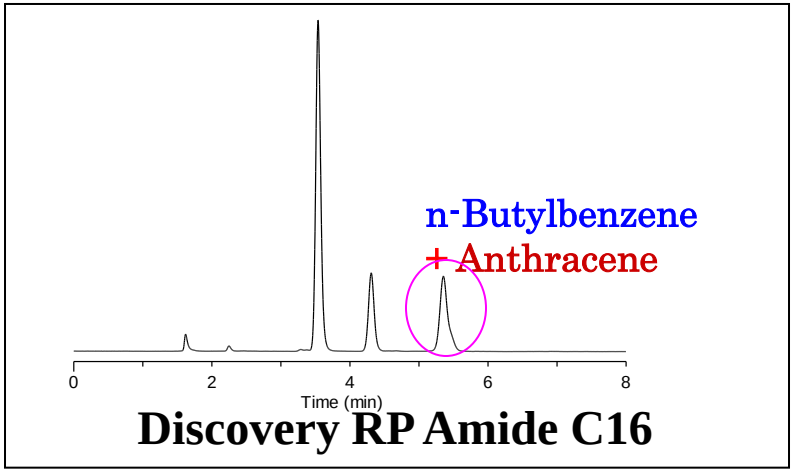
5. Anthracene



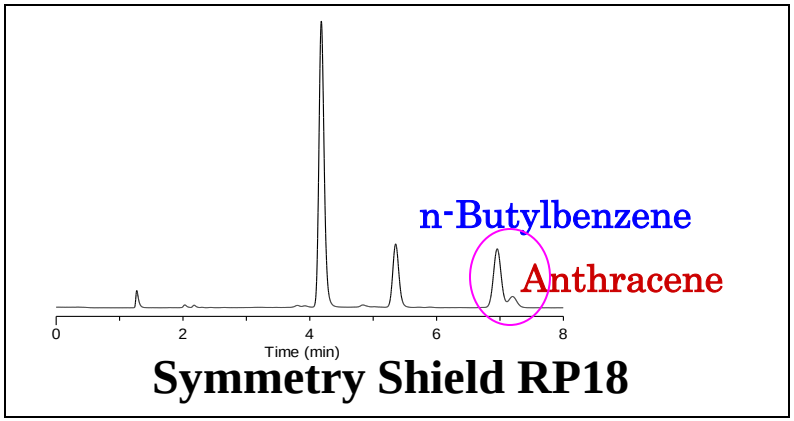
Comparison of selectivity between Inertsil ODS-EP and commercial embedded columns



