TECHNICAL DATA

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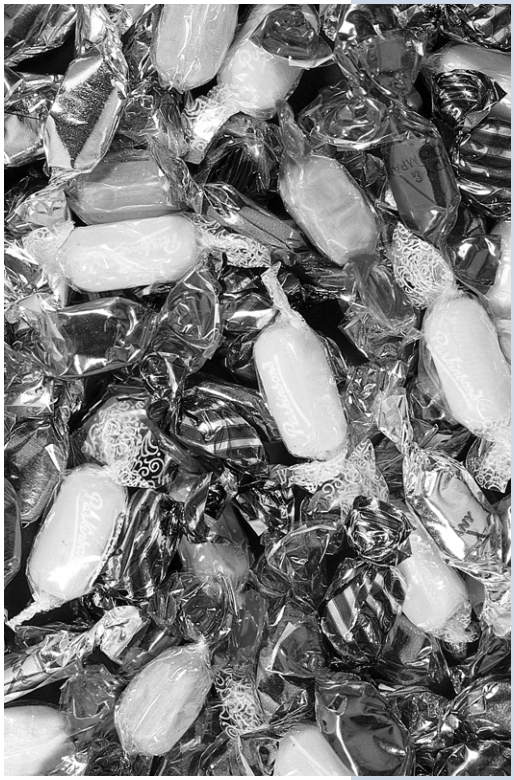


Polyamine II

Polyamine II

- ***polymer coated amino phase***
- ***exclusively 2° and 3° amino groups***
- ***stable towards hydrolysis and oxidation***
- ***high recovery***
- ***excellent life-time***

General

The chromatographic separation and the reliable quantitation of saccharides is increasingly important in many areas of food technology, life science and in pharmaceutical industry.
For these particular applications, YMC provides YMC-Pack Polyamine II, a novel polymer coated amino phase.

Properties

YMC-Pack Polyamine II is based on ultrapure YMC silica as a support material. The functionality of the stationary phase is achieved by a covalently bonded polymer layer containing secondary (2°) and tertiary (3°) amino groups. The 2° and 3° amino groups of YMC-Pack Polyamine II are only weakly nucleophilic, exhibiting a significantly reduced reactivity against carbonyl compounds. Therefore, unlike conventional amino phases with primary n-propylamino ligands, YMC-Pack Polyamine II does not tend to the formation of Schiff' bases or other stable condensation products. In addition, the 2° and 3° amino groups of the polymer layer are to a large extent resistant to oxidation and hydrolysis (Fig. 1).

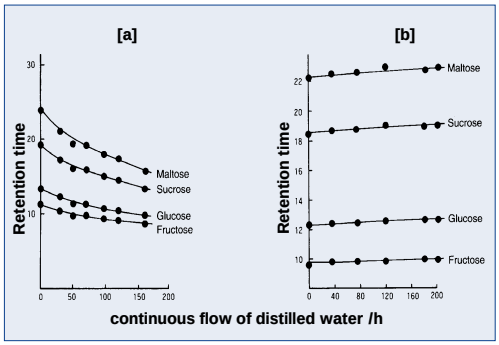


Fig. 1: Life-time study of amino type packings
[a] conventional amino phase
[b] YMC-Pack Polyamine II

The low reactivity of the 2° and 3° amino groups preserves the long-term retention characteristics and selectivity of YMC-Pack Polyamine II. Compared to conventional amino phases, one of their most outstanding benefits is the significantly prolonged lifetime. As the silica matrix is completely polymer coated, even the short-term use of basic eluents up to pH 10.5 is possible.
Reducing sugars are often adsorbed irreversibly to conventional amino phases, which causes problems in their recovery and quantitation. In YMC-Pack Polyamine II columns however, the adsorption of reducing sugars plays only a minor role. As a result a high recovery of these compounds can be obtained which is beneficial for accurate and reliable quantitation.

Applications

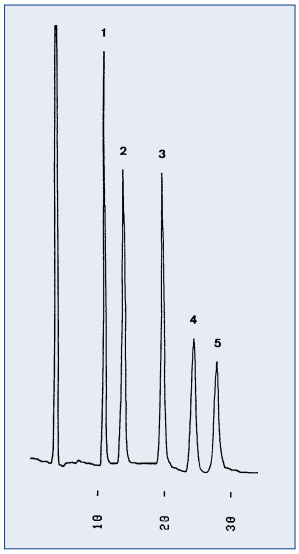
For the separation of saccharides, YMC-Pack Polyamine II columns are typically used with water/acetonitrile eluents, with water as the stronger eluent.
With the exception of chlorinated hydrocarbons, YMC-Pack Polyamine II columns can be used with every other organic eluent in the Normal Phase mode. YMC-Pack Polyamine II columns are a powerful tool for the analysis of sugars. Effective separations are obtained for mono-, di- and oligosaccharides.

