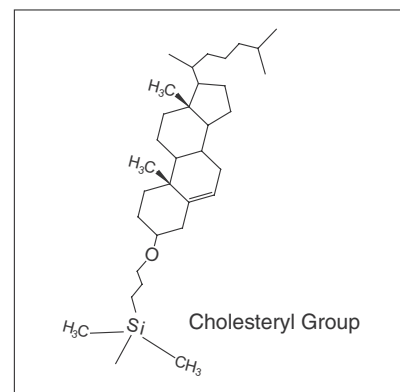


# HPLC Column for Structural Isomers

## COSMOSIL Cholester

- **Cholesterol bonded stationary phase**
- **Increased stereoselectivity**
- **Improved resolution for geometric isomers**

Silica Gel	High Purity Porous Spherical Silica
Average Particle Size	5 µm
Average Pore Size	approx. 120 Å
Stationary Phase	Cholesteryl Group
Main Interaction	Hydrophobic Interaction Stereoselectivity
Carbon Content	approx. 20%



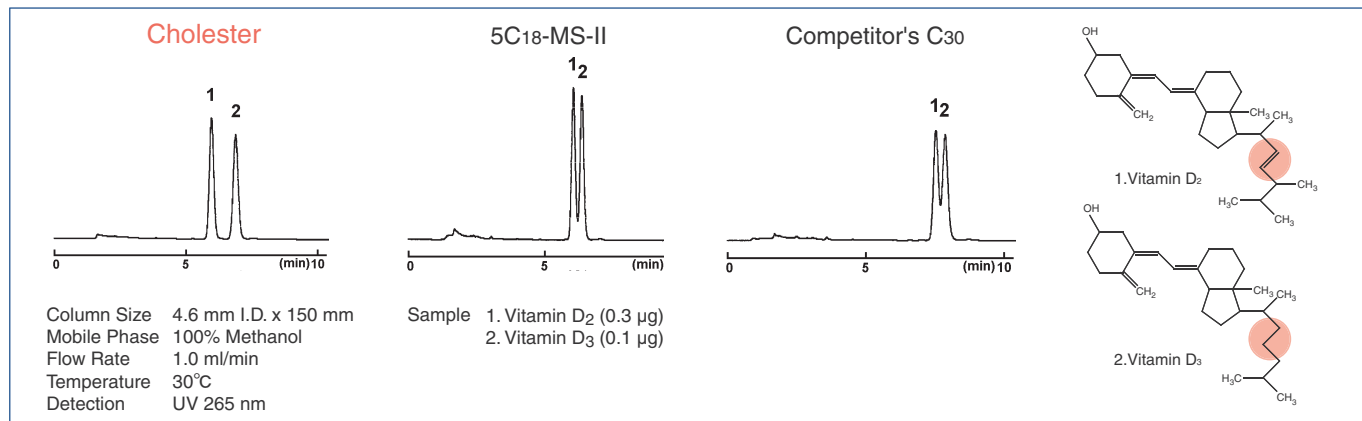
COSMOSIL Cholester is a reversed phase HPLC column with Cholesteryl bonded silica packing material, which provides equivalent hydrophobicity like that of traditional ODS columns. However, Cholester offers strong stereoselectivity for hydrophobic compounds to yield unique and reproducible separation patterns following the same analytical conditions used with other ODS columns.



### Improved Separation

Cholesteryl bonded groups are very rigid structures and offer improved separation of compounds that are difficult to analyze with Alkyl Group bonded materials.

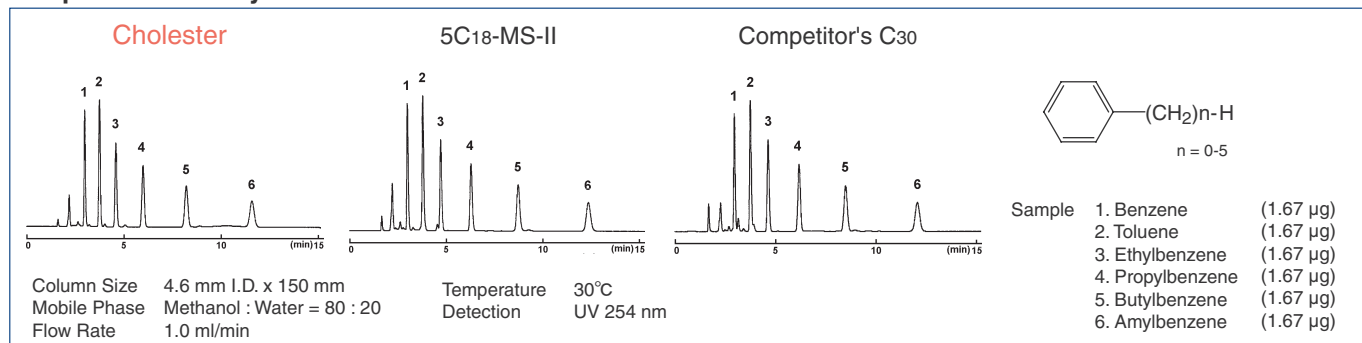
- **Stereoisomers like Vitamin D**



### Comparison of Hydrophobicity

COSMOSIL Cholester provides the same hydrophobicity as ODS and C30 columns.