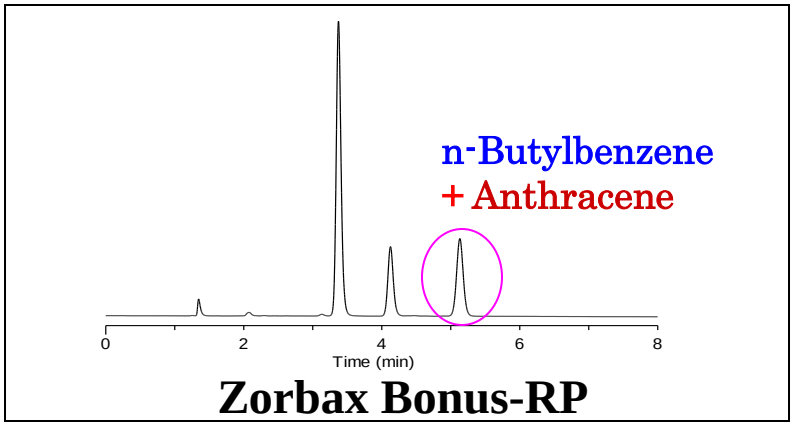
Inertsil ODS-EP



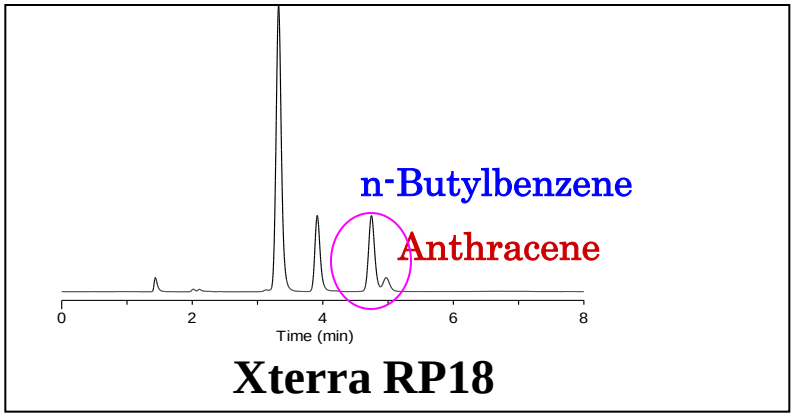
Discovery RP Amide C16



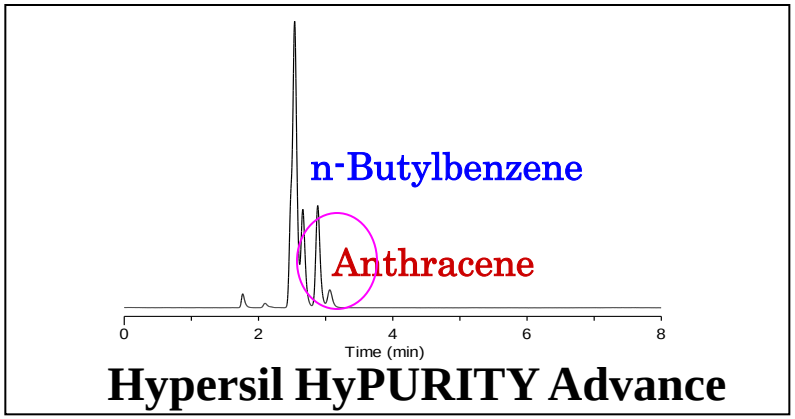
Symmetry Shield RP18



Zorbax Bonus-RP



Xterra RP18



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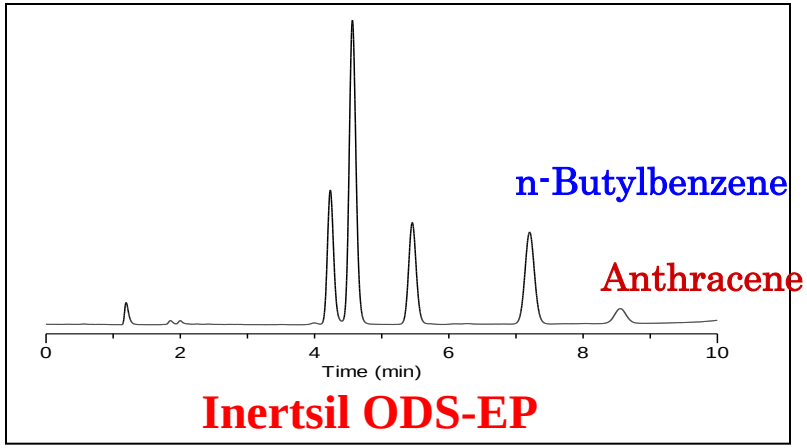
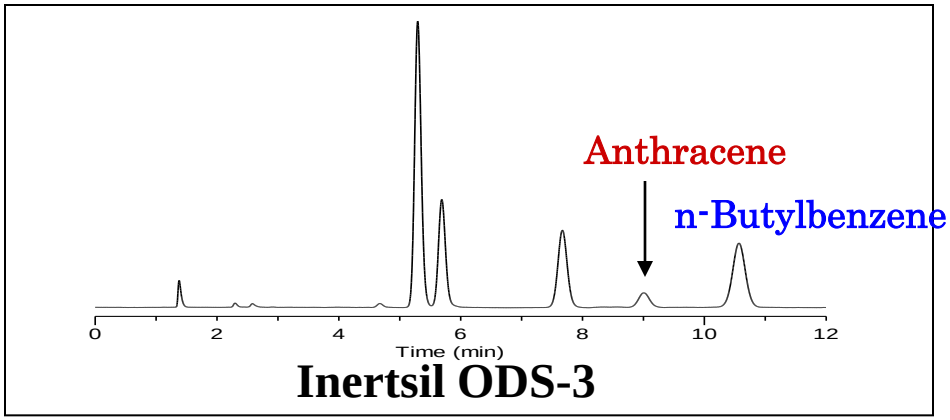
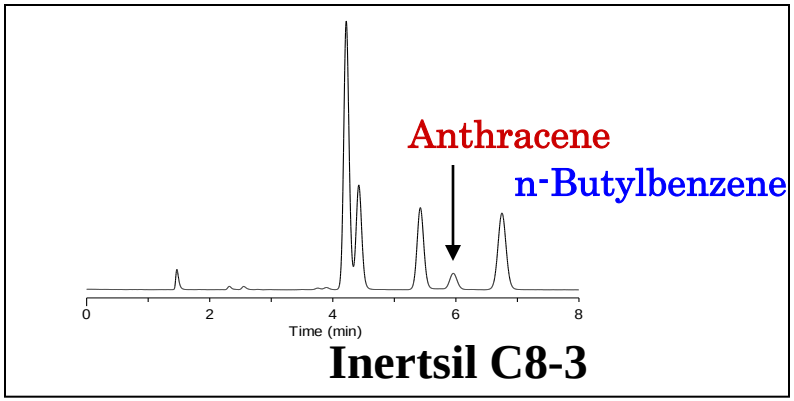
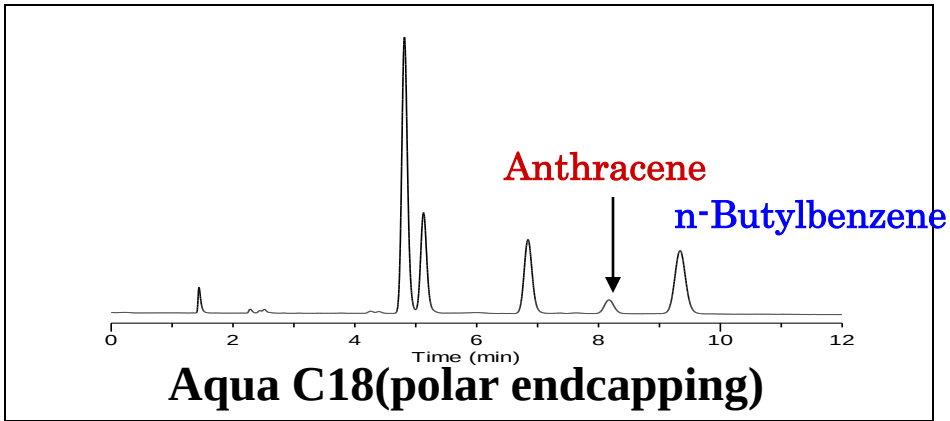
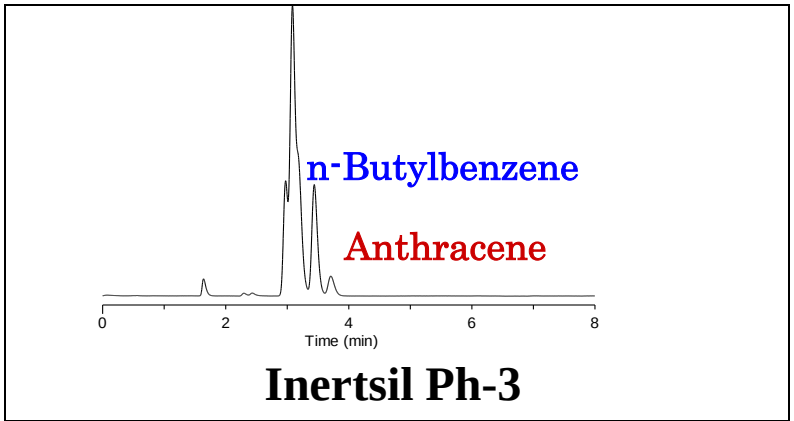
Comparison of selectivity between Inertsil ODS-EP and other type commercial columns