Recommendations

The recommended pH range for YMC-Pack Polyamine II is 2.0 - 9.0. Remove acid and buffer salts before storage. Recondition and store the column in acetonitrile/water = 75/25.
For maintenance, the following recommendations should be used: on loss of selectivity due to contamination with polar compounds, flush the column thoroughly with water. After irreversible binding of anions, the column performance can be recovered by flushing with 50 mM borate buffer (50 mM boric acid, adjusted to pH 9.0 with NaOH). Remove undesired organic contaminants by flushing with acetonitrile or tetrahydrofuran (THF).
Clogged inlet frits can be cleaned by changing the flow direction. The column back pressure should be kept below 2900 psi (200 bar), and the temperature should not exceed 50 °C.

Mono- and Disaccharides

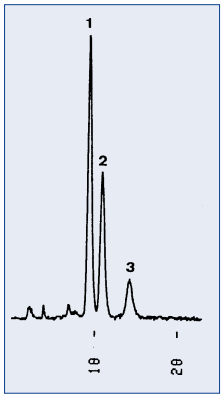
Column: YMC-Pack Polyamine II (250 x 4.6 mm)
Eluent: ACN/H_2O = 75/25
Flow: 1.0 ml/min
Detection: RI, 32x10^{-6} RIU/FS
Temperature: 26 ºC



1: Fructose
2: Glucose
3: Sucrose
4: Maltose
5: Lactose

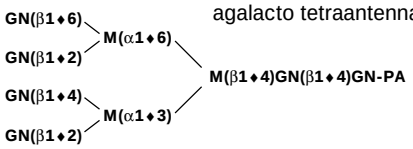
Pyridylamino (PA)-Sugar Chains

Column: YMC-Pack Polyamine II (150 x 4.6 mm)
Eluent: Methanol/$NH_4H_2PO_4$ (20 mM) = 80/20
Flow: 1.0 ml/min
Detection: FLS 320 nm, Em 400 nm, 4 mV/FS
Temperature: 37 ºC

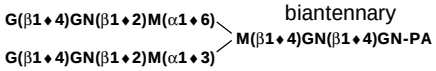


G: Galactose
GN: N-Acetylglucosamine
M: Mannose
F: Fructose
PA: Pyridylamino

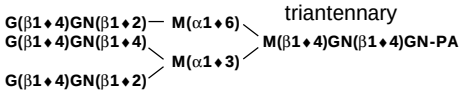
1: PA Sugar Chain 014, N-Acetyllactosamine-type agalacto tetraantennary



2: PA Sugar Chain 001, N-Acetyllactosamine-type biantennary

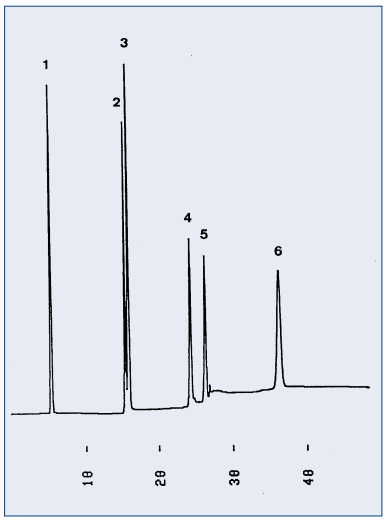


3: PA Sugar Chain 002, N-Acetyllactosamine-type triantennary



Unsaturated Chondrodisaccharides

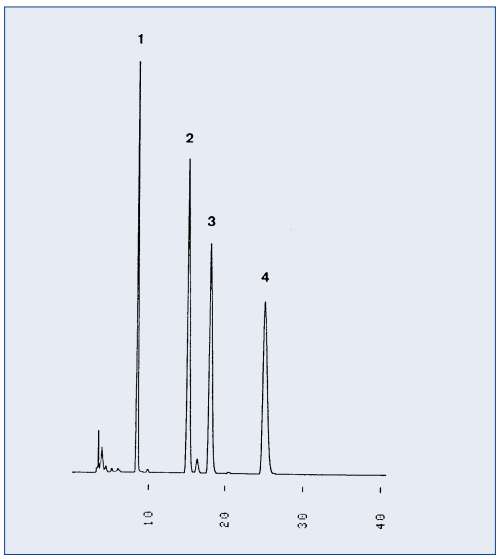
Column: YMC-Pack Polyamine II (250 x 4.6 mm)
Eluent: A: $NH_4H_2PO_4$-$(NH_4)_2HPO_4$ (0,01 M, pH 6,7)
B: $NH_4H_2PO_4$-$(NH_4)_2HPO_4$ (0.5 M, pH 6,7)
Gradient: 0 % B (0-5 min), 0-100 % B (5-30 min, linear), 100 % B (30-50 min)
Flow: 1.0 ml/min
Detection: UV, 232 nm
Temperature: 37 ºC



