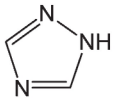
7. Hydrophilic Interaction Chromatography Column

COSMOSIL HILIC

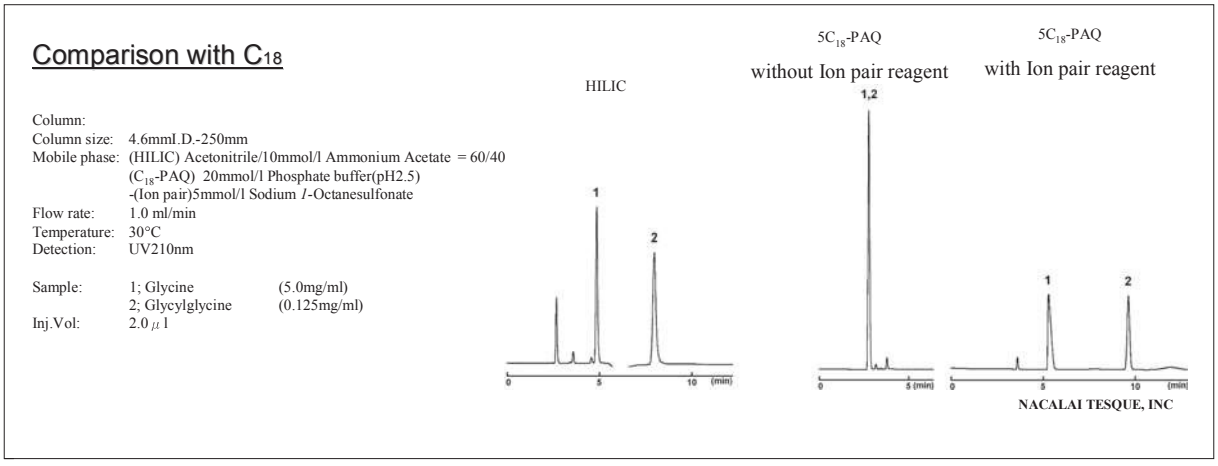
- Triazole bonded stationary phase
- Enhanced hydrophilic interaction
- Excellent retention for highly polar analytes
- Unique anion-exchange mechanism

Specifications

Packing Material	HILIC
Silica Gel	High Purity Porous Spherical Silica
Average Particle Size	5 μm
Average Pore Size	approx. 120 Å
Specific Surface Area	approx. 300 m^2/g
Bonded Phase Stracture	
Bonded phase	Triazole
Interaction	Hydrophilic Interaction, Anion Exchange
Object substance	Hydrophilic Compounds, Acidic Compounds
Features	Suitable for non-retaining by C_{18}

Comparison with C_{18}

The hydrophilic interaction chromatography is a variation of normal phase chromatography where a polar stationary phase is used with a mobile phase which contains a high concentration of water miscible organic solvent and a low concentration of aqueous eluent. The main retention mechanism is the partitioning of the polar analytes between the polar stationary and the non-polar mobile phase. As it is also called “aqueous normal phase”, the elution order is similar to that of normal phase and the sample elution is in the order of increasing hydrophilicity. Without using ion-pair reagent COSMOSIL HILIC retains highly polar analytes that would not be retained in reversed phase chromatography. It also shows a weak anion-exchange mechanism with the positively charged stationary phase, thus acidic compound is strongly retained.



