



COSMOSIL

Octadecyl Bonded HPLC Column

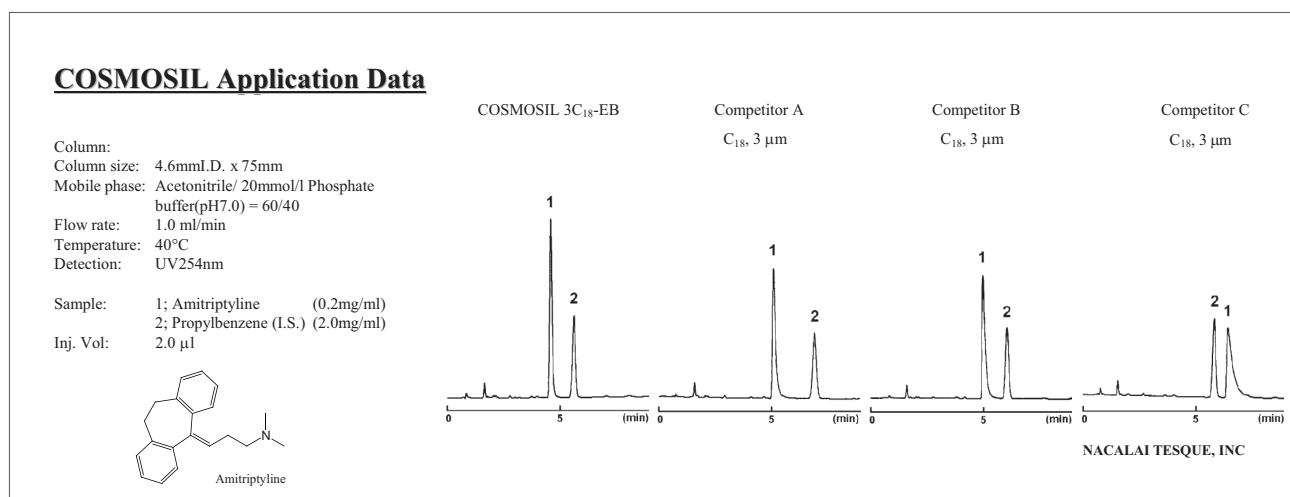
COSMOSIL 3C<sub>18</sub>-EB

- **Excellent for Basic compounds**
- **Suitable for drug analysis**

### Analysis of Basic Compounds

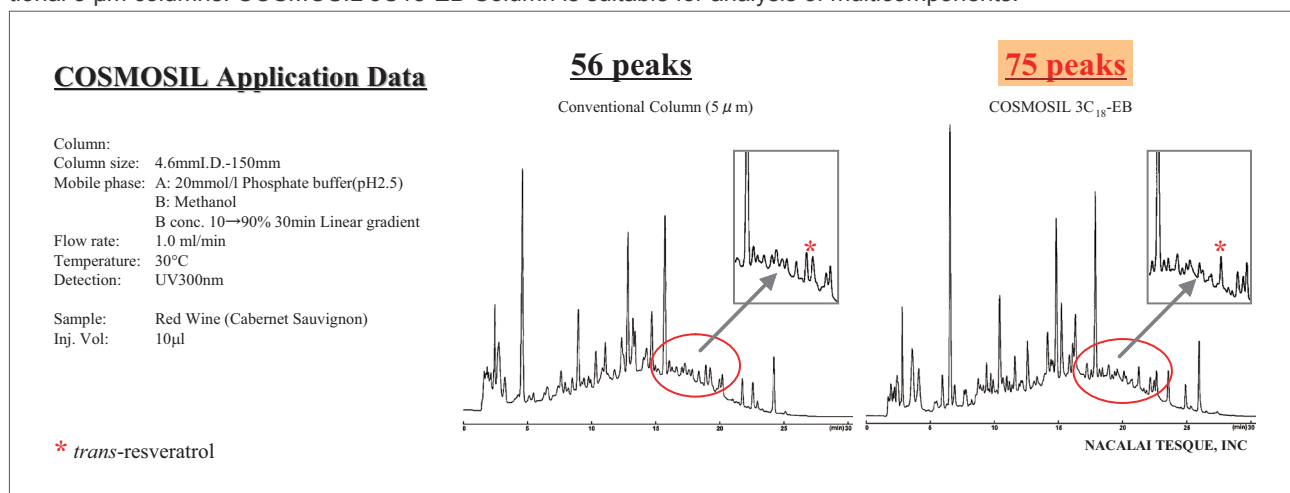
Conventionally end-capped C<sub>18</sub> columns still have many residual silanol groups on the silica surface of stationary phase that can form ionic bonds with basic compounds. The resulting peak tailing makes accurate quantification of analytes difficult, especially in trace analyses. COSMOSIL 3C<sub>18</sub>-EB with a better end-capping treatment offers improved peak shape and separation particularly for basic compounds.

