# Effect of Molecular Weight on Sample Loading in Gel Permeation Chromatography

## Technical Overview

### Introduction

In gel permeation chromatography and size exclusion chromatography, sample loading is very dependent on the molecular weight distribution of the polymer. Broader distribution polymers can be loaded to a greater extent. This effect is demonstrated on an Agilent PLgel 10 µm MIXED-B column. Figure 1 shows the column calibration using Agilent EasiCal polystyrene calibrants. Figure 2 shows the effect of sample loading on the molecular weight distribution of a polystyrene with Mw = 250,000 and dispersity = 2.5.

### Conditions

| | |
|---|---|
| Calibrants | EasiCal (0.1% solution, 200 µL injection) |
| Column | Agilent PLgel 10 µm MIXED-B, 25 × 300 mm (p/n PL1210-6100) |
| Eluent | THF |
| Flow rate | 10 mL/min |
| Detector | RI |
| System | Agilent PL-GPC 50 |


Agilent Technologies

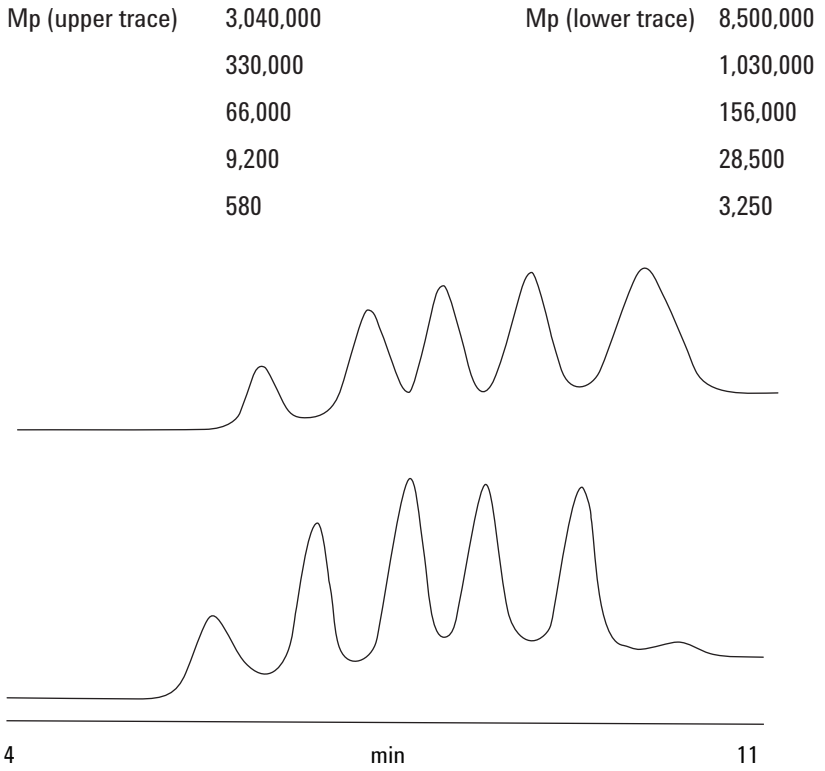


*Figure 1. Calibration of an Agilent PLgel 10 µm MIXED-B column with Agilent EasiCal polystyrene standards.*

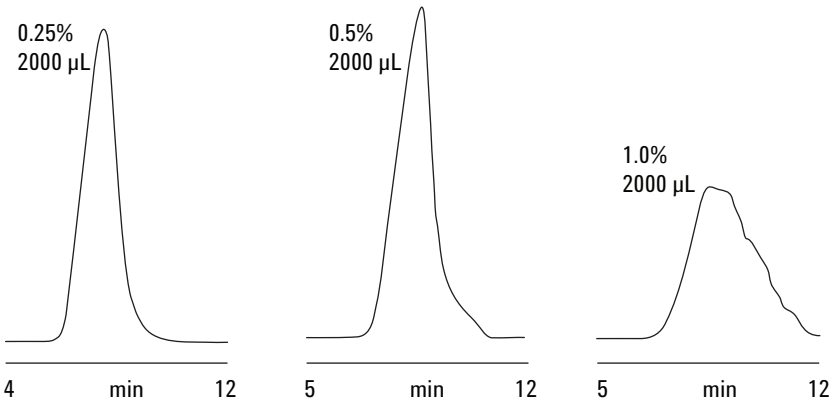


*Figure 2. Effect of polystyrene molecular weight on sample loading demonstrated on an Agilent PLgel 10 µm MIXED-B column.*

## GPC/SEC columns and calibrants from Agilent

Agilent offers a comprehensive portfolio of GPC/SEC columns and calibrants for high-performance separations based on molecular size in solution. Agilent delivers leading solutions for characterizing and separating polymers by GPC/SEC, and manufactures all components for accurate polymer analysis.

Look at the Agilent Literature Library on www.agilent.com/chem/gpc-sec for a comprehensive range of application notes and technical overviews to help you get the best from your Agilent GPC/SEC columns and instruments.

www.agilent.com/chem


Printed in the USA
April 30, 2015
5990-8611EN

Agilent Technologies