Avoid Column Mismatch when Analyzing Polymers

Agilent PLgel Columns for Polymer Analysis

Technical Overview

Introduction

When low MW or molecular weight individual pore size columns are combined with mixed gel columns, artefacts can occur when polydisperse samples are analyzed. Careful column selection can avoid such artifacts.

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The Polymethylurethacrylate shown in the figure has a MW of approximately 73,000 (A). When a PLgel 5 µm 10^3 Å column is used with a PLgel 5 µm MIXED-C column, resolution is enhanced below the exclusion limit of the 10^3 Å column (60,000 MW).

This results in a shoulder on the distribution, which may be wrongly interpreted (B). All of the sample components in (C) have eluted above the exclusion limit of the PLgel 5 µm 50Å column (2,000 MW) and no artefacts are observed, but the pore volume, over which the polymer elutes, is significantly reduced.

Conditions

Eluent: THF
Flow Rate: 1.0 mL/min
Detection: RI

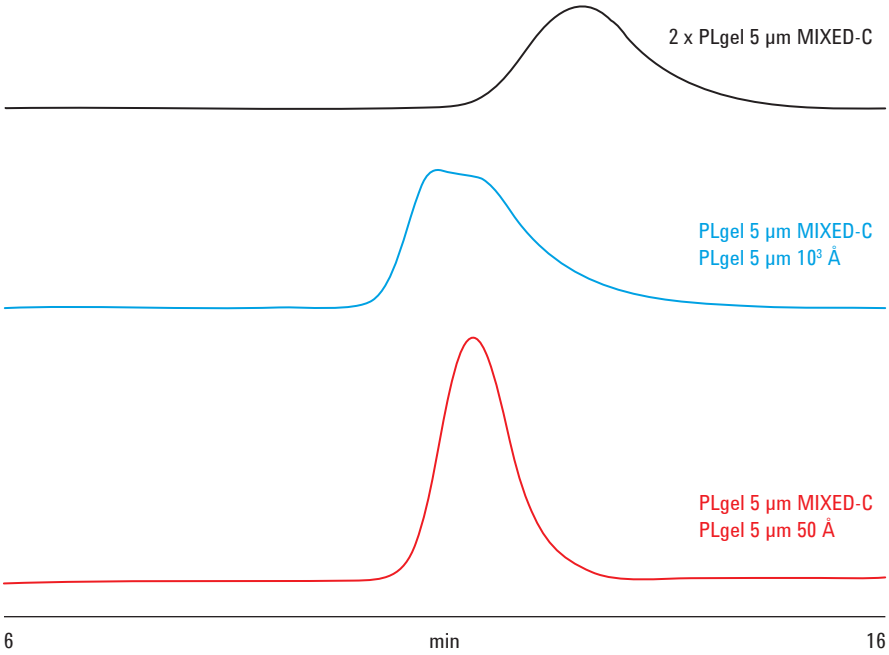

Figure 1. Polymethylurethacrylate on different column combinations

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