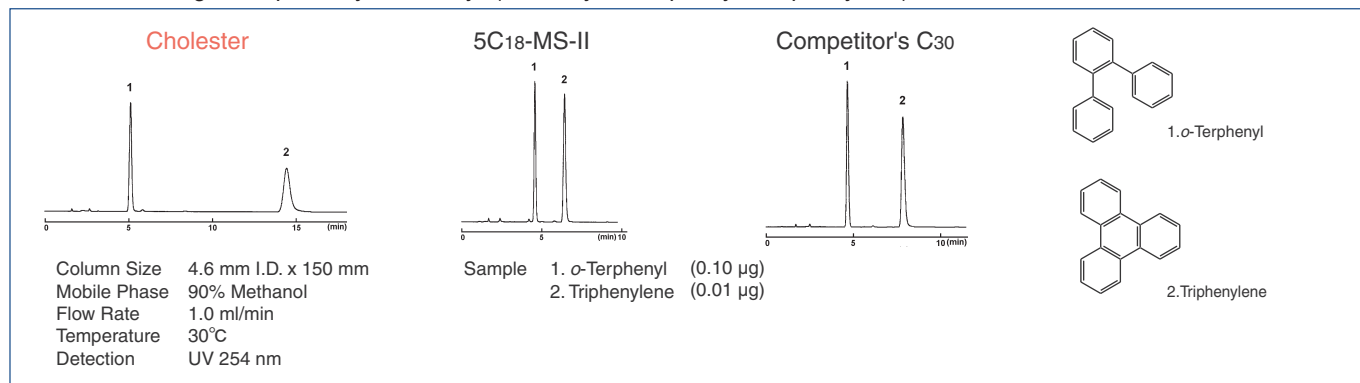
- **Separation of Alkylbenzene**



## Characteristics of Separation

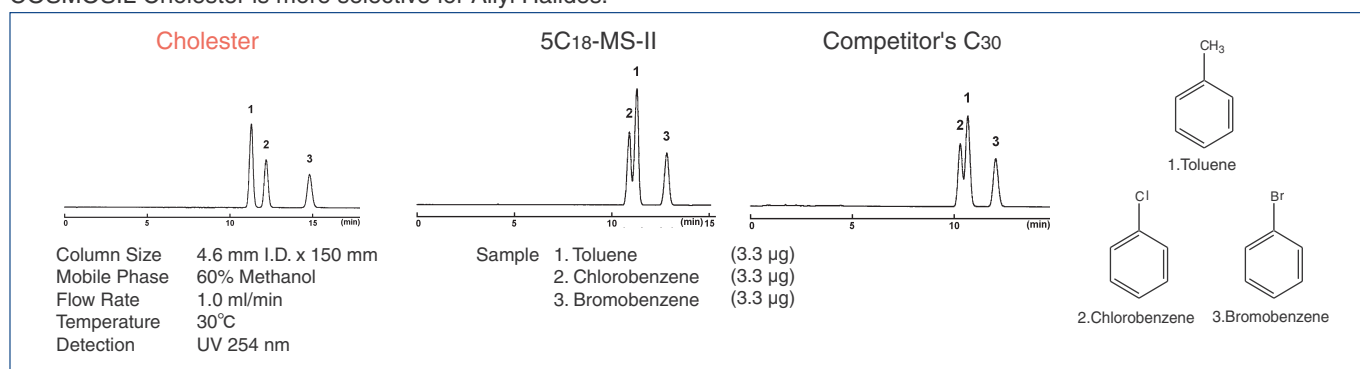
### Planarity Selectivity

Cholester shows greater planarity selectivity. (Planarity : *o*-Terphenyl < Triphenylene)



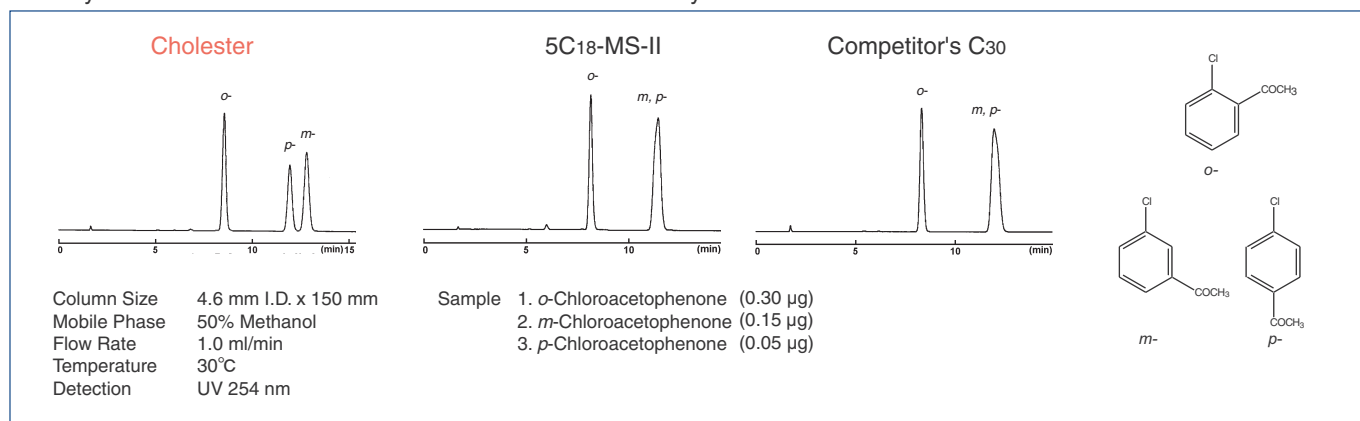
### Allyl Halides (Relative Strengths of Nucleophiles : Methyl < Chlorine < Bromine)

COSMOSIL Cholester is more selective for Allyl Halides.



