

# Columns for Polymer-based Hydrophilic Interaction Chromatography (HILIC) (HILICpak)

## Features

- New VG-50**
- Suitable for saccharides analysis by hydrophilic interaction chromatography (HILIC)
  - High recovery ratio of reducing saccharides
  - Polymer-based packing material provides excellent chemical stability and minimum deterioration over extended time period
  - Easily regenerated by washing in a alkaline solution
  - Also suitable for evaporative light scattering detector, corona charged aerosol detector, and LC/MS
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- New VT-50**
- Suitable for anionic substances analysis by hydrophilic interaction chromatography (HILIC)
  - Depends on the eluent selected, the column adds ion exchange mode
  - Polymer-based packing material provides excellent chemical stability and minimum deterioration over extended time period
  - Suitable for LC/MS

## Standard columns

### ● VG-50

(Housing Material : SUS)

Product Code	Product Name	Plate Number (TP/column)	Functional Group	Particle Size (μm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F7630200	<b>New</b> HILICpak VG-50 4D	≥ 5,500	Amino	5	100	4.6 x 150	H <sub>2</sub> O/CH <sub>3</sub> CN=20/80
F7630100	<b>New</b> HILICpak VG-50 4E	≥ 7,500	Amino	5	100	4.6 x 250	H <sub>2</sub> O/CH <sub>3</sub> CN=20/80
F6711100	<b>New</b> HILICpak VG-50G 4A	(guard column)	Amino	5	100	4.6 x 10	H <sub>2</sub> O/CH <sub>3</sub> CN=20/80

Base Material : Polyvinyl alcohol

(Housing Material : PEEK)

Product Code	Product Name	Plate Number (TP/column)	Functional Group	Particle Size (μm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F7630300	<b>New</b> HILICpak VG-50 2D	≥ 3,500	Amino	5	100	2.0 x 150	H <sub>2</sub> O/CH <sub>3</sub> CN=15/85
F6711200	<b>New</b> HILICpak VG-50G 2A	(guard column)	Amino	5	100	2.0 x 10	H <sub>2</sub> O/CH <sub>3</sub> CN=15/85

Base Material : Polyvinyl alcohol

### ● VT-50

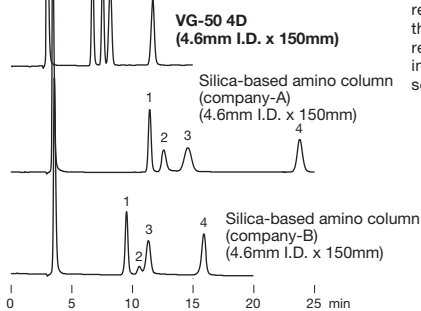
(Housing Material : PEEK)

Product Code	Product Name	Plate Number (TP/column)	Functional Group	Particle Size (μm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F7630400	<b>New</b> HILICpak VT-50 2D	≥ 4,500	Quaternary ammonium	5	100	2.0 x 150	25mM HCOONH <sub>4</sub> aq. /CH <sub>3</sub> CN=15/85
F6711300	<b>New</b> HILICpak VT-50G 2A	(guard column)	Quaternary ammonium	5	100	2.0 x 10	25mM HCOONH <sub>4</sub> aq. /CH <sub>3</sub> CN=15/85

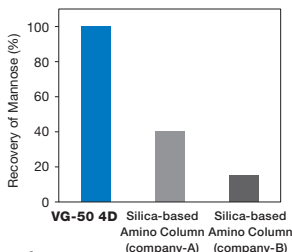
Base Material : Polyvinyl alcohol

### Recovery of reducing sugar

Sample : 5mg/mL each, 5 $\mu$ L  
 1. Fructose  
 2. Mannose  
 3. Glucose  
 4. Sucrose



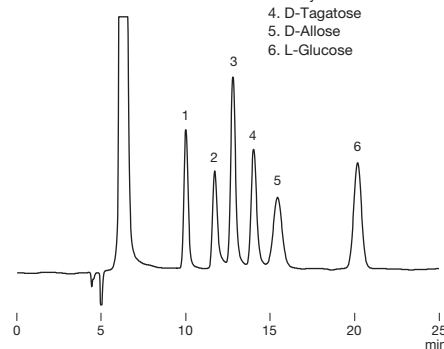
When an amino column is used for analyzing saccharides, the recovery ratio of reducing saccharides such as mannose, arabinose or xylose is low because the amino group forms Schiff base with reducing saccharides. HILICpak VG-50 is the amino column that the recovery ratio of reducing saccharides is improved. By the improvement of the recovery ratio, the sensitivity of the analysis gets higher.



