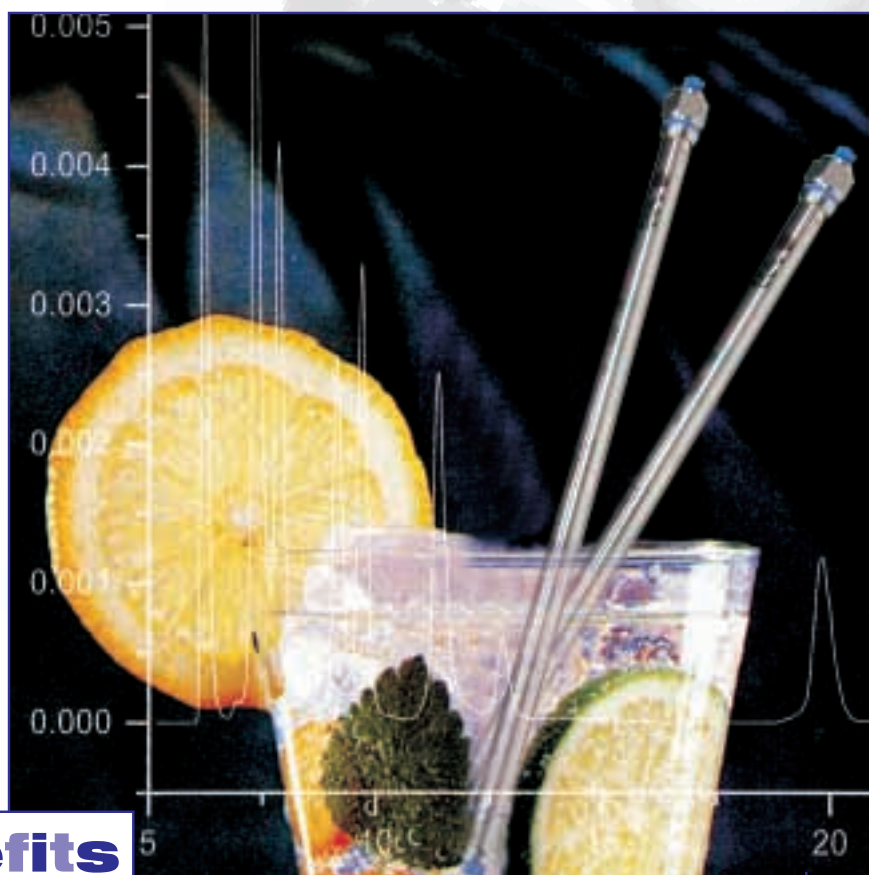


PSS MCX™ columns

Product information from PSS Polymer Standards Service GmbH

version: 01-01

The **chromatographic column** for
analysis of technical products and **food/beverages**.



Key benefits

- Aqueous Polyanion Analysis without Organic Modifiers
- Superior Resolution for Oligosaccharide Analysis
- Durability and High Pressure Stability
- Reliable for Fruit Acids and Alcohol Analysis

PSS MCX™ columns are very stable at high pressures and any pH-value.



The PSS MCX™ - Applicability

GPC:

Neutral water soluble polymers: Sugars, Starches and their derivatives Dextran, Pullulan, Cellulose, modified Cellulose

Anionic water soluble polymers: Polyacrylic acid, Polmethacrylic acid, Polystyrenesulfonate, Carboxymethylcellulose, Polyaspargid acid, Hyaluronic acid, Heparin, Lignins, Lignin sulfonates, Humic Substances (buffered water without organic modifier)

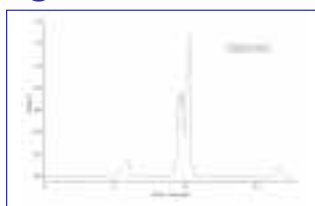
Please note:

No GPC separation with Amonium Compounds and Poly Cations

HPLC:

Fruit acids, alcohol, pectin, sugars

Fig. 1

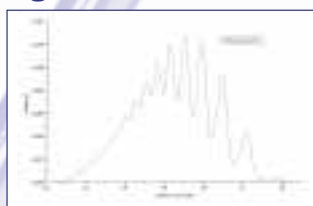


Analysis of apple juice, Separation of pectin, sugars and alcohol.