#### Basic Compounds (Amitriptyline)



### Advanced / Precise Separation of multicomponents

The application below is analysis of red wine. COSMOSIL 3C<sub>18</sub>-EB Column(3µm) provides more peaks comparing to conventional 5 µm columns. COSMOSIL 3C<sub>18</sub>-EB Column is suitable for analysis of multicomponents.



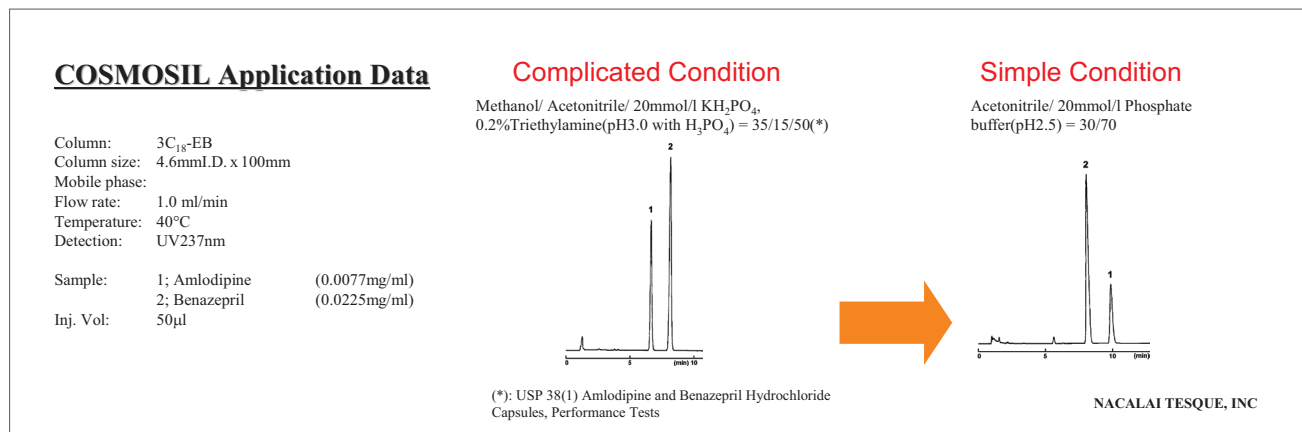
## Synthesis Reproducibility

If you use insufficiently end-capped C<sub>18</sub> columns for basic compound analyses, you may need to spend much time adjusting mobile phase conditions. You may need

- 1) more than 3 or more organic solvents or buffers
- 2) ion-pair reagents or additives
- 3) buffers in different pH