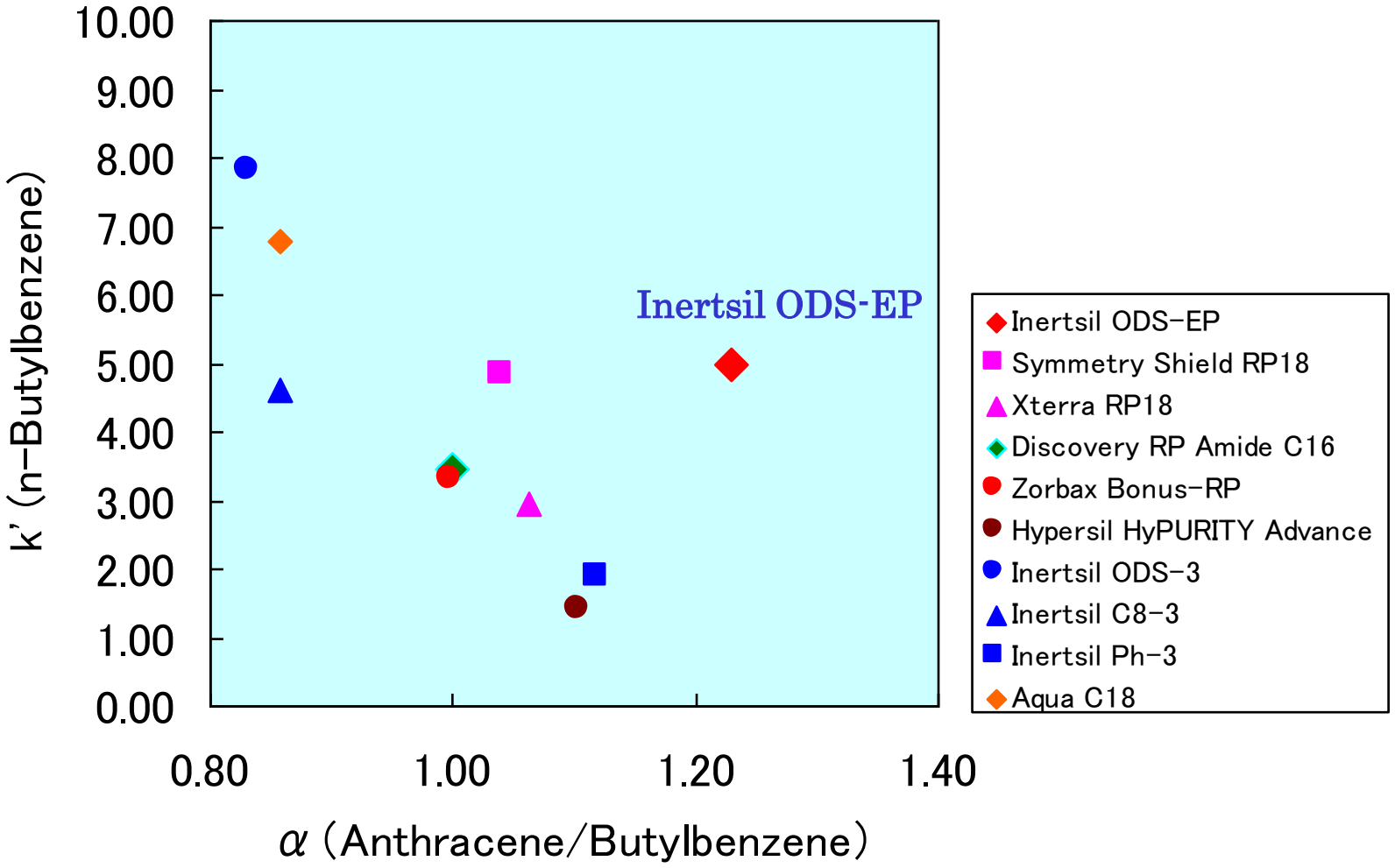








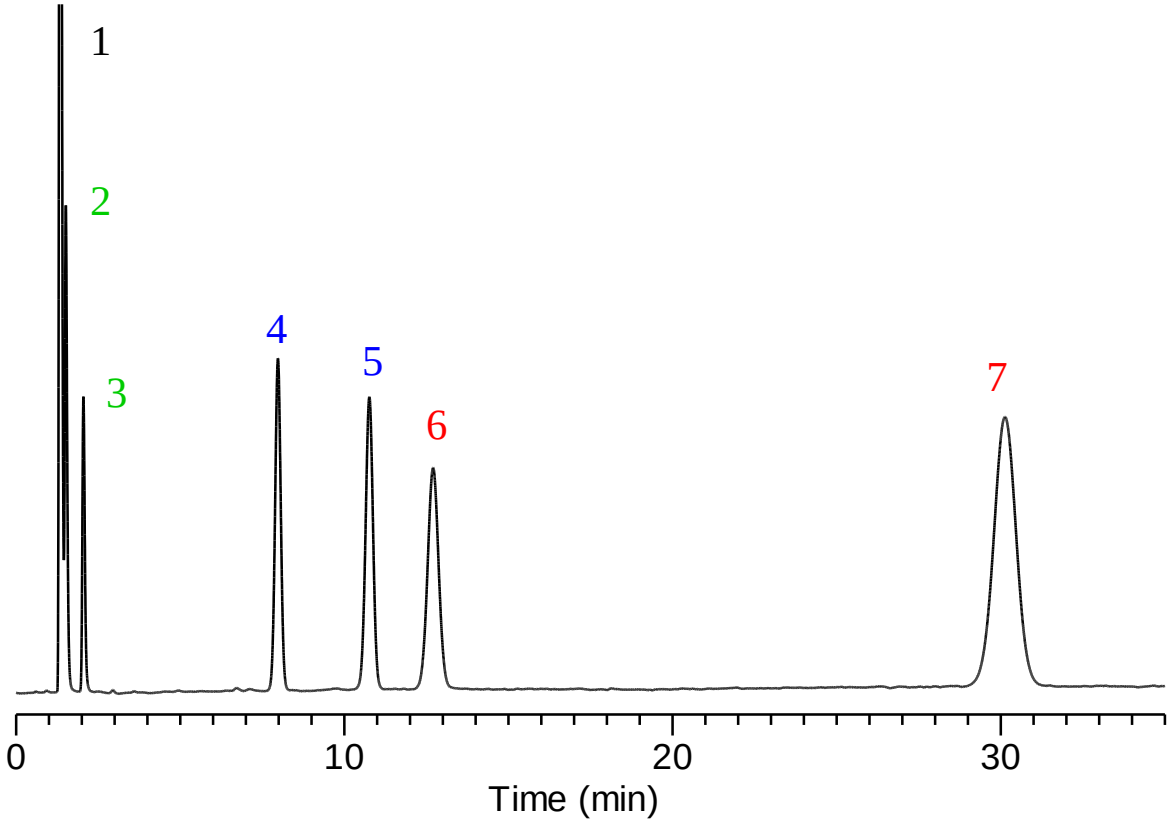
Comparison of retention and selectivity between Inertsil ODS-EP and commercial embedded columns



The selectivity of Inertsil ODS-EP is completely different from those of conventional columns such as ODS column due to its specific polar group in the bonded phase.

(3) Tanaka-test sample

~ for measurement selectivity, hydrogen bonding capacity and hydrophobicity ~

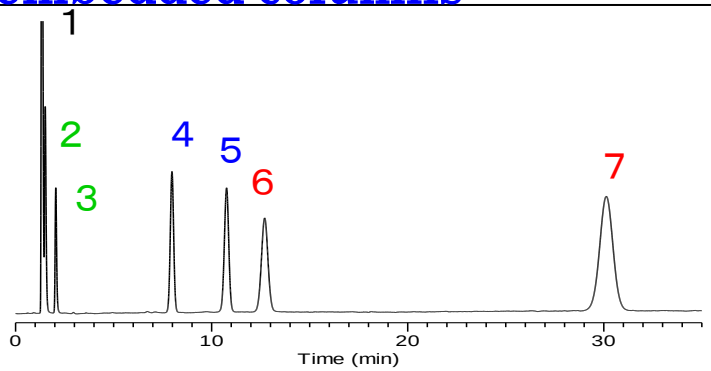


Inertsil ODS-EP

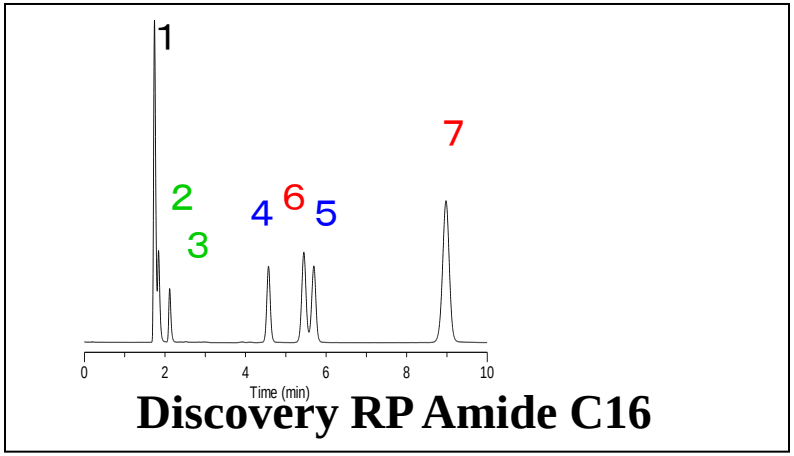
Conditions
Column dimensions:
4.6 mm I.D x 150 mm length
Mobile phase:
Methanol : Water = 80 : 20
Flow rate: 1 ml / min
Column temperature: 40℃
Detection: UV 254 nm

Peak identification
1. Uracil
2. Caffeine
3. Phenol
4. n-Butylbenzene
5. n-Amylbenzene
6. o-Terphenyl
7. Triphenylene

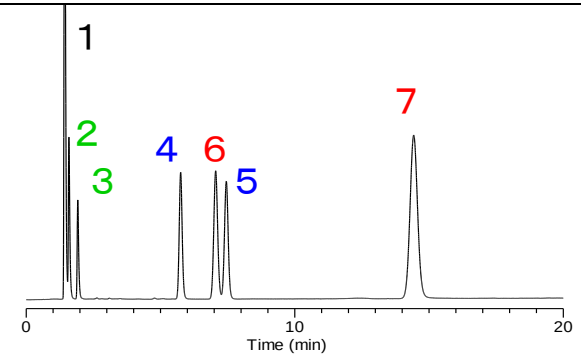
Comparison of selectivity between Inertsil ODS-EP and commercial embedded columns