Elution volumes: Pectin: 6ml, different sugars: 10ml, ethanol: 17ml

Analytical conditions: column: PSS MCX™ 1.000Å, 5µm, 8x300mm, flowrate: 1.0ml/min, temperature: 20°C, eluent: 0.05% NaN₃ in H₂O, detector: RI

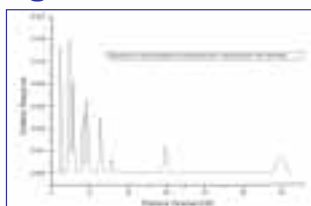
Fig. 2



Analysis of oligomeric sugars (hydrolyzed dextran)

Analytical conditons: columns: 3x PSS MCX™ 1.000Å, 5µm, 8x300mm, flow: 0.5ml/min, temperature: 80°C, eluent: 0.05% NaN₃ in H₂O, detector: RI

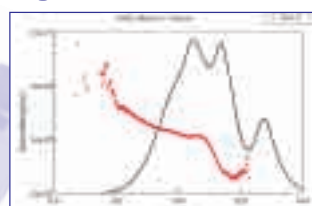
Fig. 3



Analysis of different fruit acids and alcohols

Analytical conditions: column: PSS MCX™ 100Å, 5µm, 8x300mm, flow: 0.5ml/min, temperature: 80°C, eluent: 0.05M H₂SO₄ in H₂O, detector: RI

Fig. 4



GPC-analysis of lignin sulfonate with RI and light scattering detection

Analytical conditions: columns: 1x PSS MCX™ 1.000Å, 10µm and 1x PSS MCX™ 10⁵Å, 10µm; 8x300mm. flow: 1ml/min, temperature: 20°C, eluent: 0.07M Na₂HPO₄ in H₂O, detectors: RI (black) and light scattering (red)

PSS MCX™ - Specifications

Porosity [Å]	Particle Size [µm]	Theor. Plates* [N/m]	Pressure Stability [bar]	Typical Back- ** pressure/30 cm [bar]
100	5	> 25.000	200	40
500	5	> 25.000	200	40
1.000	5	> 25.000	200	40
1.000	10	> 20.000	200	25
10 ⁵	10	> 10.000	100	25
10 ⁶	10	> 10.000	80	25
10 ⁷	20	> 5.000	60	7

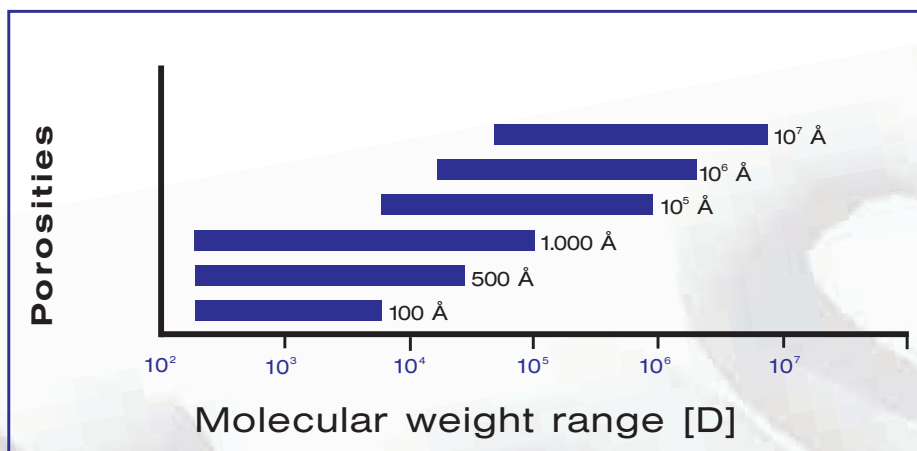
*) The plate count is determined with dextran P1 (glucose) (1.0ml/min, 20°C).

**) Analytical columns (8x300mm) at 20°C, flow: 1.0 ml/min, eluent: water + 0.05% NaN₃.

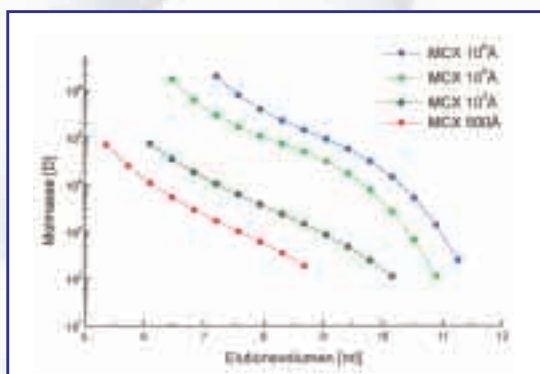
The asymmetry is in the range between 0.7 and 1.5. The recommended working temperature should be between 20°C and 90°C. The maximum flow should not exceed 2.5ml/min. Increasing the working temperature from 20 to 80°C and/or reducing the flow rate from 1.0 to 0.5ml/min increases theoretical plate counts of up to 60.000/m (for PSS MCX™ 5µm, 100, 500, 1000Å columns).