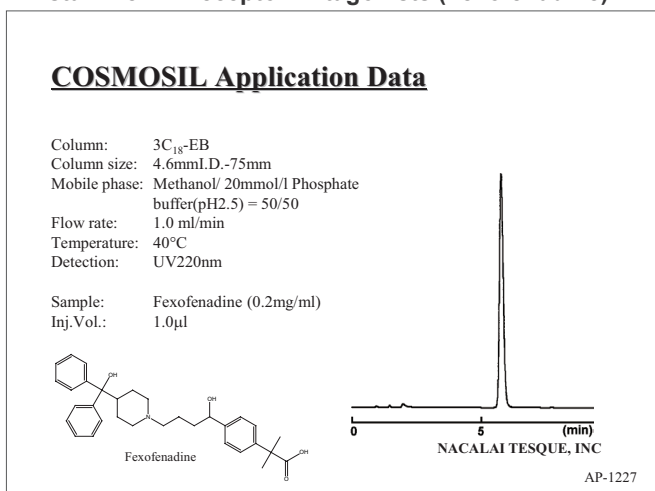
In addition, the complexity of the mobile phase often is detrimental to reproducibility. COSMOSIL 3C<sub>18</sub>-EB with a new end-capping treatment allows good peak shape and separation using simple mobile phase conditions.