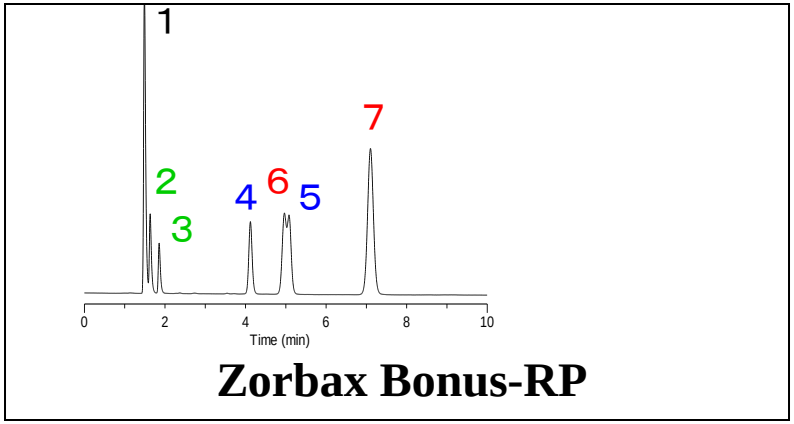
Inertsil ODS-EP



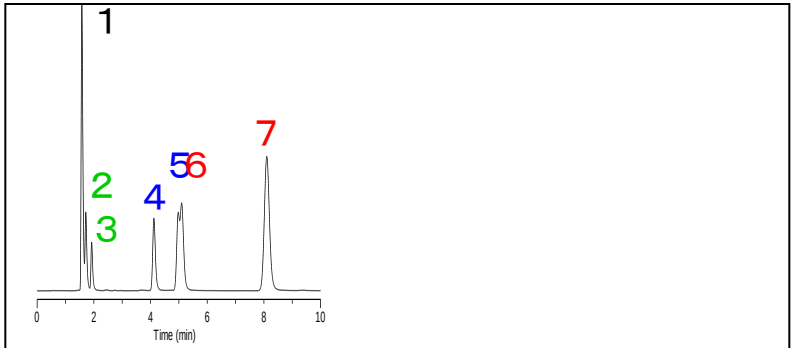
Discovery RP Amide C16



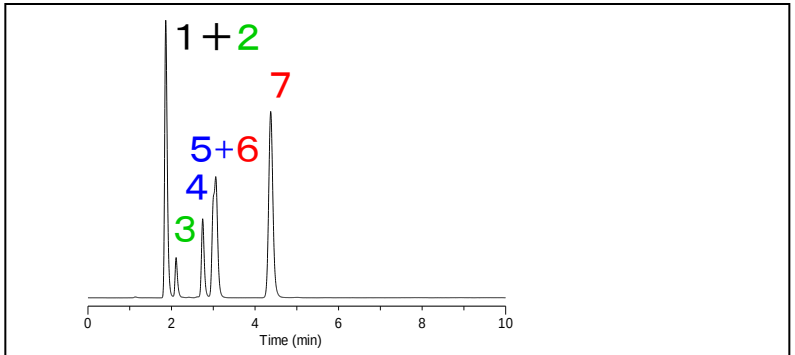
Symmetry Shield RP18



Zorbax Bonus-RP

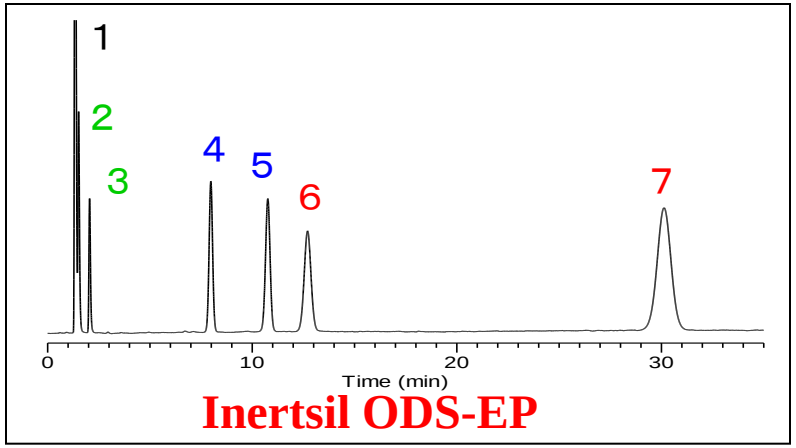


Xterra RP18

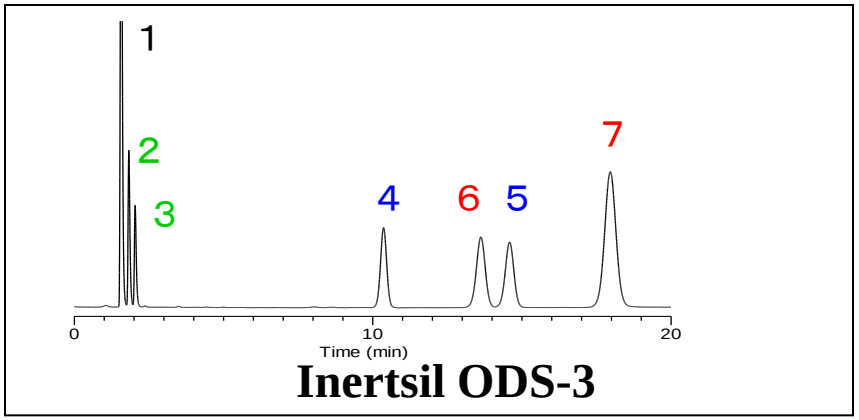


Hypersil HyPURITY Advance

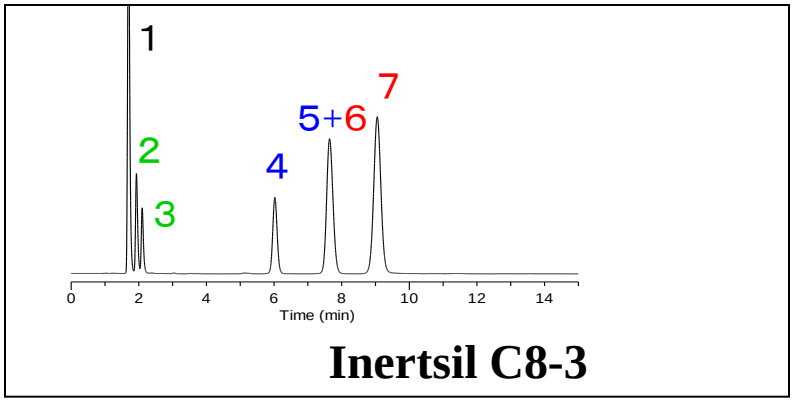
Comparison of selectivity between Inertsil ODS-EP and other type commercial columns



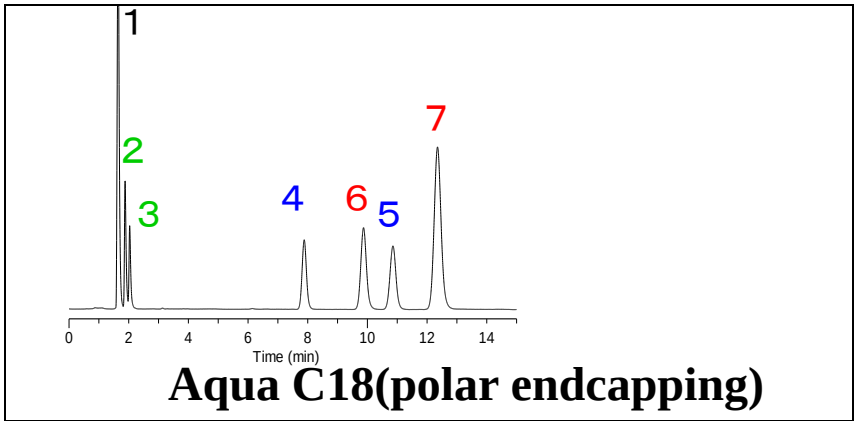
Inertsil ODS-EP



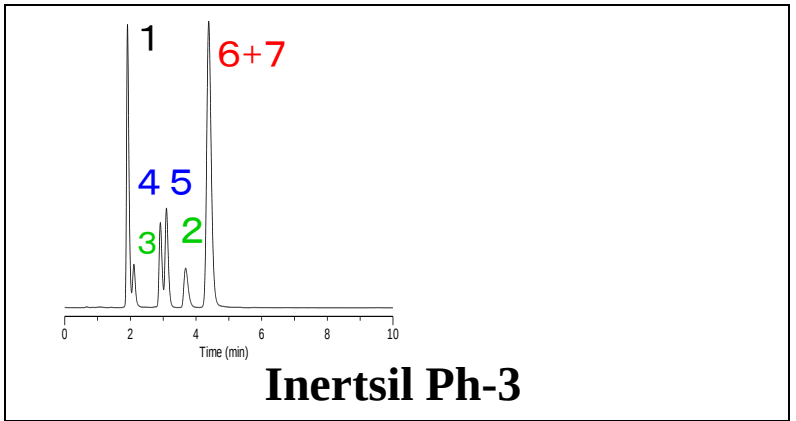
Inertsil ODS-3



Inertsil C8-3



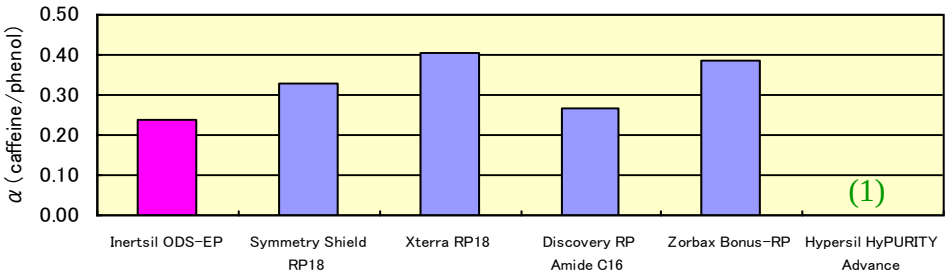
Aqua C18(polar endcapping)



