

# Inertsil<sup>®</sup> HILIC

## Base Silica Physical Properties and Chemical Modification

|                        |                      |
|------------------------|----------------------|
| Particle Size:         | 5um                  |
| Particle Shape:        | Spherical            |
| Specific Surface Area: | 450m <sup>2</sup> /g |
| Pore Size:             | 100A                 |
| Pore Volume:           | 1.05mL/g             |
| Purity:                | 99.999%              |
| Bonded Phase:          | Alkylalcohol groups  |
| Endcapped:             | No                   |
| Carbon Load:           | 20%                  |
| Recommended pH range:  | 2 to 7.5             |
| QC tests employed:     | SEM, M, Ph, C, T, CP |

## HILIC mode (Hydrophilic Interaction Chromatography)

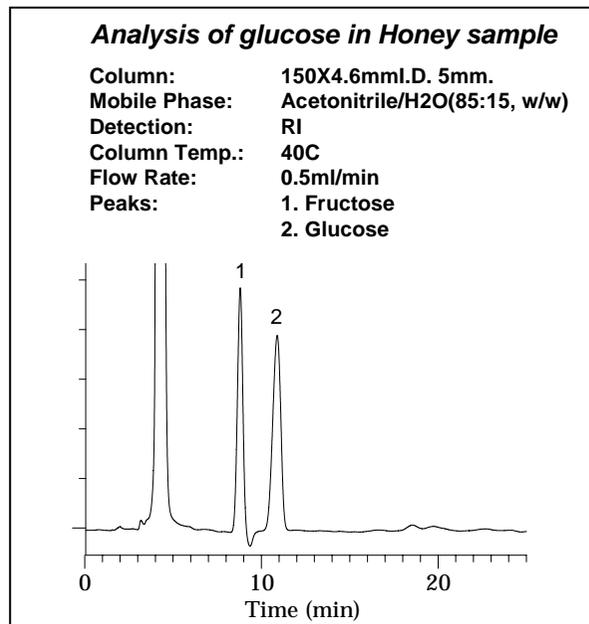
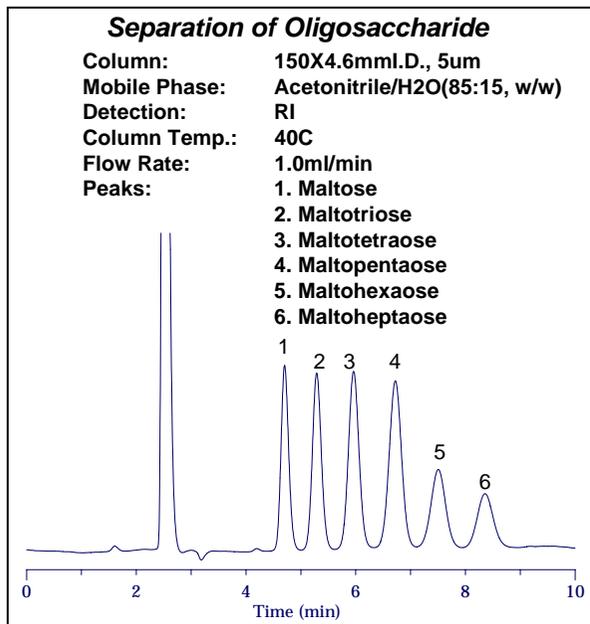
Hydrophilic Interaction Chromatography is a variation of normal phase mode where a high concentration of non-polar solvent is used in a mobile phase and an ideal method for separation and retaining highly polar analytes unretained by traditional reversed-phase mode. HILIC columns become widely used for critical separations in demanding drug metabolism, drug discovery and combinatorial chemistry. In addition volatile mobile phases are used for HILIC mode and afford enhanced ESI-MS sensitivity resulting in lower limits of detection.