**Column** : Shodex HILICpak VG-50 4D  
**Silica based amino columns from other manufacturers**  
**Eluent** : H<sub>2</sub>O/CH<sub>3</sub>CN=20/80  
**Flow rate** : 0.6mL/min (VG-50 4D)  
 1.0mL/min (Silica based amino column)  
**Detector** : RI  
**Column temp.** : 40°C

### Rare sugar

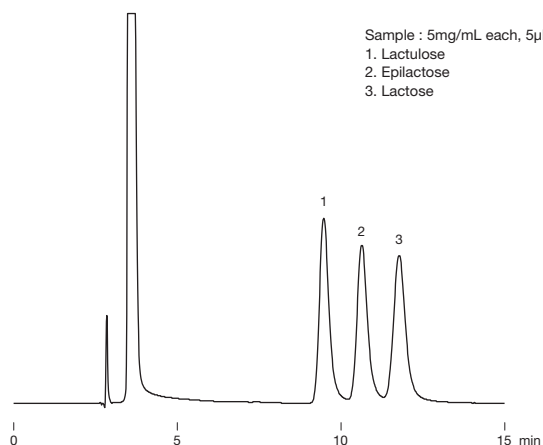
Sample : 0.2% each, 10 $\mu$ L  
 1. L-Ribose  
 2. D-Psicose  
 3. D-Xylitol  
 4. D-Tagatose  
 5. D-Allose  
 6. L-Glucose



**Column** : Shodex HILICpak VG-50 4E  
**Eluent** : H<sub>2</sub>O/CH<sub>3</sub>CN/CH<sub>3</sub>OH=5/85/10  
**Flow rate** : 0.6mL/min  
**Detector** : RI  
**Column temp.** : 50°C

### Lactose, epilactose, and aactulose

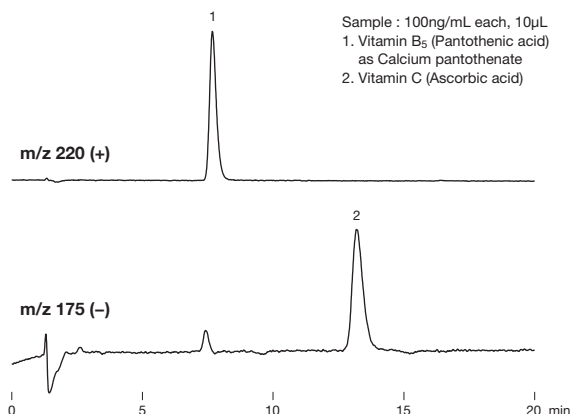
Sample : 5mg/mL each, 5 $\mu$ L  
 1. Lactulose  
 2. Epilactose  
 3. Lactose



**Column** : Shodex HILICpak VG-50 4E  
**Eluent** : H<sub>2</sub>O/CH<sub>3</sub>CN/CH<sub>3</sub>OH=5/75/20  
**Flow rate** : 1.0mL/min  
**Detector** : RI  
**Column temp.** : 40°C

### LC/MS analysis of pantothenic acid and vitamin C

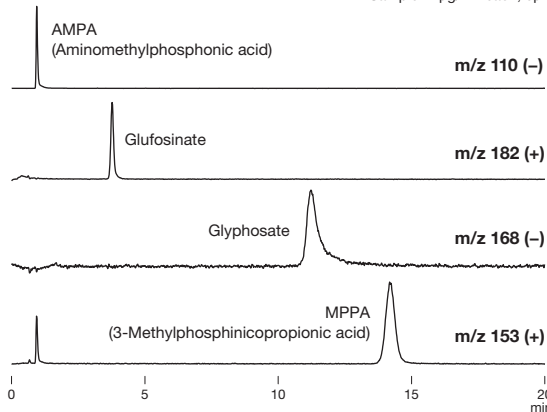
Sample : 100ng/mL each, 10 $\mu$ L  
 1. Vitamin B<sub>5</sub> (Pantothenic acid) as Calcium pantothenate  
 2. Vitamin C (Ascorbic acid)



**Column** : Shodex HILICpak VT-50 2D  
**Eluent** : 50mM HCOONH<sub>4</sub> aq./CH<sub>3</sub>CN=30/70  
**Flow rate** : 0.2mL/min  
**Detector** : ESI-MS (SIM)  
**Column temp.** : 30°C

### LC/MS analysis of glyphosate and glufosinate

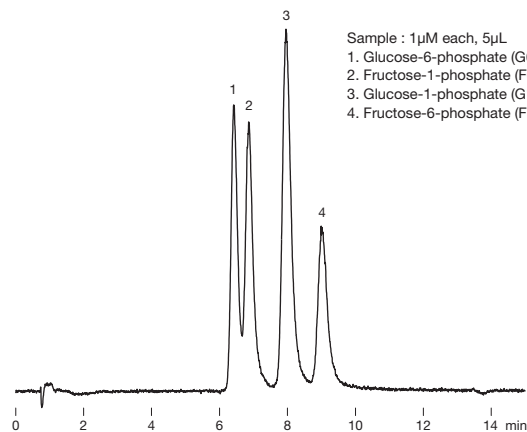
Sample : 1 $\mu$ g/mL each, 5 $\mu$ L



**Column** : Shodex HILICpak VT-50 2D  
**Eluent** : H<sub>2</sub>O/1% HCOOH aq./CH<sub>3</sub>CN=70/20/10  
**Flow rate** : 0.3mL/min  
**Detector** : ESI-MS (SIM)  
**Column temp.** : 40°C