### Analysis with Simple Condition

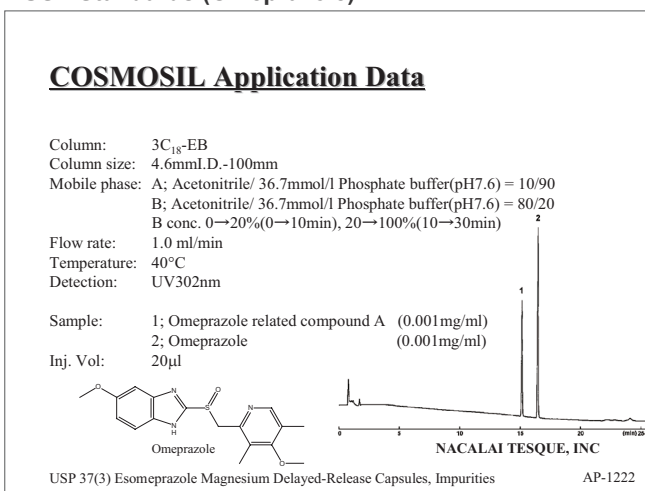


## Applications of Drugs with Simple Mobile Phase Conditions

### Histamine H1 Receptor Antagonists (Fexofenadine)

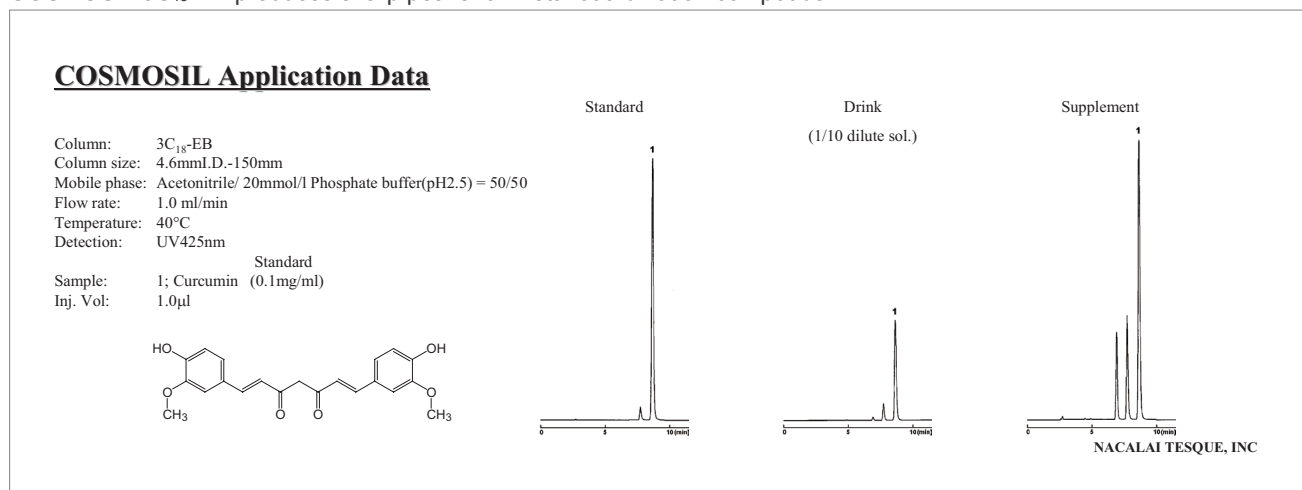


### USP Standards (Omeprazole)



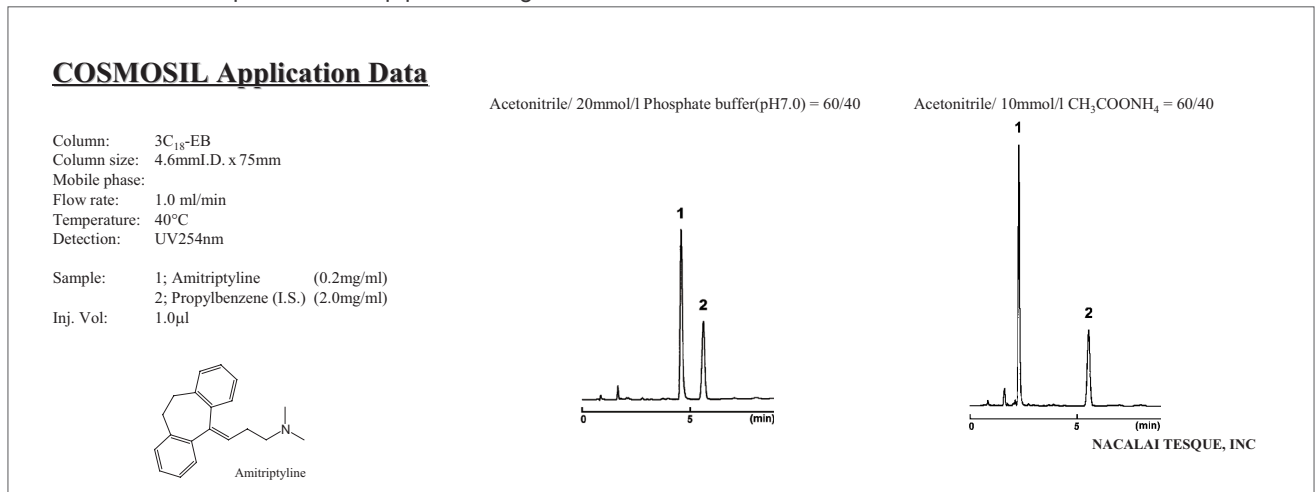
## Applications of Metal Coordination Compounds

COSMOSIL 3C<sub>18</sub>-EB produces sharp peaks for metal coordination compounds.



## Analysis under Ammonium Acetate Buffer

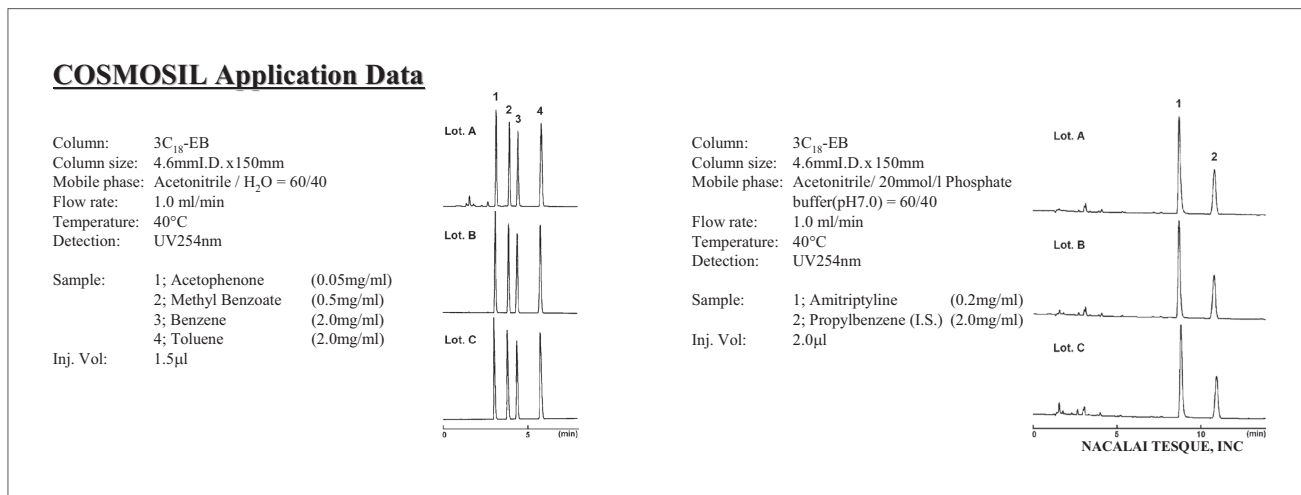
COSMOSIL 3C<sub>18</sub>-EB produces sharp peaks using ammonium acetate buffer in LC-MS.



