Polyester Polyol Analysis on Agilent PLgel 5 µm using Gel Permeation Chromatography

Application Note

Materials Testing and Research, Polymers

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Introduction

Polyols are alcohols containing multiple hydroxyl groups. They are mainly used as reactants to make polymers such as polyester polyol, by condensation or step-growth polymerization of a diol polyol with dicarboxylic acid. Polyester polyols are themselves reacted with polyisocyanates to make polyurethanes for rigid-foam, flame-retardant building board. Natural oil polyester polyols from vegetable oils are beginning to replace some epoxide-based polyols.

Analysis of polyester polyols is easy with gel permeation chromatography and an Agilent PLgel column.

Verified for Agilent
1260 Infinity
GPC/SEC System

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Analysis of Polyester Polyol

Figure 1 shows the excellent oligomer resolution achieved for a relatively low molecular weight polyester polyol.

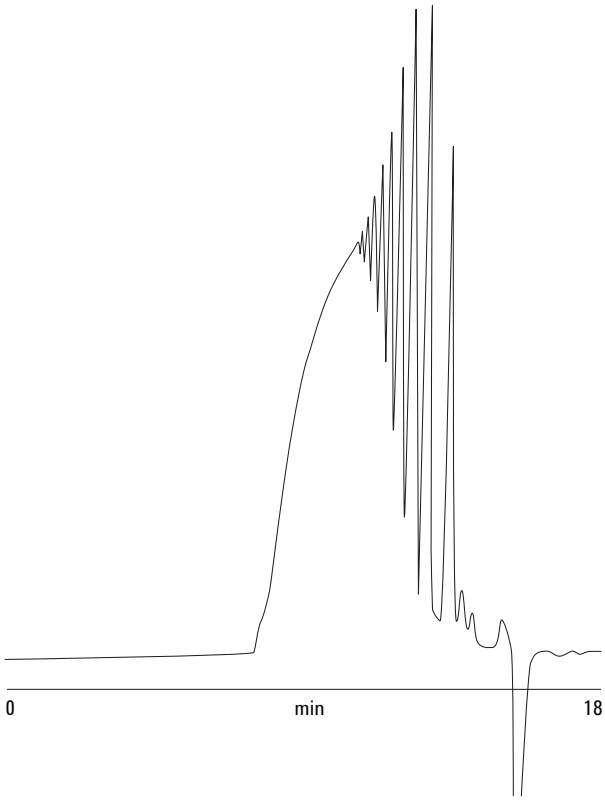

Figure 1. Excellent separation of oligomers in a polyester polyol using Agilent PLgel columns.

Conditions

Column	2 × Agilent PLgel 5 µm 500Å, 300 × 7.5 mm (p/n PL1110-6525)
Eluent	THF
Flow rate	1.0 mL/min
Detector	RI
System	Agilent PL-GPC 50

Conclusion

Low-pore-size PLgel columns can resolve oligomeric content from polymer samples, an important component that determines the behaviour of many polymers.

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