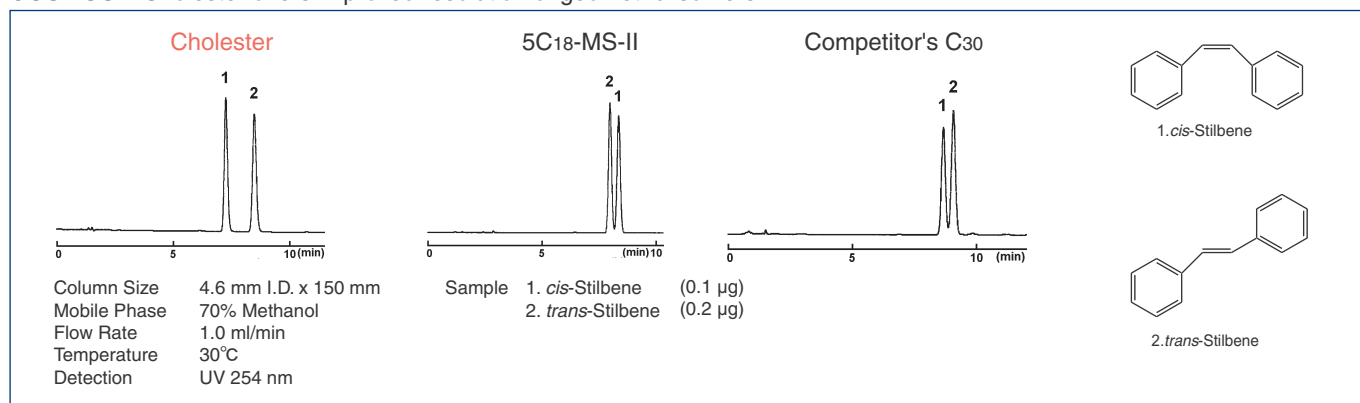
### Positional Isomers like Chloroacetophenones

Generally the isomers of disubstituted benzene are difficult to separate with C18 because the structure and polar characteristics are very similar. In these cases COSMOSIL Cholester works very well.



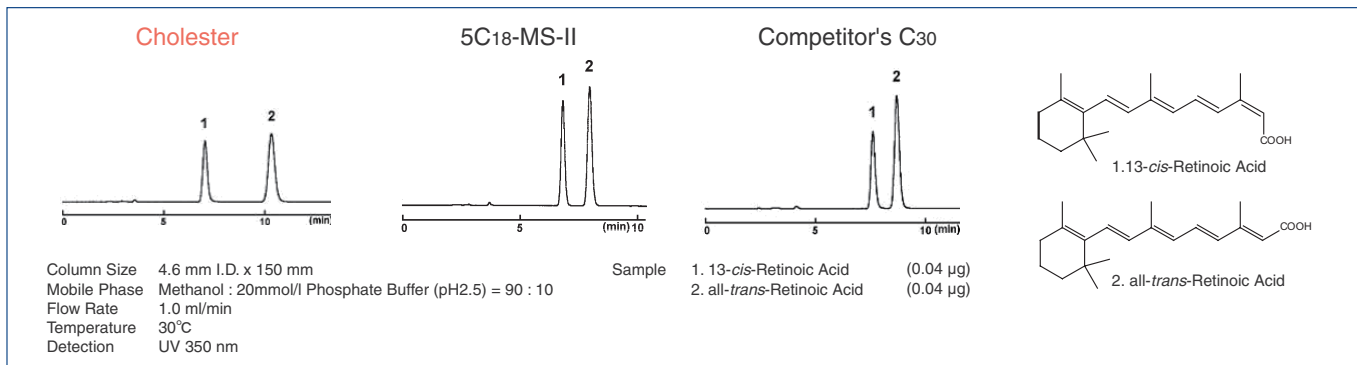
### Geometrical Isomers like Stilbenes

COSMOSIL Cholester offers improved resolution of geometric isomers.