### Applications for HILIC mode

- Amino acids
- Water-soluble vitamins
- Drug metabolites and drug discovery
- Combinatorial chemistry
- Promoted retention of compounds unretained by reversed phase mode

### Advantages of HILIC mode

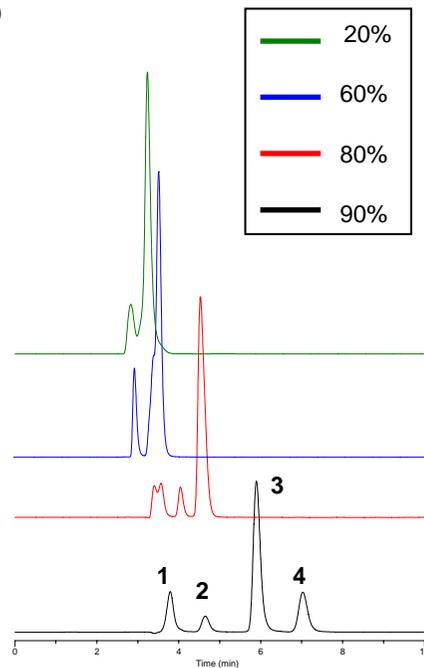
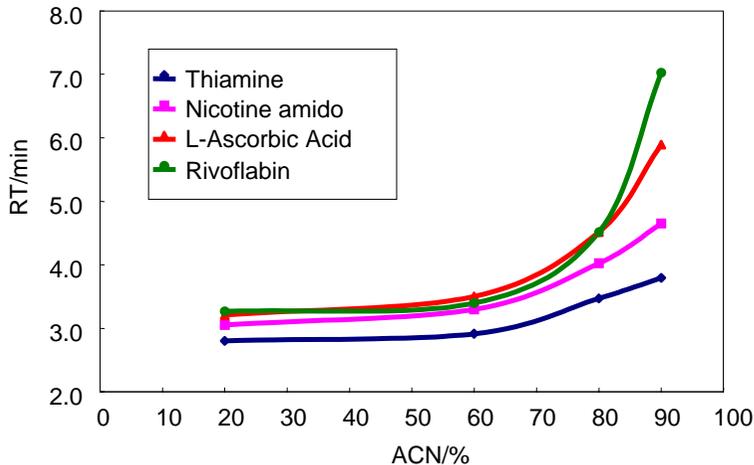
- Low column back pressure analyses can be performed due to high organic solvent composition
- A high organic solvent concentration of the mobile phase will lead to a high sensitivity LC/MC analysis
- The benefit of less ion suppression effect in LC/MC analyses
- Precision determination for polar compounds owing to the fast elution of hydrophobic contents



# Water Soluble Vitamins

**Column:** Inertsil HILIC 5um 3.0x250mm, S/N: 5FI41005  
**Mobile phase:** Acetonitrile(0.1% TFA)/H<sub>2</sub>O(0.1% TFA)=(90/10), (80/20), (60/40), (20/80)  
**Flow rate:** 0.4mL/min  
**Temp.:** 40C  
**Detection:** UV at 254nm  
**Sample size :** 20uL  
**Sample:**

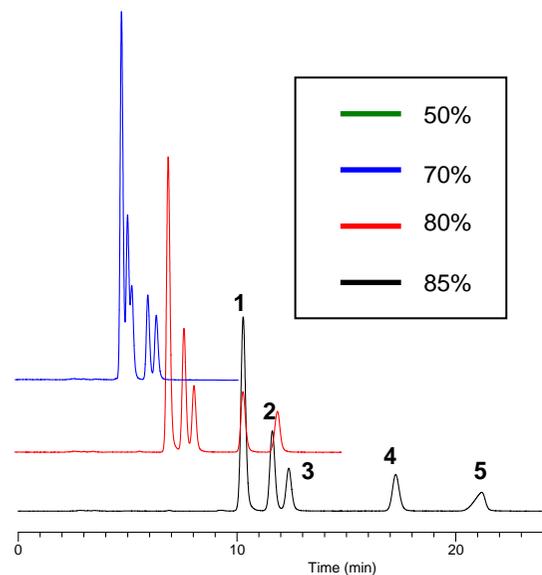
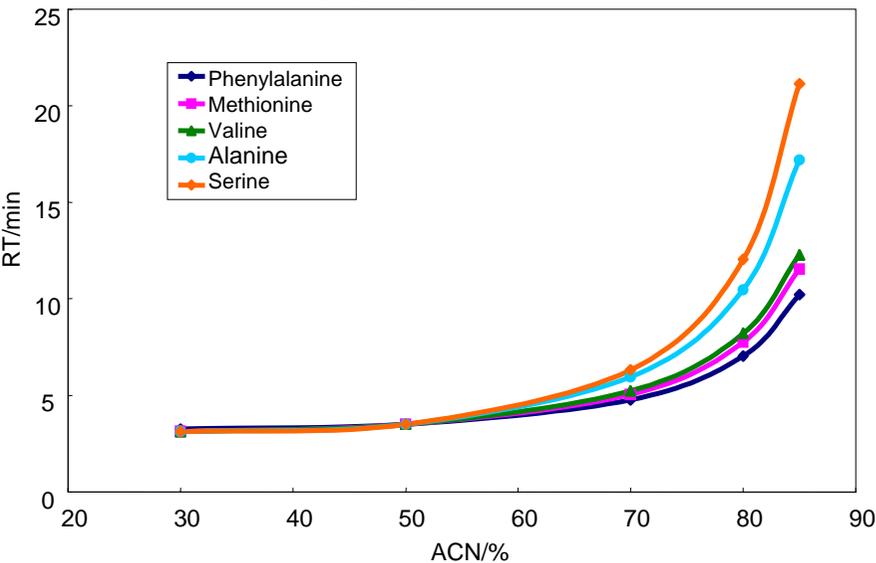
1. Thiamine (8ppm)
2. Nicotinamide (8ppm)
3. L-Ascorbic acid (80ppm)
4. Riboflavin (8ppm)