## Routine Analysis

3C<sub>18</sub>-EB has excellent synthesis reproducibility and column-to-column reproducibility, so it is applicable in routine analysis such as quality control of drugs.

### • Excellent Synthesis Reproducibility



## Validated Columns

### • Validated Columns

3 different lots of packing materials are available for the following columns to demonstrate high reproducibility.

**09841-91 (4.6 mm I.D. x 75 mm), 09842-81 (4.6 mm I.D. x 100 mm), 09843-71 (4.6 mm I.D. x 150 mm)**

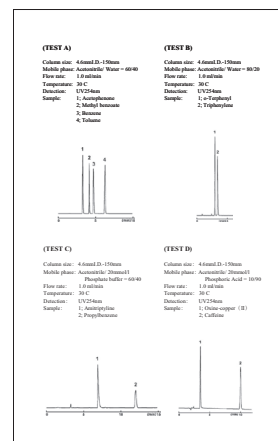
### • COSMOSIL Certificate of Analysis

Validate terms of the physical properties of the silica gel, the carbon content, polar selectivity, hydrophobicity, silanol capacity, steric selectivity, inactive degree to basic and chelating compounds.

Certificate of Analysis		
COSMOSIL 3C <sub>18</sub> -EB		GEL Lot No. 01
Base material	Specification	Results
Median Particle Size	50%, cum. vol. [µm]	2.55-2.65
Surface Area	[m <sup>2</sup> /g]	300-320
Pore Volume	[ml/g]	0.90-1.10
Median Pore Diameter	[nm]	10.5-14.5
Atomic Emission	[ppm]	
Al	5.0	2.3
Fe	20	17.1
Et	25	0.2
Mg	2.0	0.3
Ca	10.0	1.5
Na	20	12.5
Carbon content	[%]	13.0-15.8
14.2		
Chromatographic Results		
TEST A		
αB (Methyl Benzoate) / (Benzene)	0.78-0.86	0.82
αB (Toluene) / (Benzene)	1.43-1.58	1.49
TEST B		
αB (Toluene) / (p-Toluene)	1.28-1.32	1.28
TEST C		
α(N) (Amitriptyline) / (Propylbenzene)	20.50	0.72
TEST D		
α(N) (Diacetylcopper) / (N-Caffeine)	20.25	0.44