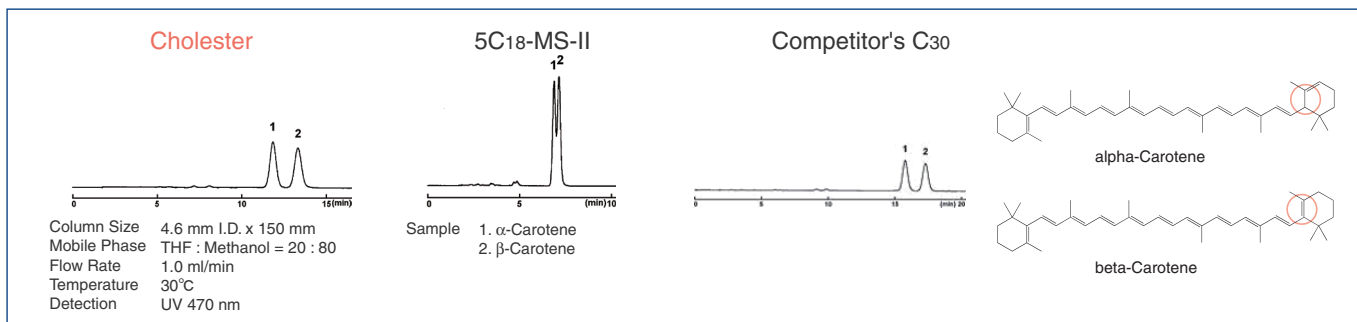


## Application Data

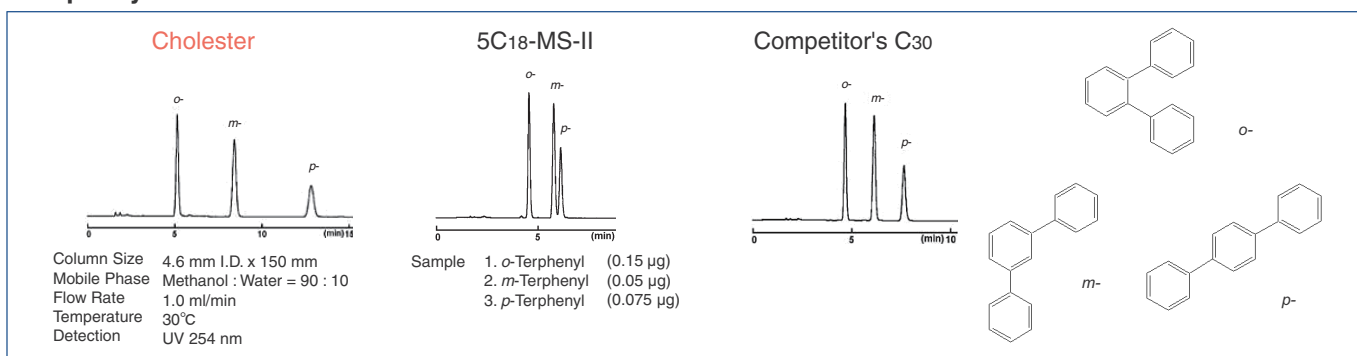
### • Vitamin A acid



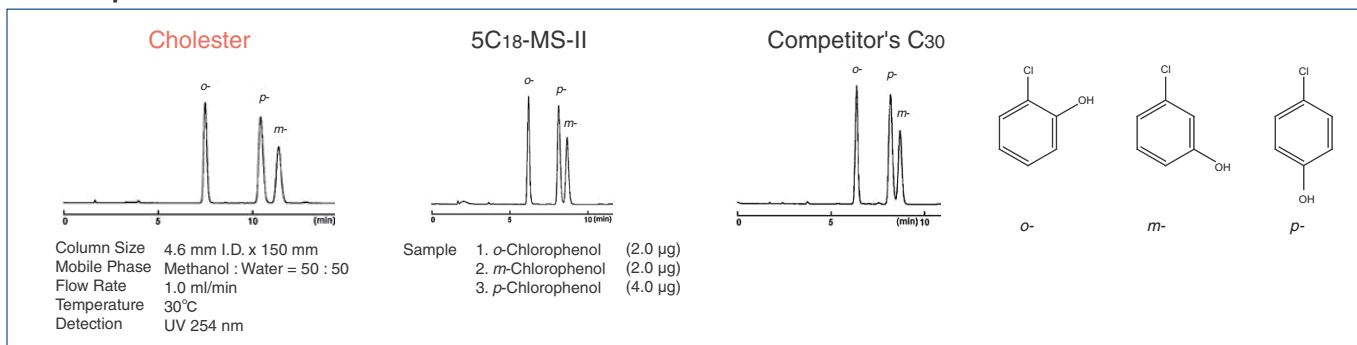
### • Carotene



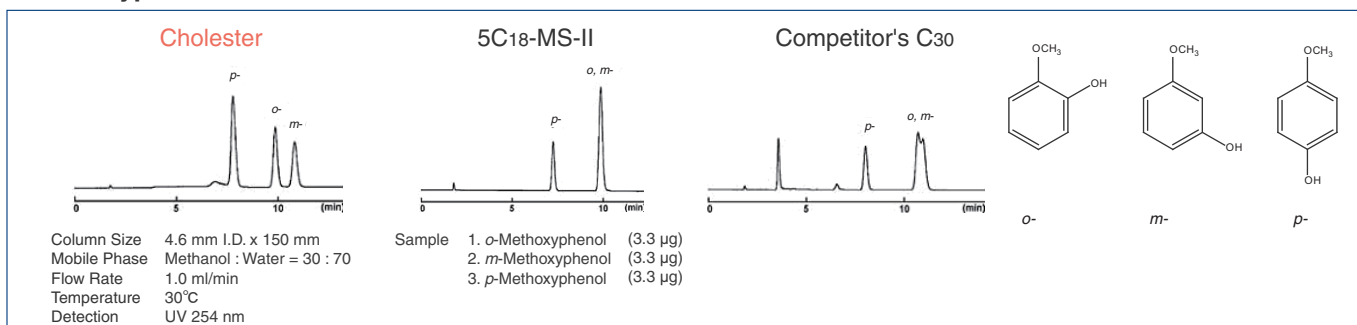
### • Terphenyl



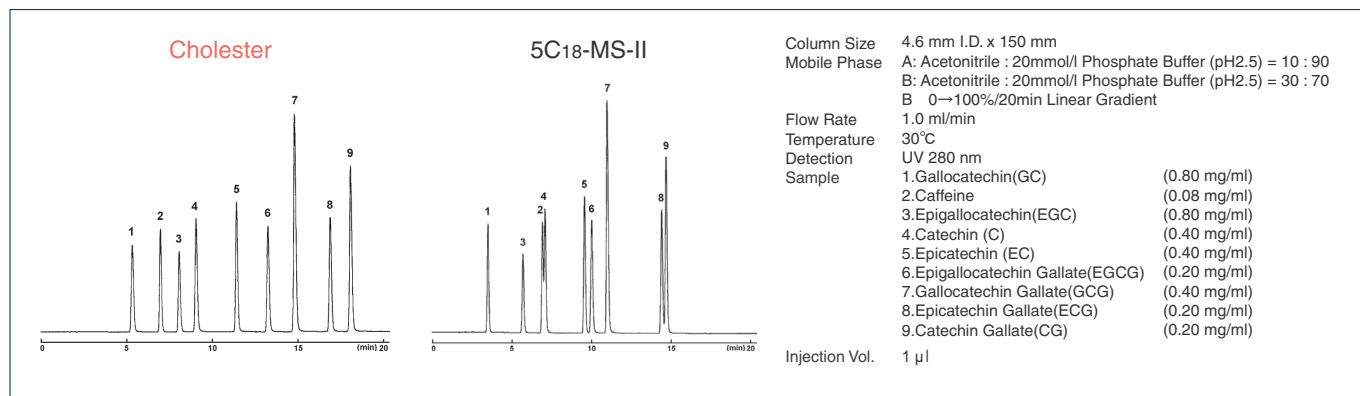
### • Chlorophenol



### • Methoxyphenol



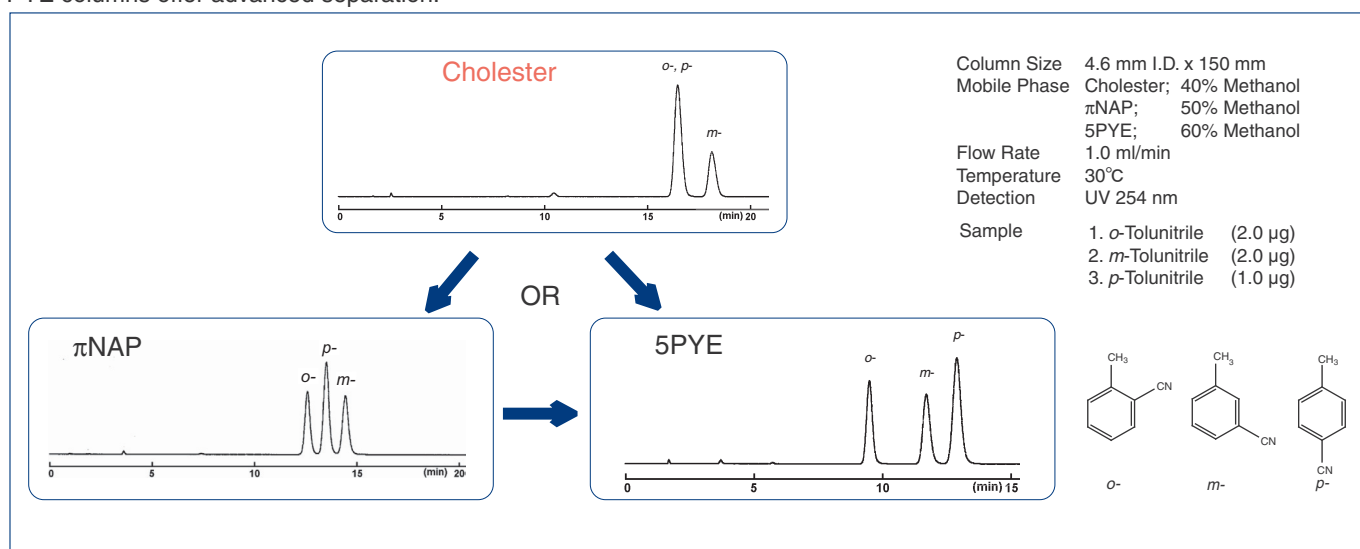
## • Catechins



## Further Separation

### • Positional Isomers like Tolunitriles

For positional isomers (e.g. Tolunitriles) that can not be analyzed efficiently with Cholester, the COSMOSIL NPE or COSMOSIL PYE columns offer advanced separation.



## Ordering Information

Product Name	Column Size	Product Number
COSMOSIL Cholester Packed Column	1.0 mm I.D. x 150 mm	05968-71
	1.0 mm I.D. x 250 mm	05969-61