PSS MCX™-Separation Range



PSS MCX™-Calibration Curves



Calibration standards: Pullulan
 PSS MCX™ 8x300mm,
 flow: 1.0ml/min,
 temperature: 20°C,
 eluent: 0.05% NaN₃ in H₂O, detector: RI

The PSS MCX™ - Features

Versatility:

Compatible with aqueous buffers and/or aqueous/organic mixtures. PSS MCX™ does not require the addition of organic modifiers to aqueous GPC-systems (e.g. for analysis of lignin, humic substances, arylsulfonic acid). PSS MCX™-columns can be used for GPC or for HPLC with manipulation of analytical conditions. Separations in neutral or alkaline solutions are typically GPC separations, whereas low concentrations of strong acids are typically HPLC separations, i.e., separation of carboxylic acids in nutrition technology applications.

Chemical Stability:

PSS MCX™-columns are stable at any pH or buffer concentration. PSS MCX™ also performs well in the presence of large quantities of organic modifiers such as methanol or acetonitrile. Column properties are retained even after subject to the high pH environments (typical of the wood and paper industry).

Durability:

Longer lifetime than competitive products. Long lasting performance at working temperatures of 80°C and flow rates of 1.0ml/min. Enhanced resolutions are achieved at flows of 0.5ml/min.

PSS MCX™ Catalog

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Tel: 301 681 9624
Fax: 301 681 2709

e-mail: mgray@polymer.de
<http://www.polymer.de>

Your local partner:

product codes MCX™ - columns:

Analytical 5µm

Part Number	Porosity	Dimensions ID x length
mca080505		8,0 x 50mm
mca0830051e2	100Å	8,0 x 300mm
mca0860051e2	100Å	8,0 x 600mm
mca0830055e2	500Å	8,0 x 300mm
mca0860055e2	500Å	8,0 x 600mm
mca0830051e3	1.000Å	8,0 x 300mm
mca0860051e3	1.000Å	8,0 x 600mm

Analytical 10µm

Part Number	Porosity	Dimensions ID x length
mca080510		8,0 x 50mm
mca0830101e3	1.000Å	8,0 x 300mm
mca0860101e3	1.000Å	8,0 x 600mm
mca0830101e5	10e5Å	8,0 x 300mm
mca0860101e5	10e5Å	8,0 x 600mm
mca0830101e6	10e6Å	8,0 x 300mm
mca0860101e6	10e6Å	8,0 x 600mm

Analytical 20µm

Part Number	Porosity	Dimensions ID x length
mca080520		8,0 x 50mm
mca0830201e7	10e7Å	8,0 x 300mm
mca0860201e7	10e7Å	8,0 x 600mm

Micro 5µm

Part Number	Porosity	Dimensions ID x length
mcm050305		4.6 x 30mm
mcm0512051e2	100Å	4.6 x 125mm
mcm0525051e2	100Å	4.6 x 250mm
mcm0525055e2	500Å	4.6 x 250mm
mcm0525051e3	1.000Å	4.6 x 250mm

Micro 10µm

Part Number	Porosity	Dimensions ID x length
mcm050310		4.6 x 30mm
mcm0525101e3	1.000Å	4.6 x 250mm
mcm0525101e5	10e5Å	4.6 x 250mm
mcm0525101e6	10e6Å	4.6 x 250mm

HighSpeed 10µm

Part Number	Porosity	Dimensions ID x length
mcs2005101e3	1.000Å	
mcs2005101e5	10e5Å	
mcs2005101e6	10e6Å	

HighSpeed 20µm

Part Number	Porosity	Dimensions ID x length
mcs2005201e7	10e7Å	

Preparative 5µm

Part Number	Porosity	Dimensions ID x length
mcp200505		20.0 x 50mm
mcp2030051e2	100Å	20.0 x 300mm
mcp2060051e2	100Å	20.0 x 600mm
mcp2030055e2	500Å	20.0 x 300mm
mcp2060055e2	500Å	20.0 x 600mm
mcp2030051e3	1.000Å	20.0 x 300mm
mcp2060051e3	1.000Å	20.0 x 600mm

Preparative 10µm

Part Number	Porosity	Dimensions ID x length
mcp200510		20.0 x 50mm
mcp2030101e3	1.000Å	20.0 x 300mm
mcp2060101e3	1.000Å	20.0 x 600mm
mcp2030101e5	10e5Å	20.0 x 300mm
mcp2060101e5	10e5Å	20.0 x 600mm
mcp2030101e6	10e6Å	20.0 x 300mm
mcp2060101e6	10e6Å	20.0 x 600mm

Preparative 20µm

Part Number	Porosity	Dimensions ID x length
mcp200520		20.0 x 50mm
mcp2030201e7	10e7Å	20.0 x 300mm
mcp2060201e7	10e7Å	20.0 x 600mm

Other inner diameters and lengths on request