Inertsil Ph-3

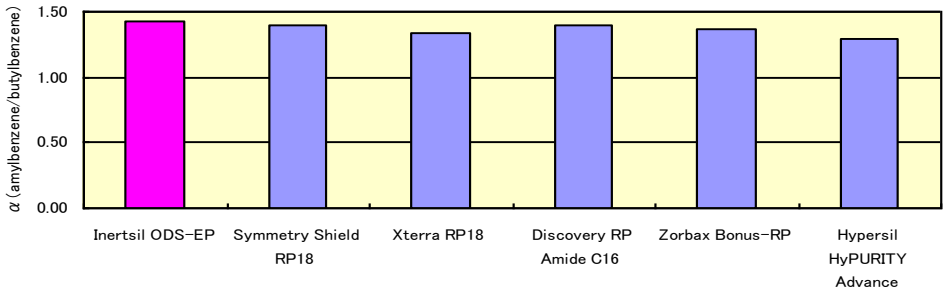
Characterization of Inertsil ODS-EP and commercial embedded columns by Tanaka test

Hydrogen bonding capacity

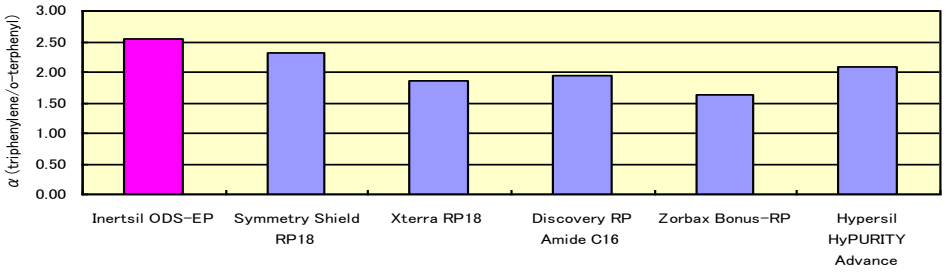


(1) Caffeine shows no retention

Hydrophobicity

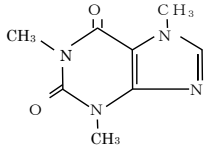


Steric selectivity

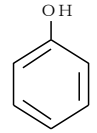


Conditions

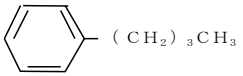
Column dimensions:
4.6 mm I.D x 150 mm length
Mobile phase:
Methanol : Water = 80 : 20
Flow rate: 1 ml / min
Column temperature: 40℃
Detection: UV 254 nm



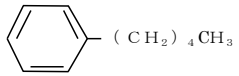
Caffeine



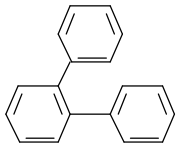
Phenol



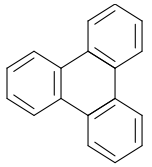
n-Butylbenzene



n-Amylbenzene



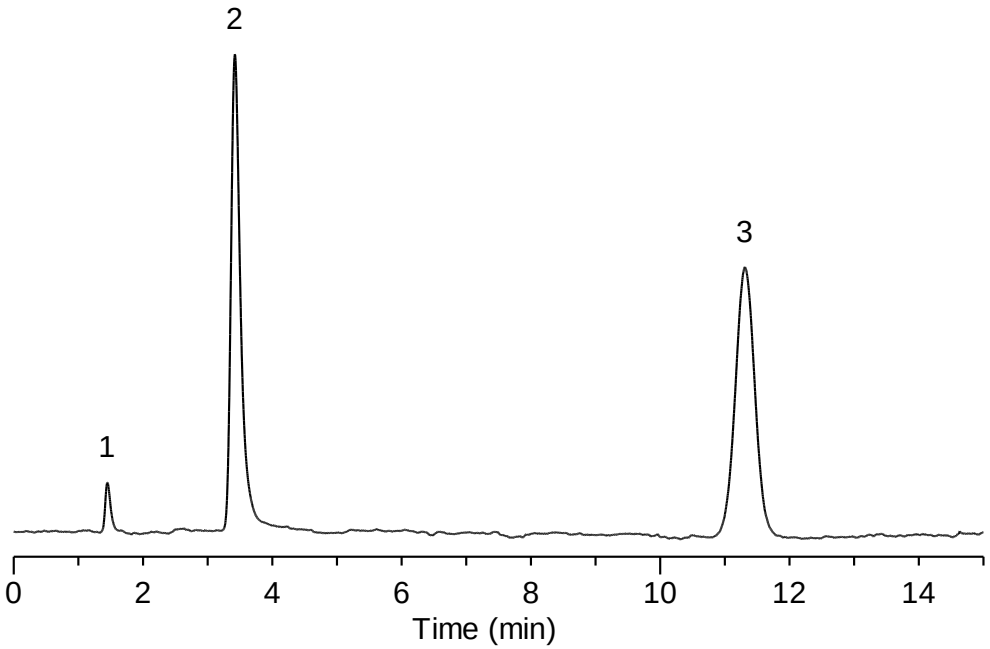
o-Terphenyl



Triphenylene

(4) Pyridine-Phenol sample

~ for measurement of inertness to basic compounds ~

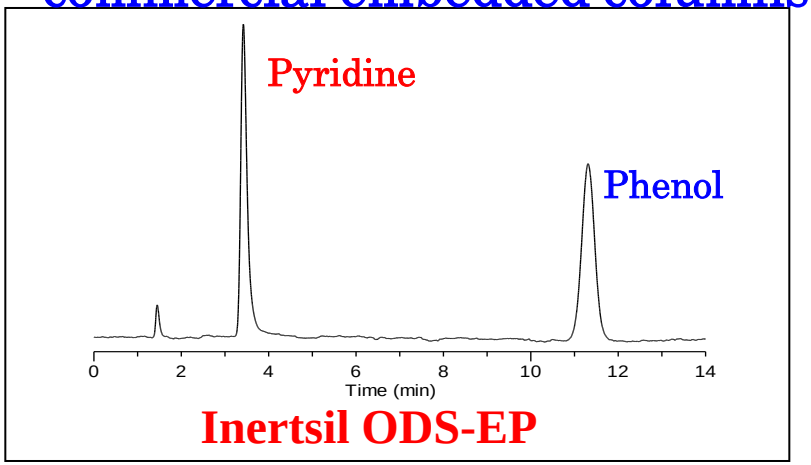


Inertsil ODS-EP

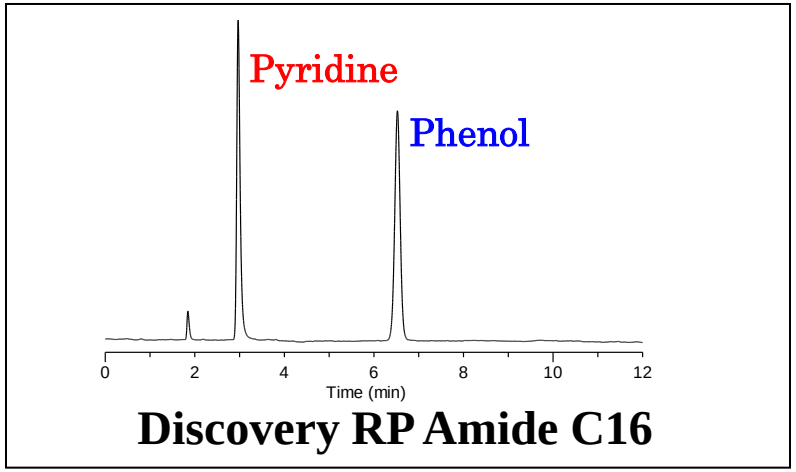
Conditions
Column dimensions:
4.6 mm I.D x 150 mm length
Mobile phase:
Methanol : 10mM Phosphate buffer(pH6.8) =30 : 70
Flow rate: 1 ml / min
Column temperature: 40℃
Detection: UV 254 nm