	2.0 mm I.D. x 30 mm	08565-51
	2.0 mm I.D. x 50 mm	06352-91
	2.0 mm I.D. x 100 mm	06948-01
	2.0 mm I.D. x 150 mm	05971-11
	2.0 mm I.D. x 250 mm	05972-01
	3.0 mm I.D. x 150 mm	05973-91
	3.0 mm I.D. x 250 mm	05974-81
	4.6 mm I.D. x 150 mm	05976-61
4.6 mm I.D. x 150 mm 3 lots set	07970-03	

Product Name	Column Size	Product Number
COSMOSIL Cholester Packed Column	4.6 mm I.D. x 250 mm	05977-51
	10.0 mm I.D. x 150 mm	08011-91
	10.0 mm I.D. x 250 mm	05979-31
	20.0 mm I.D. x 150 mm	06088-71
	20.0 mm I.D. x 250 mm	05982-71
	28.0 mm I.D. x 250 mm	05985-41
COSMOSIL Cholester Guard Column	4.6 mm I.D. x 10 mm	05975-71
	10.0 mm I.D. x 20 mm	05978-41
	20.0 mm I.D. x 20 mm	05980-91
	20.0 mm I.D. x 50 mm	05981-81
	28.0 mm I.D. x 50 mm	05983-61

Other size may be available. Please enquire.