### LC/MS analysis of phosphorylated saccharides

Sample : 1 $\mu$ M each, 5 $\mu$ L  
 1. Glucose-6-phosphate (G6P)  
 2. Fructose-1-phosphate (F6P)  
 3. Glucose-1-phosphate (G1P)  
 4. Fructose-6-phosphate (F1P)



**Column** : Shodex HILICpak VT-50 2D  
**Eluent** : 25mM HCOONH<sub>4</sub> aq./CH<sub>3</sub>CN=80/20  
**Flow rate** : 0.3mL/min  
**Detector** : ESI-MS (SIM Negative : m/z 259)  
**Column temp.** : 60°C

# Columns for Polymer-based Hydrophilic Interaction Chromatography (HILIC) (Asahipak)

## Features

- NH2P**
- Suitable for saccharides analysis by hydrophilic interaction chromatography (HILIC)
  - Polymer-based packing material provides excellent chemical stability and minimum deterioration over extended time period
  - Easily regenerated by washing in a alkaline solution
  - Also suitable for evaporative light scattering detector, corona charged aerosol detector, and LC/MS
  - Corresponds to USP L82
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- NH2P-40**
- Provides higher theoretical plate number compared to NH2P-50 series
  - Corresponds to USP L82

## Standard columns

Product Code	Product Name	Plate Number (TP/column)	Functional Group	Particle Size (µm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F7630005	<b>Asahipak NH2P-50 4B</b>	≥ 1,500	Amino	5	100	<b>4.6 x 50</b>	CH <sub>3</sub> CN
F7630002	<b>Asahipak NH2P-50 4D</b>	≥ 5,500	Amino	5	100	<b>4.6 x 150</b>	CH <sub>3</sub> CN
F7630001	<b>Asahipak NH2P-50 4E</b>	≥ 7,500	Amino	5	100	<b>4.6 x 250</b>	CH <sub>3</sub> CN
F6710016	<b>Asahipak NH2P-50G 4A</b>	(guard column)	Amino	5	–	<b>4.6 x 10</b>	CH <sub>3</sub> CN
F7630006	<b>Asahipak NH2P-50 2D</b>	≥ 3,500	Amino	5	100	<b>2.0 x 150</b>	CH <sub>3</sub> CN
F6713000	<b>Asahipak NH2P-50G 2A</b>	(guard column)	Amino	5	–	<b>2.0 x 10</b>	CH <sub>3</sub> CN
F7630007	<b>Asahipak NH2P-40 3E</b>	≥ 8,500	Amino	4	100	<b>3.0 x 250</b>	CH <sub>3</sub> CN
F6710030	<b>Asahipak NH2P-50G 3A</b>	(guard column)	Amino	5	–	<b>3.0 x 10</b>	CH <sub>3</sub> CN
F7630008	<b>Asahipak NH2P-40 2B</b>	≥ 2,000	Amino	4	100	<b>2.0 x 50</b>	CH <sub>3</sub> CN
F7630009	<b>Asahipak NH2P-40 2D</b>	≥ 5,500	Amino	4	100	<b>2.0 x 150</b>	CH <sub>3</sub> CN
F7630010	<b>Asahipak NH2P-40 2E</b>	≥ 7,000	Amino	4	100	<b>2.0 x 250</b>	CH <sub>3</sub> CN
F6710100	<b>Asahipak NH2P-LF</b>	(line filter)	Amino	–	–	<b>8.0 x 75</b>	CH <sub>3</sub> CN

Base Material : Polyvinyl alcohol

## 3mm I.D columns [Customized columns]

Product Code	Product Name	Functional Group	Particle Size (µm)	Pore Size (Å)	Column Size (mm) I.D. x Length
F7630011	<b>Asahipak NH2P-40 3B</b>	Amino	4	100	<b>3.0 x 50</b>
F7630012	<b>Asahipak NH2P-40 3D</b>	Amino	4	100	<b>3.0 x 150</b>

## Preparative columns \* Preparative columns are made to order.

Product Code	Product Name	Plate Number (TP/column)	Particle Size (µm)	Column Size (mm) I.D. x Length	Standard Column
F6830001	<b>Asahipak NH2P-50 10E</b>	≥ 10,000	5	<b>10.0 x 250</b>	NH2P-50
F6830031	<b>Asahipak NH2P-90 20F</b>	≥ 10,000	9	<b>20.0 x 300</b>	NH2P-50
F6710017	<b>Asahipak NH2P-130G 7B</b>	(guard column)	13	<b>7.5 x 50</b>	(guard column)