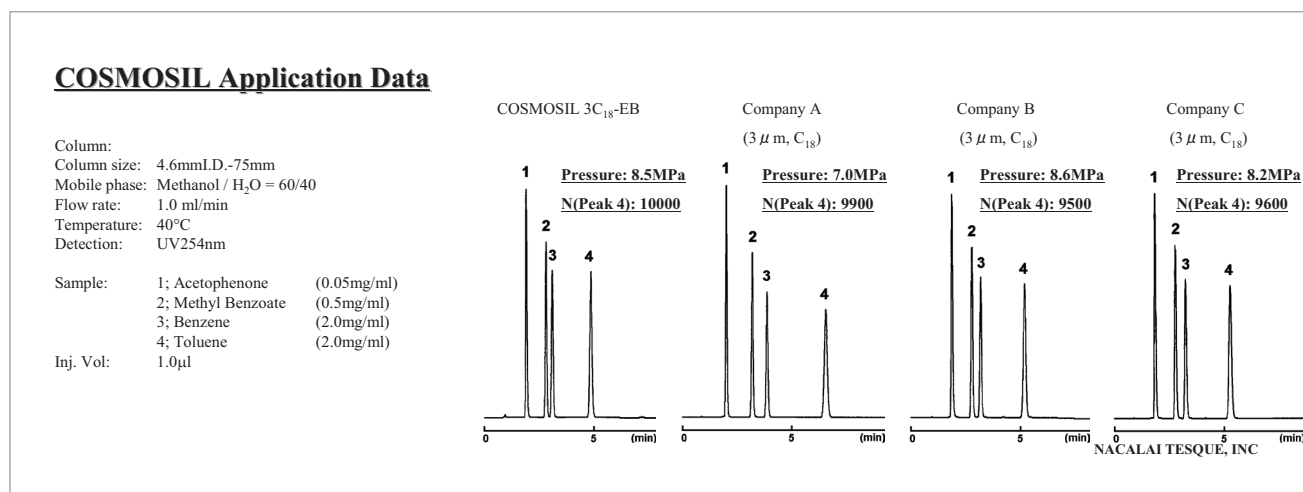
Nacalai Tesque Inc.  
 Kyoto, Japan

Approved - Quality Control Dept.  
 Name: *W. Suzuki* Date: 2012.4.10 13-4



## Separation Property

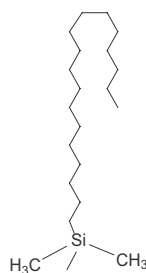
The application below shows separation property of COSMOSIL 3C<sub>18</sub>-EB and conventional 3 μm columns. Although there is slight difference in retention time, COSMOSIL 3C<sub>18</sub>-EB with C<sub>18</sub> stationary phase is usable under conditions the same as your C<sub>18</sub> columns.



## Specifications

Silica Gel	High Purity Porous Spherical Silica
Average Particle Size	3 μm
Average Pore Size	approx. 120 Å
Specific Surface Area	approx. 300 m <sup>2</sup> /g
Stationary Phase	Octadecyl Group
Bonding Type	Monomeric
Main Interaction	Hydrophobic Interaction
End-capping Treatment	Near-perfect Treatment
pH Range	2-10*
Carbon Content	approx. 14.5%

\*Optimum pH range of columns based on silica gel is between 2 and 7.5. Extreme pH may decrease column lifetime.



Octadecyl Group

## Ordering Information

Product Name	Column Size	Product Number
COSMOSIL 3C <sub>18</sub> -EB Packed Column	2.0 mm I.D. x 50 mm	09794-21
	2.0 mm I.D. x 75 mm	09795-11
	2.0 mm I.D. x 100 mm	09796-01
	2.0 mm I.D. x 150 mm	09797-91
	2.0 mm I.D. x 250 mm	09798-81
	3.0 mm I.D. x 50 mm	09799-71
	3.0 mm I.D. x 75 mm	09800-21
	3.0 mm I.D. x 100 mm	09811-81
	3.0 mm I.D. x 150 mm	09814-51
	3.0 mm I.D. x 250 mm	09827-91
	4.6 mm I.D. x 50 mm	09840-01
	4.6 mm I.D. x 75 mm*	09841-91
	4.6 mm I.D. x 100 mm*	09842-81
	4.6 mm I.D. x 150 mm*	09843-71
4.6 mm I.D. x 250 mm	09844-61	

Product Name	Column Size	Product Number
COSMOSIL 3C <sub>18</sub> -EB Guard Column	4.6 mm I.D. x 10 mm	09839-41
COSMOSIL 3C <sub>18</sub> -EB Guard Cartridge (2 PKG)**	2.0 mm I.D. x 10 mm	11892-74
	4.6 mm I.D. x 10 mm	11890-94

\* Validated Columns (available in 3 different lots)

\*\* Cartridge Holder is required.

Other size may be available. Please enquire.

### • Related Products

Product Name	Column Size	Product Number
COSMOSIL Guard Cartridge Holder	2.0 mm I.D.	11884-71
	4.6 mm I.D.	38009-79

For research use only, not intended for diagnostic or drug use.