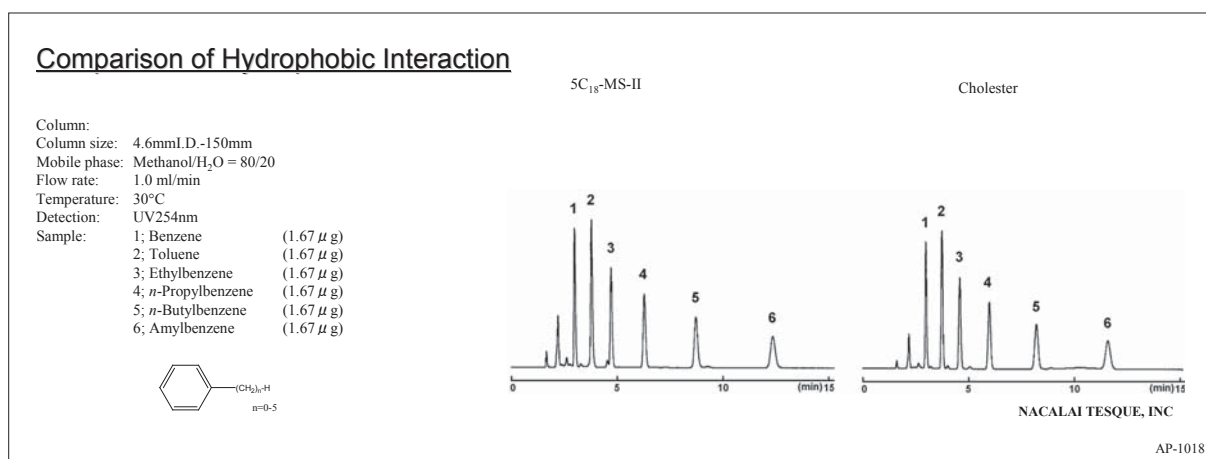
For research use only, not intended for diagnostic or drug use.

# COSMOSIL Cholester

- Cholesterol bonded stationary phase
- Usable under condition the same as C<sub>18</sub>
- Increased stereoselectivity and improved resolution for geometric isomers
- For separation of natural compounds

## Hydrophobic Interaction

Figure shows the comparison of hydrophobic interactions with competitive C<sub>18</sub> columns. Cholester provides the same hydrophobicity as alkyl group bonded types (C<sub>18</sub>, C<sub>30</sub>). It is not necessary to change the analytical conditions when replacing C<sub>18</sub> or C<sub>30</sub> columns with Cholester.



## Molecular Shape Selectivity

The stationary phase of Cholester has very rigid structures and can distinguish different molecular shapes. Cholester offers improved separation for structurally similar compounds that are difficult to analyze with alkyl group bonded materials (C<sub>18</sub> and C<sub>30</sub>). As in the following example Cholester retains planar Triphenylene longer than stereoscopic *o*-Terphenyl.

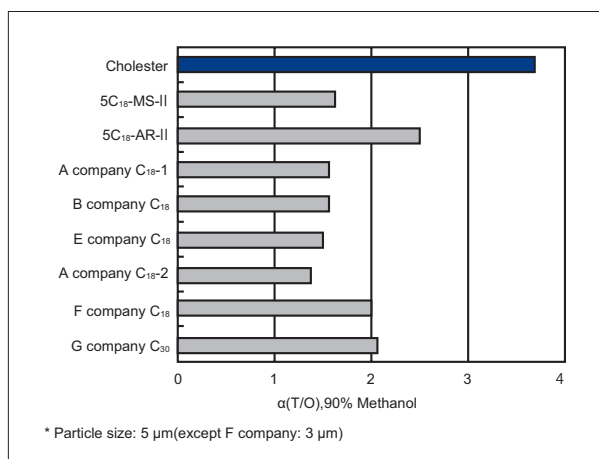
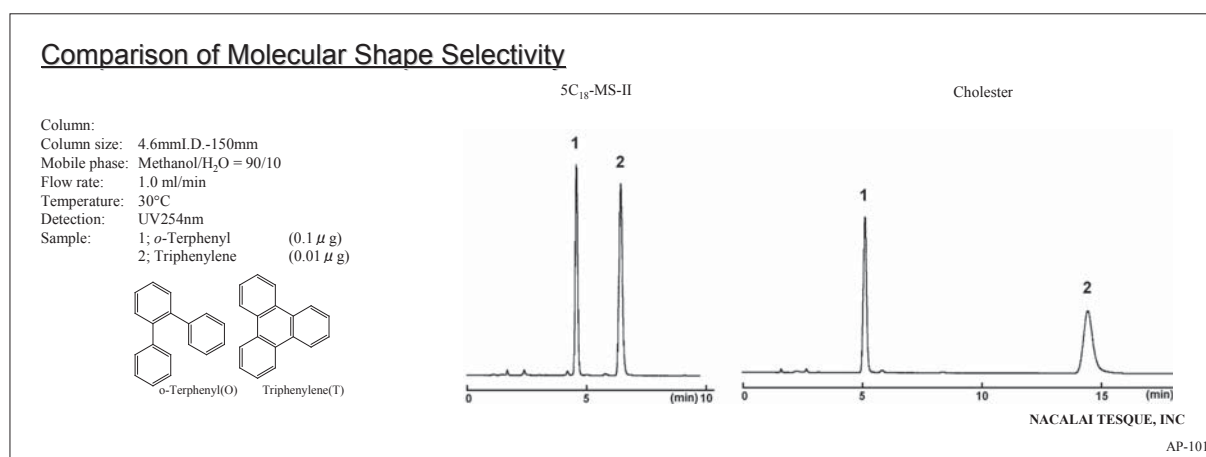


