

Easy Calibration of Agilent OligoPore Columns (DMF)

Technical Overview

Introduction

The calibration of OligoPore columns in DMF with 0.1 % (w/v) LiBr is straightforward, using Agilent polyethylene glycol (PEG) narrow standards at 80 °C with the integrated Agilent PL-GPC 220 GPC/SEC system. The PEG standards used are available as a kit containing ten standards in the range 106-20,000 g/mol (PEG-10).

OligoPore columns make use of an innovative new medium that exhibits significantly increased pore volumes compared to conventional low pore size columns for gel permeation chromatography, resulting in higher resolution in the oligomeric region.

OligoPore columns have been specifically designed for the analysis of oligomeric samples and the fingerprinting of oligomeric distributions in organic solvents. OligoPore columns can be used with a wide variety of organic solvents ranging from solvents of low polarity, such as dichloromethane, to highly polar organic solvents such as dimethyl formamide (DMF). The relatively high viscosity of DMF compared to other solvents, such as tetrahydrofuran, makes high temperature SEC appealing. Increasing the column temperature to 80 °C not only reduces the viscosity of DMF, therefore reducing back pressure, but also leads to increased efficiency and hence resolution. In addition, to reduce interactions between the column packing material and the samples, a small quantity of a salt, such as LiBr, is added.



Figure 1 shows overlaid chromatograms of (from top to bottom) PEG 4120, 1470, 1080, 620, 400, 194 and 106. In each case, the negative peak eluting after the PEG is due to compositional differences between the sample solvent and the eluent.

Figure 2 shows the resulting calibration curve for the OligoPore columns. The curve indicates that the two OligoPore columns have a linear response to increasing molecular weight, up to the exclusion limit of the column.

Conditions

Columns: 2 x OligoPore,
300 x 7.5 mm
(p/n PL1113-6520)
Samples: Polyethylene glycol narrow
standards, 0.1 % (w/v)
Eluent: DMF + 0.1 % LiBr
Flow Rate: 1.0 mL/min
Injection Volume: 100 µL
Detection: RI

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

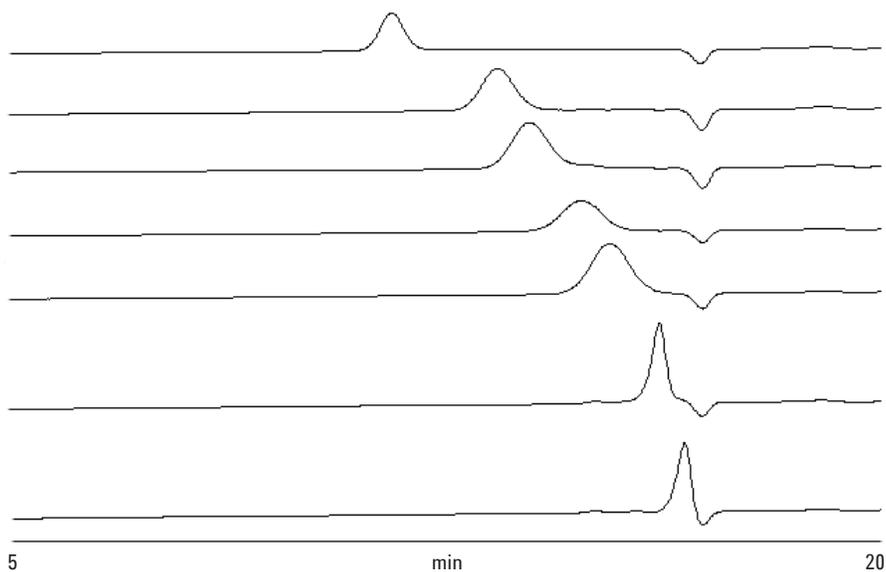


Figure 1. Overlaid chromatograms of PEG 4120, 1470, 1080, 620, 400, 194 and 106 (top to bottom)

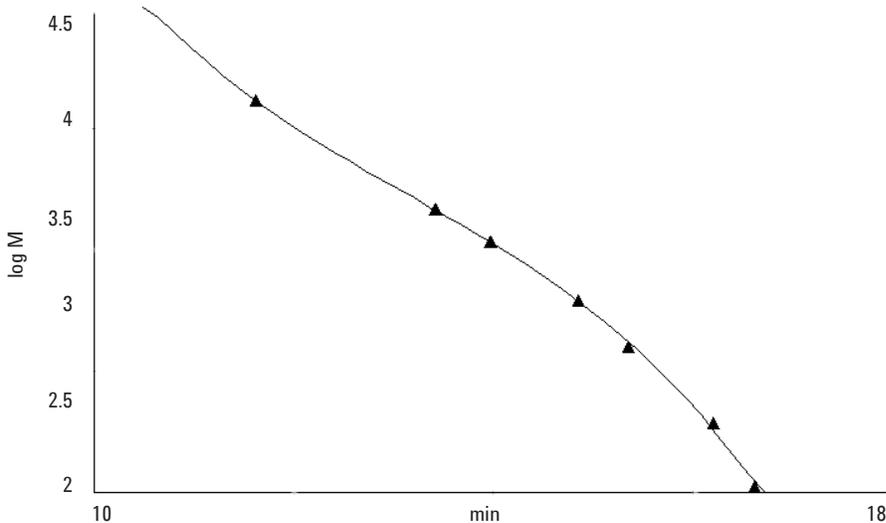


Figure 2. Calibration curve for the OligoPore columns

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