1: Di-OS
2: Di-6S
3: Di-4S
4: Di-diS_D
5: Di-diS_E
6: Di-triS

NP-Separation of Tocopherols

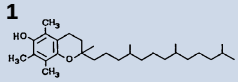
Column: YMC-Pack Polyamine II (250 x 4.6 mm)
Eluent: Hexane/Ethylacetate = 70/30
Flow: 1.0 ml/min
Detection: UV, 295 nm
Temperature: 30 ºC



1: α-Tocopherol
2: β-Tocopherol
3: γ-Tocopherol
4: δ-Tocopherol

Polyamine II

- ***Saccharides and Derivatives***
- ***Nucleotides***
- ***Tocopherols***
- ***for RP- and NP-mode separations***

1


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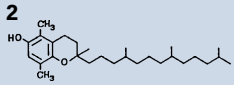

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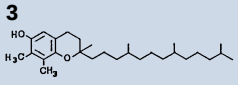

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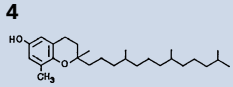
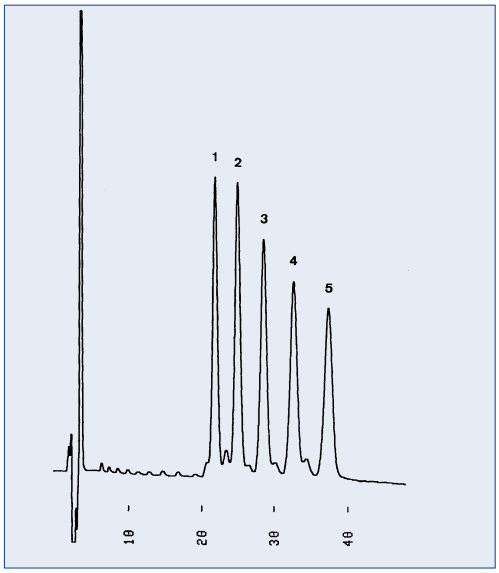


Separations

Maltooligosaccharides

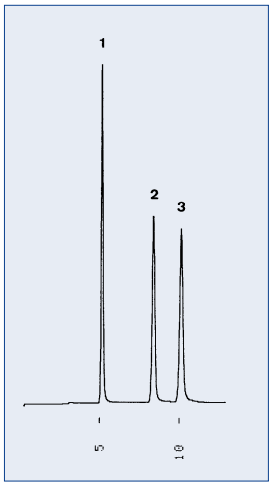
Column: YMC-Pack Polyamine II (250 x 4.6 mm)
Eluent: ACN/H_2O = 55/45
Flow: 1.0 ml/min
Detection: RI, 32 x 10-6 RIU/FS
Temperature: 26 ºC



1: Maltoundecaose (G_{11})
2: Maltododecaose (G_{12})
3: Maltotridecaose (G_{13})
4: Maltotetradecaose (G_{14})
5: Maltopentadecaose (G_{15})

Water-Soluble Vitamins

Column: YMC-Pack Polyamine II (250 x 4.6 mm)
Eluent: ACN/$NH_4H_2PO_4$ (50 mM) = 70/30
Flow: 1.0 ml/min
Detection: UV, 250 nm
Temperature: 40 ºC



1: Nicotinc Acid
2: Erythorbic Acid
3: L-Ascorbic Acid

Typical Column Dimensions

	Specification	Dimension	Code
Analytical	120 Å, spherical, 5 µm	250 x 4.6 mm i.d.	PB 12 S 05 25 46
	120 Å, spherical, 5 µm	150 x 4.6 mm i.d.	PB 12 S 05 15 46
	120 Å, spherical, 5 µm	100 x 4.6 mm i.d.	PB 12 S 05 10 46

Ordering Information

If your desired column is not mentioned above, please fill in your column data.

Stationary Phase see YMC catalogue	Pore Size (Å)	Particle Shape spherical (S) or irregular (I)	Particle Size (µm)	Length (cm)	Inner Diameter (mm)

Submit your personal order to your local YMC-Support-Center.

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