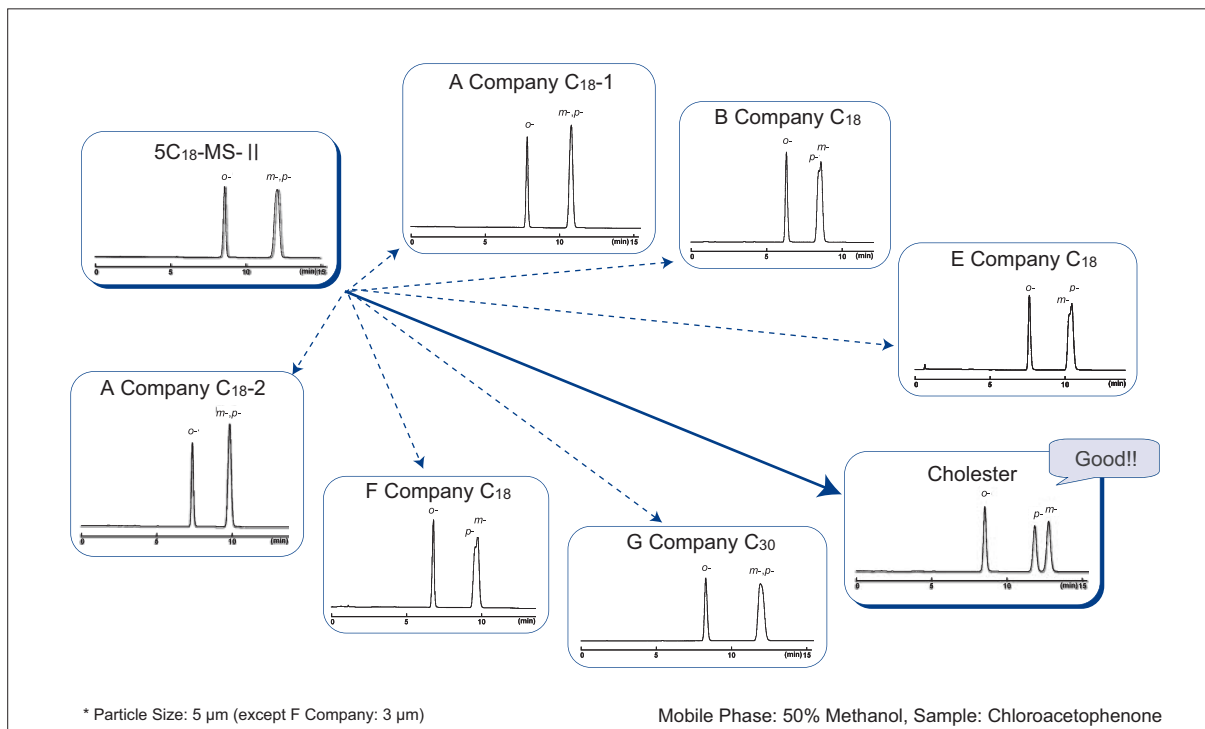
Figure. Comparison of molecular sharp selectivity



## Improvement in Separation

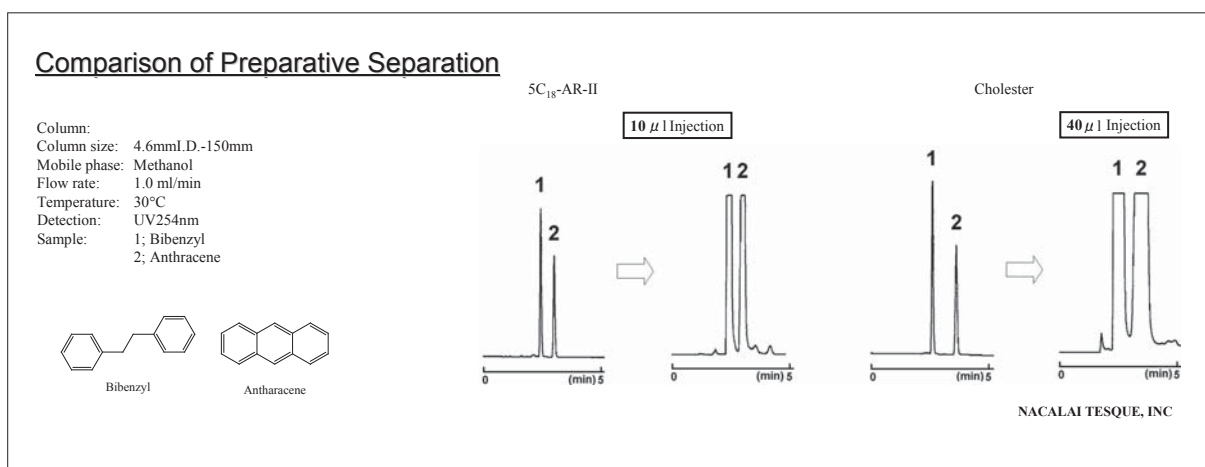
COSMOSIL Cholester provides enhanced selectivity over traditional C<sub>18</sub> columns and offers greater performance in separating isomers or other closely related compounds. COSMOSIL Cholester is ideal for method development and serves as an excellent alternative to traditional C<sub>18</sub> columns. The figure below shows analytical data of chloroacetophenone isomers. These isomers are difficult to separate with C<sub>18</sub> and C<sub>30</sub>, but they are well resolved by COSMOSIL Cholester.

