Epoxy Resin Analysis on Agilent PLgel 5 µm MiniMIX-D and Gel Permeation Chromatography

Application Note

Materials Testing and Research, Polymers

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Introduction

Epoxies are thermosetting copolymers formed by mixing epoxide with polyamine. When cured, epoxy resins are extremely durable, leading to their wide application as general-purpose adhesives, coatings, and composites.

Analysis of epoxy resins by gel permeation chromatography is straightforward with Agilent PLgel MiniMIX columns, which are selected because of their low solvent use compared to the PLgel MIXED version.

Epoxy Resin Analysis

The resolving range and high efficiency of the PLgel MiniMIX-D packing prevents exclusion of higher molecular weight epoxies, while maintaining good resolution of oligomeric components. Figure 1 shows the analysis of three epoxy resins.

Conditions

Columns	2 × Agilent PLgel 5 µm MiniMIX-D, 250 × 4.6 mm (p/n PL1510-5504)
Eluent	THF
Flow rate	0.3 mL/min
Detector	UV, 254 nm
System	Agilent PL-GPC 50

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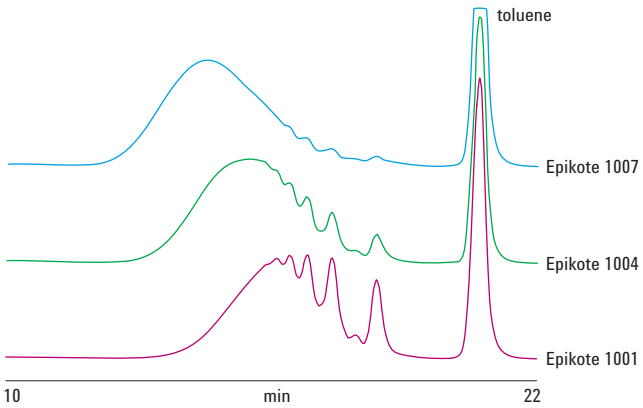

Figure 1. Good resolution of oligomers and no exclusion of higher molecular weight epoxy resins analyzed on an Agilent PLgel 5 µm MiniMIX-D two-column set.

Conclusion

The data illustrate the analysis of epoxy resins at low flow with Agilent PLgel 5 µm MiniMIX-D columns.

For More Information

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