# Amino Acids

**Column:** Inertsil HILIC 5mm 3.0x250mm, S/N: 5FI41005  
**Mobile phase:** Acetonitrile/10mM KH<sub>2</sub>PO<sub>4</sub>(10% ACN)=(85/15),(80/20),(70/30),(50/50),(30/70)  
**Flow rate:** 0.4mL/min  
**Temp.:** 40C  
**Detection:** UV at 210nm  
**Sample size:** 1mL  
**Sample:**

1. Phenylalanine (100ug/mL)
2. Methionine (500ug/mL)
3. Valine (4mg/mL)
4. Alanine (4mg/mL)
5. Serine (8mg/mL)



# Inertsil HILIC, Alkylalcohol

All Inertsil<sup>®</sup> columns have Waters-compatible end-fittings.

| Inertsil HILIC |   |                     |                  |                  |            |                     |                     |  |
|----------------|---|---------------------|------------------|------------------|------------|---------------------|---------------------|--|
| Particle Size  | I.D. (mm)   | For High Throughput |                  |                  |            | Analytical          | For High Efficiency |  |
|                |   | Column Length (mm)  |                  |                  |            |                     |                     |  |
|                |   | 33                  | 50               | 75               | 100        | 150                 | 250                 |  |
| 5 $\mu$ m      | 0.05-0.7  | *                   |                  |                  |            |                     |                     |  |
|                | 1.0   | 5020-86711          | 5020-86712       | 5020-86713       | 5020-86714 | 5020-86715          | 5020-86716          |  |
|                | 1.5   | 5020-86721          | 5020-86722       | 5020-86723       | 5020-86724 | 5020-86725          | 5020-86726          |  |
|                | 2.1   | 5020-07701          | 5020-07702       | 5020-07703       | 5020-07704 | 5020-07705          | 5020-07706          |  |
|                | 3.0   | 5020-07711          | 5020-07712       | 5020-07713       | 5020-07714 | 5020-07715          | 5020-07716          |  |
|                | 4.0   | 5020-07721          | 5020-07722       | 5020-07723       | 5020-07724 | 5020-07725          | 5020-07726          |  |
|                | 4.6   | 5020-07731          | 5020-07732       | 5020-07733       | 5020-07734 | 5020-07735          | 5020-07736          |  |
|                | <b>Cartridge Guard Column E</b>                       |                     |                  |                  |            |                     |                     |  |
|                |   |                     | 10 mm length     |                  |            | 20 mm length        |                     |  |
|                | Holder  |                     | 5020-08500       |                  |            | 5020-08550          |                     |  |
|                | Cartridge E<br>(2 pack)                               |                     | 1.0 mm I.D.      | 5020-08517-5u-Hi |            |                     | -                   |  |
|                |   |                     | 1.5 mm I.D.      | 5020-08518-5u-Hi |            |                     | -                   |  |
|                |   |                     | 3.0 mm I.D.      | 5020-08515-5u-Hi |            |                     | 5020-08565-5u-Hi    |  |
|                |   |                     | 4.0 mm I.D.      | 5020-08510-5u-Hi |            |                     | 5020-08560-5u-Hi    |  |
|                | Holder/Cartridge E Set<br>(1 Holder and 2 Cartridges) |                     | 1.0 mm I.D.      | 5020-08527-5u-Hi |            |                     | -                   |  |
|                |   |                     | 1.5 mm I.D.      | 5020-08528-5u-Hi |            |                     | -                   |  |
|                |   |                     | 3.0 mm I.D.      | 5020-08525-5u-Hi |            |                     | 5020-08575-5u-Hi    |  |
|                |   |                     | 4.0 mm I.D.      | 5020-08520-5u-Hi |            |                     | 5020-08570-5u-Hi    |  |
|                | <b>Guard Columns</b>                                  |                     |                  |                  |            |                     |                     |  |
|                |   |                     | 10 mm length     |                  |            | 50 mm length        |                     |  |
| Guard Columns  |   | 2.1 mm I.D.         | -                |                  |            | 5020-08100-5u-Hi-21 |                     |  |
|                |   | 3.0 mm I.D.         | -                |                  |            | 5020-08100-5u-Hi-30 |                     |  |
|                |   | 4.0 mm I.D.         | 5020-08200-5u-Hi |                  |            | 5020-08100-5u-Hi-40 |                     |  |
|                |   | 4.6 mm I.D.         | -                |                  |            | 5020-08100-5u-Hi-46 |                     |  |