Peak identification
1. Uracil
2. Pyridine
3. Phenol

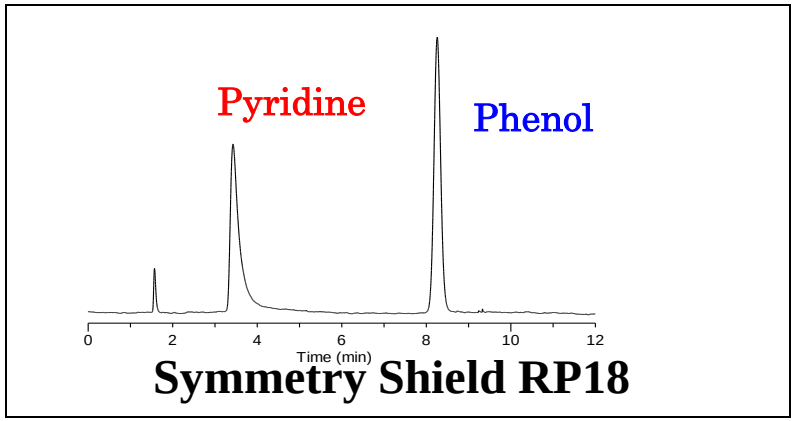
Comparison of inertness to pyridine between Inertsil ODS-EP and commercial embedded columns



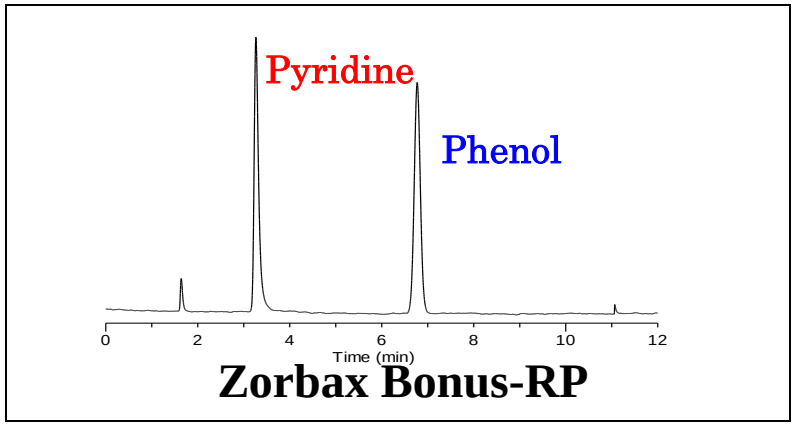
Inertsil ODS-EP



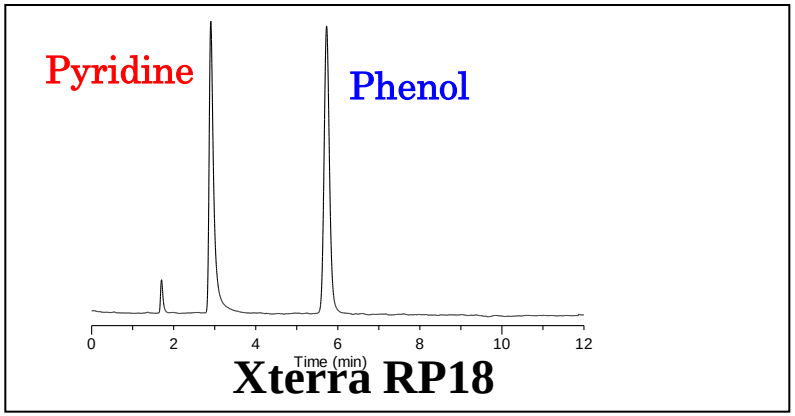
Discovery RP Amide C16



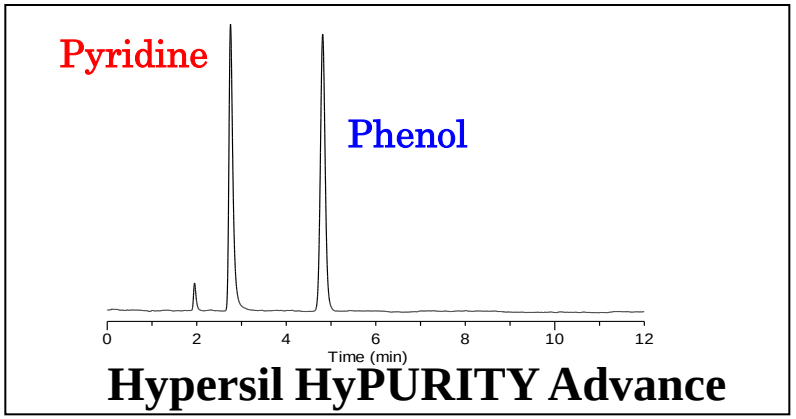
Symmetry Shield RP18



Zorbax Bonus-RP



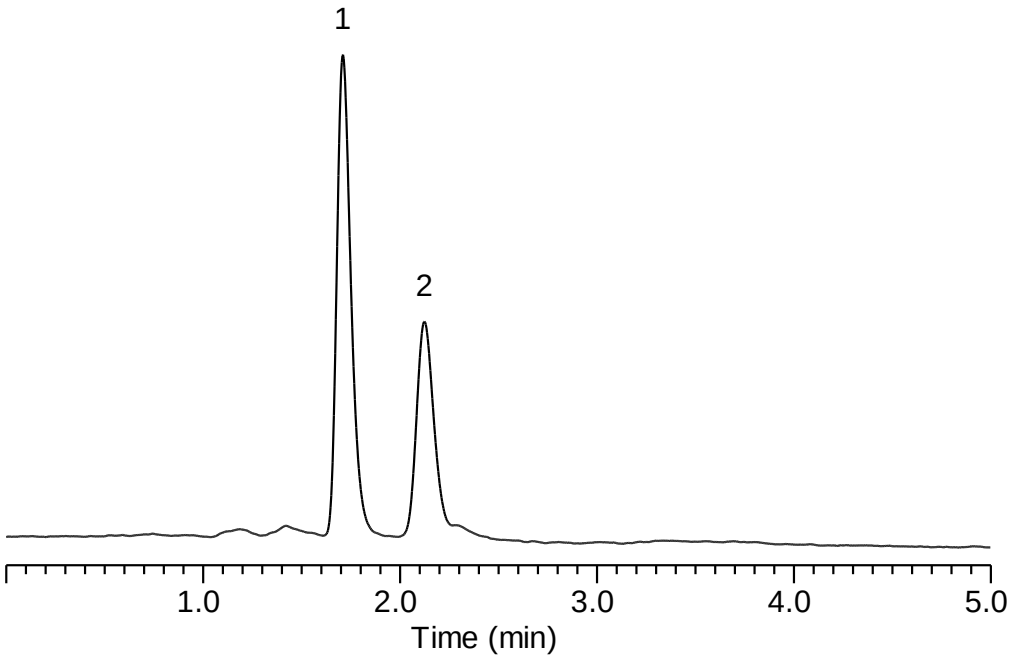
Xterra RP18



Hypersil HyPURITY Advance

(5) Acid test sample

~ for measurement of inertness to acidic compounds ~

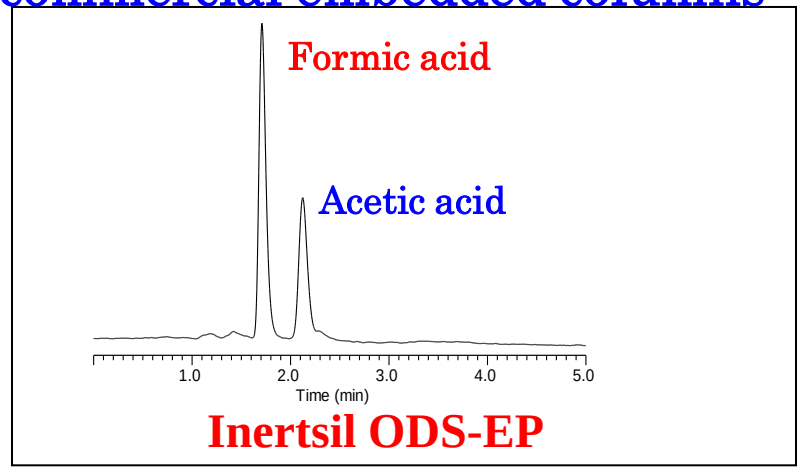


Inertsil ODS-EP

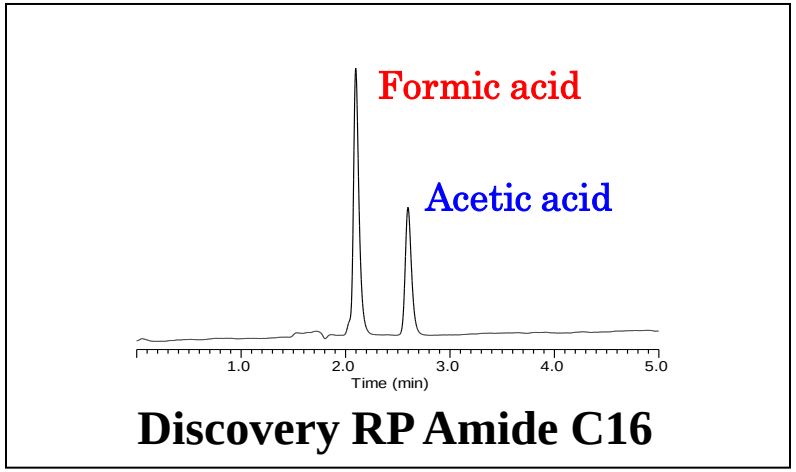
Conditions
Column dimensions:
4.6 mm I.D x 150 mm length
Mobile phase:
0.1% Phosphoric acid(pH2.2)
Flow rate: 1 ml / min
Column temperature: 40℃
Detection: UV 210 nm