### Comparison with Competitors' C<sub>18</sub> and C<sub>30</sub> columns



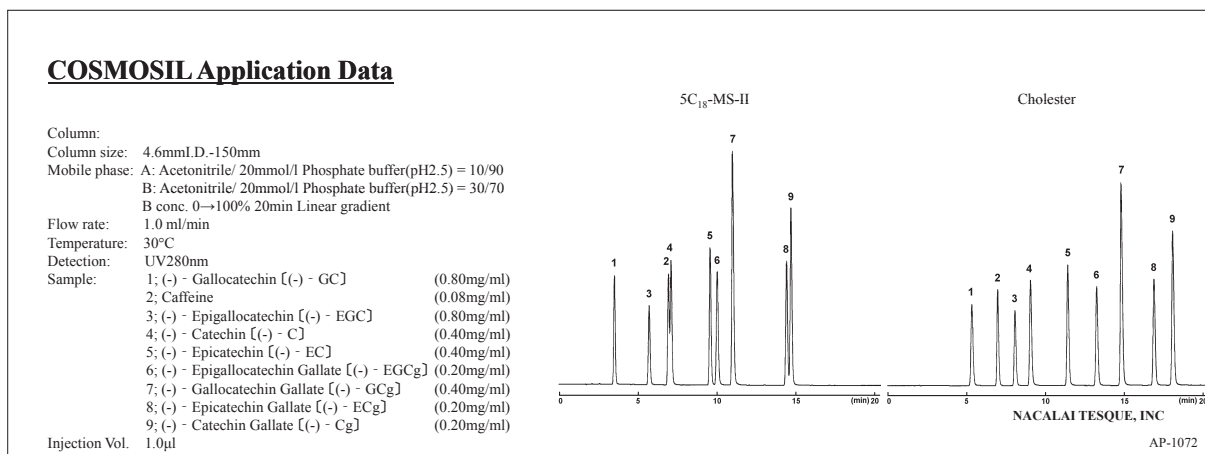
## Efficiency of Preparative Separation

The figure below shows the comparison of efficiency of preparative separation with a C<sub>18</sub> column. Both columns show good separation. However, sample loading capacity for preparative separations can be affected by a slight difference in separation ability. COSMOSIL Cholester can load 4 times of sample volume compared with C<sub>18</sub> columns.

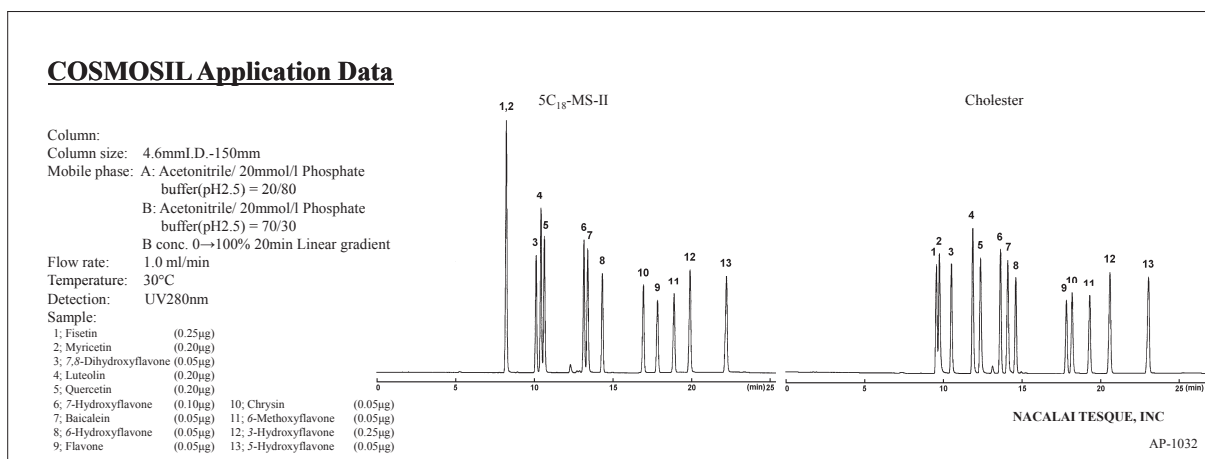


## Applications

### • Catechins



### • Flavones



## Ordering Information

### • Analytical / Preparative Column (Particle Size: 5 µm)

#### COSMOSIL Cholesterol Packed Column

Column Size I.D. x Length (mm)	Product Number
1.0 x 150	05968-71
1.0 x 250	05969-61
2.0 x 30	08565-51
2.0 x 50	06352-91
2.0 x 100	06948-01
2.0 x 150	05971-11
2.0 x 250	05972-01
3.0 x 150	05973-91
3.0 x 250	05974-81

#### COSMOSIL Cholesterol Guard Column

Column Size I.D. x Length (mm)	Product Number
4.6 x 10	05975-71
10 x 20	05978-41
20 x 20	05980-91
20 x 50	05981-81
28 x 50	05983-61

\*For 4.6 x 150 3 lots set, please refer to page 11.

For more information on 2.5Cholesterol (2.5 µm), please refer to page 62.