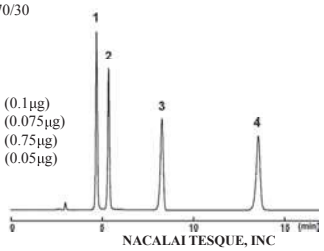
Applications

●Melamine Related Compunds

COSMOSIL Application Data

Column: HILIC
Column size: 4.6mmI.D.-250mm
Mobile phase: Acetonitrile/ 10mmol/l Ammonium Acetate = 70/30
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: UV225nm

Sample:
1; Melamine (0.1µg)
2; Ammeline (0.075µg)
3; Cyanuric Acid (0.75µg)
4; Ammelide (0.05µg)



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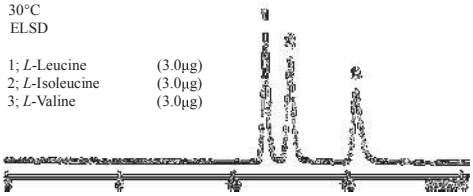
●BCAA (amino acid branhed-chain)

COSMOSIL Application Data

Column: HILIC
Column size: 4.6mmI.D.-250mm
Mobile phase: Acetonitrile/ 10mmol/l Ammonium Acetate = 85/15
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: ELSD

Sample:
1; *L*-Leucine (3.0µg)
2; *L*-Isoleucine (3.0µg)
3; *L*-Valine (3.0µg)



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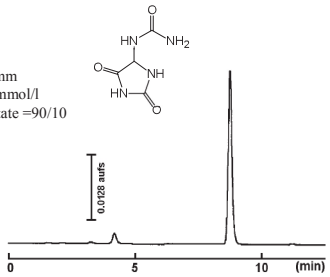
Optimizing Analytical Conditions

The COSMOSIL HILIC Chromatogram Index, which includes 167 chromatograms using COSMOSIL HILIC, is available on the NACALAI TESQUE website at http://www.nacalai.co.jp/en/cosmosil/. This index is a useful tool for all chromatographers, assisting them to optimize analytical conditions for hydrophilic interaction chromatography.

COSMOSIL Chromatogram Index

Sample: Allantoin
CAS No.: [97-59-6]
Molecular formula: $C_4H_6N_4O_3$
Column: HILIC
Column size: 4.6mmI.D.-250mm
Mobile phase: Acetonitrile/ 10mmol/l Ammonium acetate =90/10
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: UV220 nm
Attenuation: 0.128 aufs
Sample conc.: 1.0mg/ml
Injection volume: 1.0µl
Retention time: 8.75min
Capacity factor: 2.02



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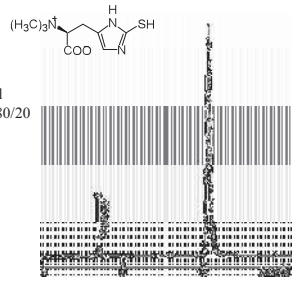
COSMOSIL Chromatogram Index

Sample: *L-(+)*-Ergothioneine
CAS No.: [497-30-3]
Molecular formula: $C_9H_{15}N_3O_2S$
Column: HILIC
Column size: 4.6mmI.D.-250mm
Mobile phase: Acetonitrile/ 10mmol/l Ammonium acetate =80/20
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: UV220 nm
Attenuation: 0.128 aufs
Sample conc.: 1.0mg/ml
Injection volume: 1.0µl
Retention time: 10.29min
Capacity factor: 2.79



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Ordering Information

● Analytical / Preparative Column (Particle Size: 5 µm)

COSMOSIL HILIC Packed Column

Column Size I.D. x Length (mm)	Product Number
1.0 x 150	07869-11
1.0 x 250	07870-71
2.0 x 30	08568-21
2.0 x 50	07052-91
2.0 x 100	08569-11
2.0 x 150	07054-71
2.0 x 250	07489-91
3.0 x 150	07871-61
3.0 x 250	07872-51

Column Size I.D. x Length (mm)	Product Number
4.6 x 150	07056-51
4.6 x 150 3 lots set*	09385-23
4.6 x 250	07057-41
10 x 250	07059-21
20 x 250	07060-81
28 x 250	07875-21

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

COSMOSIL HILIC Guard Column

Column Size I.D. x Length (mm)	Product Number
4.6 x 10	07055-61
10 x 20	07058-31
20 x 20	07854-91
20 x 50	07873-41
28 x 50	07874-31