Peak identification
1. Formic acid
2. Acetic acid

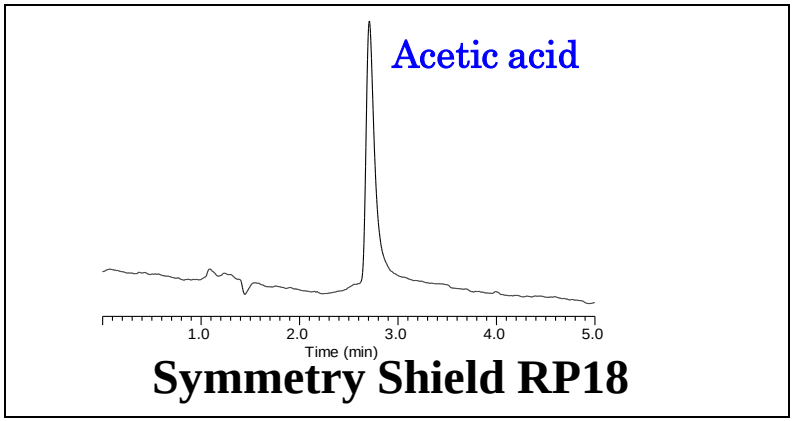
Comparison of inertness to acids between Inertsil ODS-EP and commercial embedded columns



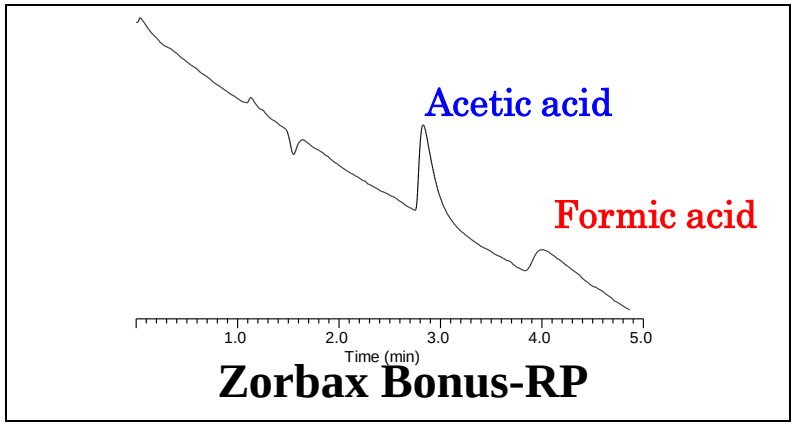
Inertsil ODS-EP



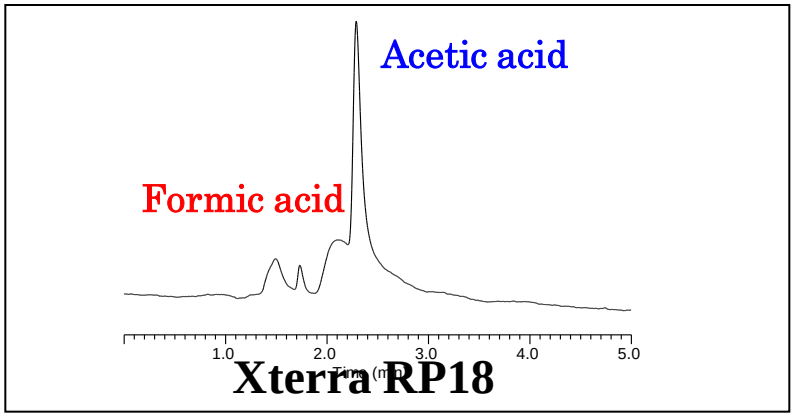
Discovery RP Amide C16



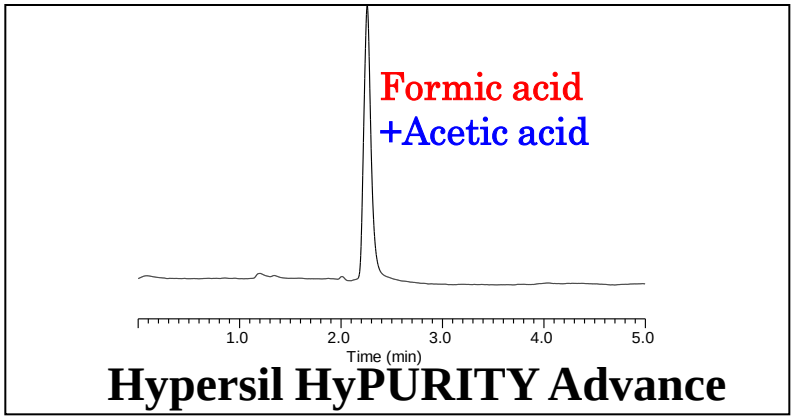
Symmetry Shield RP18



Zorbax Bonus-RP



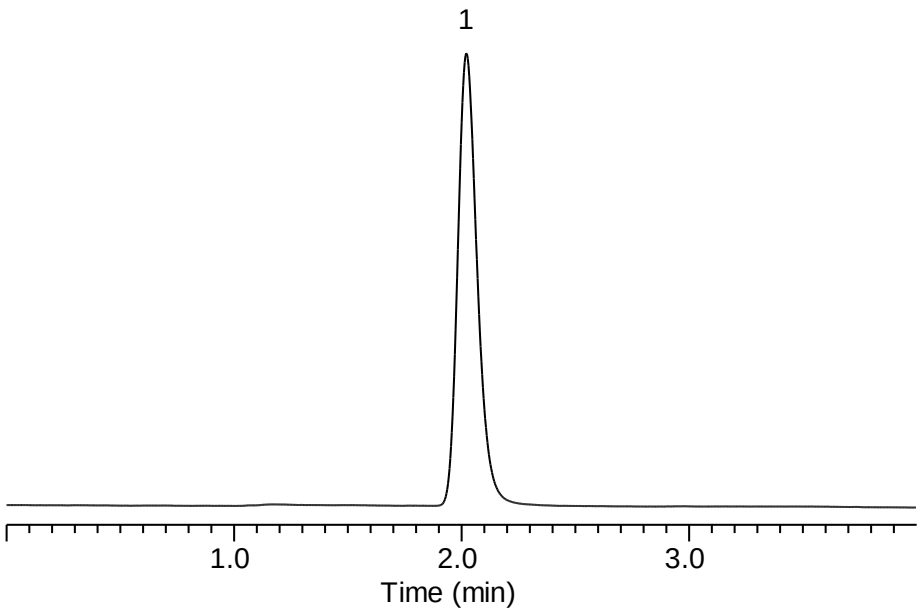
Xterra RP18



Hypersil HyPURITY Advance

(6) Oxine-copper sample

~ for measurement of inertness to chelating compounds ~

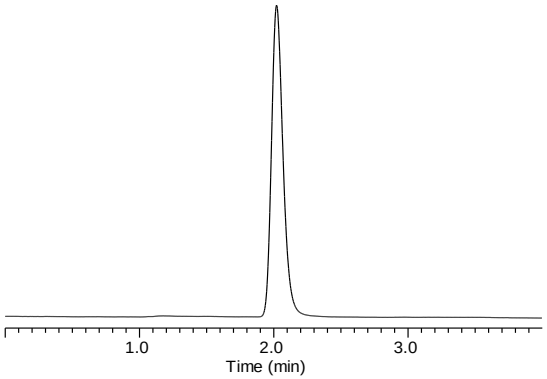


Inertsil ODS-EP

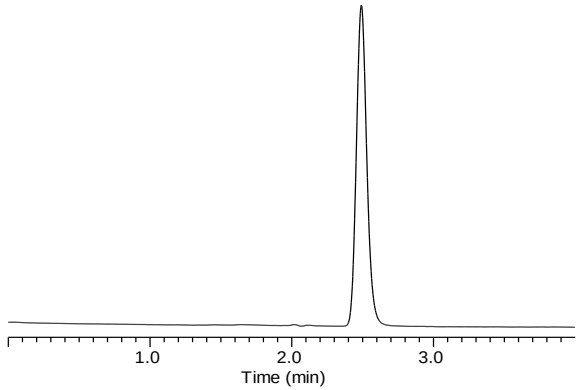
Conditions
Column dimensions:
4.6 mm I.D x 150 mm length
Mobile phase:
Acetonitrile : 0.1% Phosphoric acid(pH2.2) =10 : 90
Flow rate: 1 ml / min
Column temperature: 40℃
Detection: UV 254 nm