| Preparative          | I.D. (mm) | Column Length (mm) |                 |                 |     |                 |                 |
|----------------------|-----------|--------------------|-----------------|-----------------|-----|-----------------|-----------------|
|                      |           | 33                 | 50              | 75              | 100 | 150             | 250             |
|                      |           | 6.0                | -               | 5020-Hi-050-060 | -   | 5020-Hi-100-060 | 5020-Hi-150-060 |
| 7.6                  | -         | 5020-Hi-050-076    | -               | *               | *   | 5020-Hi-250-076 |                 |
| 10.0                 | -         | 5020-Hi-050-100    | -               | *               | *   | 5020-Hi-250-100 |                 |
| 20.0                 | -         | 5020-Hi-050-200    | -               | *               | *   | 5020-Hi-250-200 |                 |
| 30.0                 | -         | 5020-Hi-050-300    | -               | *               | *   | 5020-Hi-250-300 |                 |
| 50.0                 | -         | -                  | -               | *               | *   | 5020-Hi-250-500 |                 |
| <b>Guard Columns</b> |           |                    |                 |                 |     |                 |                 |
| 6.0                  | -         | 5020-Hi-050-060    | -               | -               | -   | -               |                 |
| 7.6                  | -         | 5020-Hi-050-076    | -               | -               | -   | -               |                 |
| 10.0                 | -         | 5020-Hi-050-100    | -               | -               | -   | -               |                 |
| 20.0                 | -         | 5020-Hi-050-200    | -               | -               | -   | -               |                 |
| 30.0                 | -         | 5020-Hi-050-300    | -               | -               | -   | -               |                 |
| 50.0                 | -         | -                  | 5020-Hi-075-500 | -               | -   | -               |                 |

\* Please inquire.

\* End-fitting is Waters 1/16" type. When using other end-fitting types, please specify the type.

\* For other column sizes, please give us an enquiry. (Upon request)

### For Cartridge Guard Column E & Guard Columns

\* When ordering, please specify the packing material and the particle size.

\* Only Waters 1/16" end-fitting type is compatible for our Cartridge Guard Column E.

\* Conventional Guard Columns and GL-Cart Guard Columns are also available.

\* EX type hardware are used for all the Cartridge Guard Column E columns.

\* For more information, please feel free to contact us.

The specification and the column type are subject to change without notice due to continual improvements.

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**ISO14001: Save Energy and Resources!!**  
**Reduce Amount of Eluent with Smaller ID Inertsil Columns!!**