

High Resolution of Methyl Celluloses Agilent PL aquagel-OH Columns

Technical Overview

Introduction

PL aquagel-OH 60 8 μ m and PL aquagel-OH 40 8 μ m high performance columns cover a molecular weight range of 10⁴ to 10⁷. These columns are therefore ideal for relatively high molecular weight aqueous separations of methyl cellulose by size exclusion chromatography (SEC), because they also combine high pore volume and high column efficiency to deliver maximum resolution.

Two samples of methyl cellulose were analyzed by SEC using PL aquagel-OH columns. This polymer is a cellulose derivative used as a thickener and emulsifier in foods and cosmetics, and also as a treatment for constipation. The calculated molecular weight averages were compared with manufacturers' viscosity values. Calibration was done using Agilent pullulan polysaccharide standards. Figure 1 shows the raw data chromatograms for the two methyl celluloses. A good correlation between viscosity and molecular weight averages was obtained, as shown in the table.



Conditions

Columns:	2 x PL aquagel-OH 60 8 µm,
	300 x 7.5 mm (p/n PL1149-6860)
	+ 1 x PL aquagel-OH 40 8 μm,
	300 x 7.5 mm (p/n PL1149-6840)
Eluent:	0.05 M NaH, PO, + 0.25 M NaCl at
	pH7
Flow Rate:	1 mL/min
Detection:	RI

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Table 1. Calculated MW averages in comparison with manufacturers' quoted viscosity values

Vienenity Pongo (ano)	Sample A	Sample B
viscosity hallye (cps)	85-115	4000-6000
Mn	131,000	484,000
Mw	369,000	1,023,000
Mz	691,000	1,884,000



Figure 1. Raw data chromatograms for two methyl celluloses on a PL aquagel-OH column set

These data represent typical results. For further information, contact your local Agilent Sales Office.

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