Peak identification
1. Oxine-copper

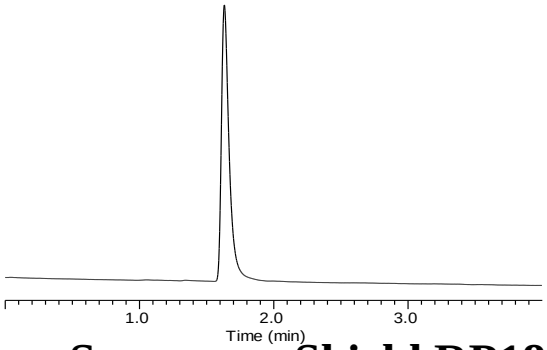
Comparison of inertness to oxine-copper between Inertsil ODS-EP and commercial embedded columns



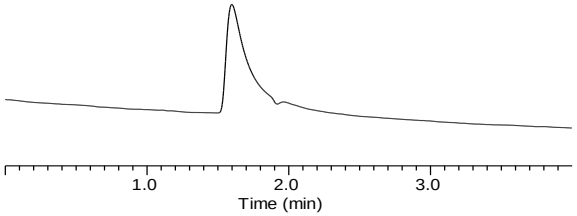
Inertsil ODS-EP



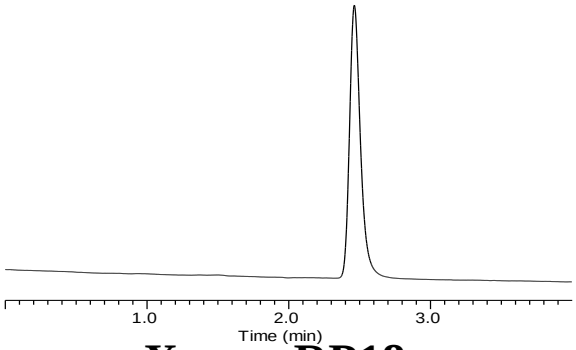
Discovery RP Amide C16



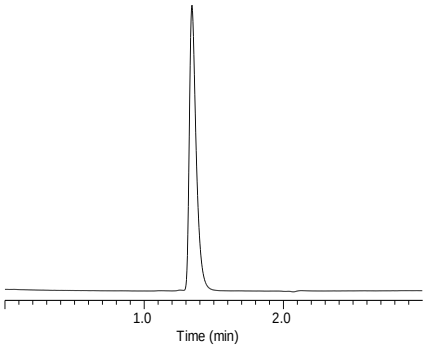
Symmetry Shield RP18



Zorbax Bonus-RP

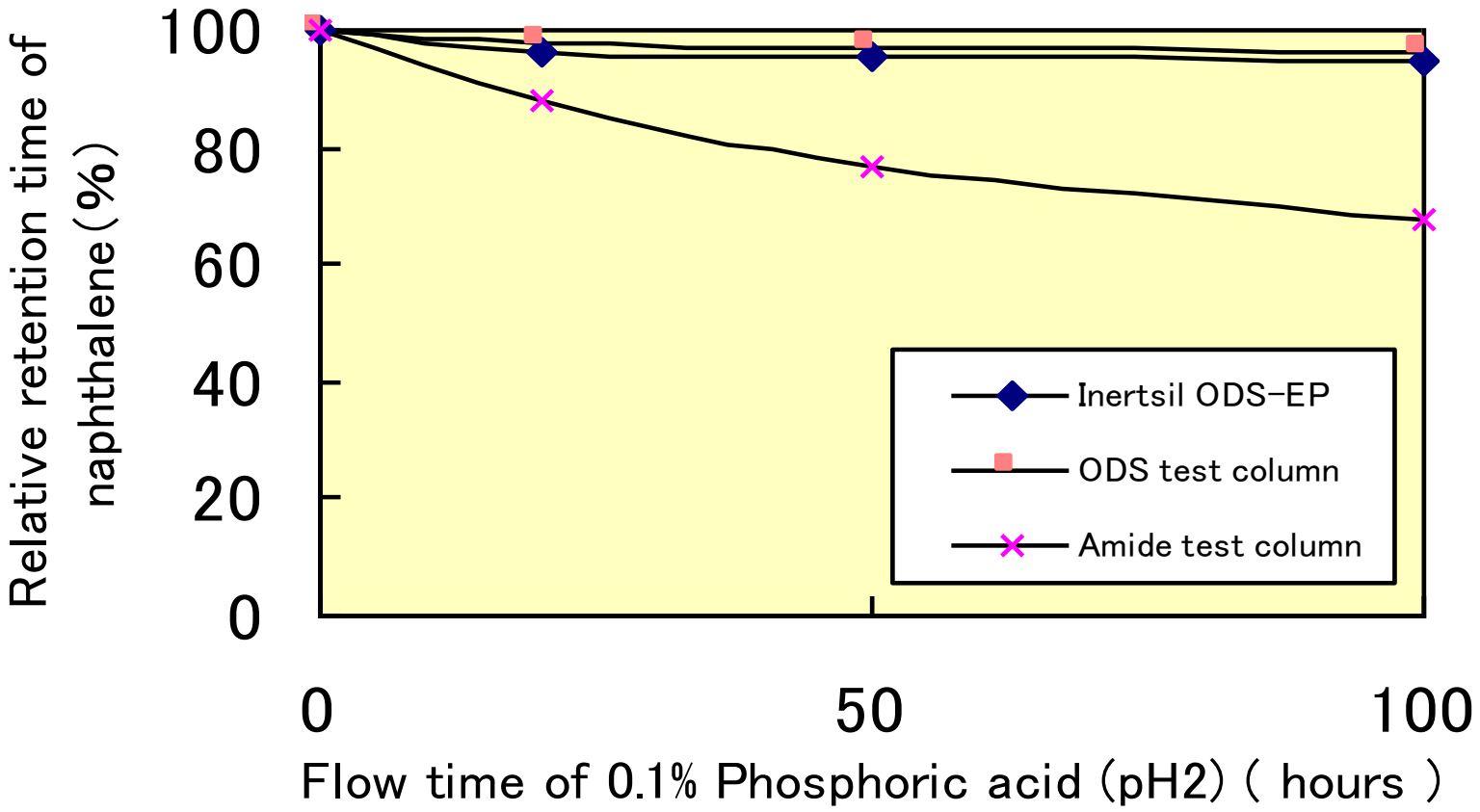


Xterra RP18



Hypersil HyPURITY Advance

Comparison of durability among Inertsil ODS-EP, ODS column and Amide column



Test condition

Column: 4.6 mm I.D. x 150 mm
Flow rate: 1 ml / min
Column temperature: 30℃

Inertsil ODS-EP

- The selectivity is completely different from those of conventional columns such as ODS column, but the retention is close to conventional columns.

Inertsil ODS-EP is useful for the samples which are not separated by conventional columns.

- High durability can be obtained even if strong acid was used as mobile phase.

Inertsil ODS-EP is useful for the LC/MS analysis.

- Superior peak shapes of both acids and bases can be obtained because of neutral bonded phase and low residual silanol groups.

- Silica gel of high-purity is used as the support material, which minimizes effects of any remaining metal ions.