Polysiloxane Analysis on Agilent PLgel 5 µm MIXED-D using Gel Permeation Chromatography

Application Note

Materials Testing and Research, Polymers

Author

Graham Cleaver

Agilent Technologies, Inc.

Introduction

Polysiloxanes, also known as silicones, are polymers of siloxane. Their resistance to temperature and chemical degradation has led to their wide applicability as oils, sealants, waxes, and rubbers, particularly in the electronic, construction and motor industries. Different forms of polysiloxane vary in molecular weight.

Many polysiloxanes are analyzed with toluene as eluent because they show very little response in tetrahydrofuran (THF) with a refractive index detector.

Polysiloxane Analysis

The Agilent PLgel 5 µm MIXED-D column is specifically designed for the analysis of polymers, paints, and resin systems where material above 400,000 MW is unlikely to be present. Figure 1 shows a medium MW polysiloxane fluid analyzed by PLgel 5 µm MIXED-D columns.

Conditions

Columns	2 × Agilent PLgel 5 µm MIXED-D, 300 × 7.5 mm (p/n PL1110-6504)
Eluent	Toluene
Flow Rate	1.0 mL/min
Detector	RI
System	Agilent PL-GPC 50

Verified for Agilent
1260 Infinity
GPC/SEC System

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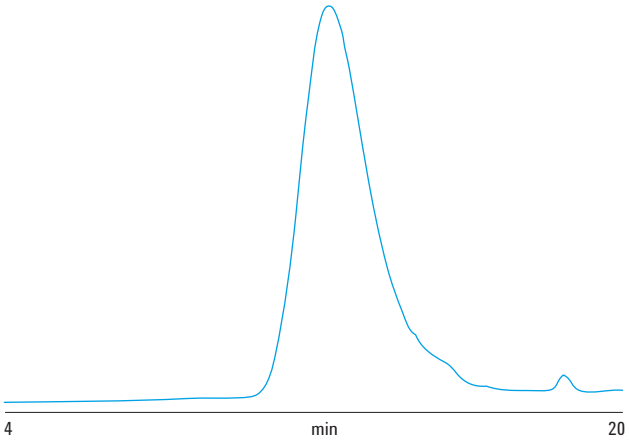

Figure 1. A medium molecular weight polysiloxane analyzed on an Agilent PLgel 5 µm MIXED-D two-column set.

Conclusion

An Agilent PLgel 5 µm MIXED-D two-column set successfully analyzed a sample of polysiloxane. Because refractive index detection was used, toluene was chosen as the eluent in preference to THF to avoid low analyte response.

For More Information

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Printed in the USA
April 30, 2015
5990-7893EN

Agilent Technologies