Preparative Gel Permeation Chromatography of Phenol Distillates with Agilent PLgel

Application Note

Materials Testing and Research

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Introduction

Preparative gel permeation chromatography (GPC) is used to isolate components after suitable chromatographic conditions have been identified by running the same sample with analytical columns. A phenol sample is used here to demonstrate the method with analytical and preparative Agilent PLgel columns having the same packing.

Phenol Distillate Analysis

The sample of phenol (peak B) was found to contain contaminants (peaks A and C). For identification, analytical columns (Figure 1) were used to establish appropriate chromatographic conditions that were then used for the preparative separation (Figure 2).

Conditions - Analytical

Columns	2 × Agilent PLgel 10 µm 100Å, 7.5 × 300 mm (p/n PL1110-6120)
Eluent	Acetone
Flow rate	1.0 mL/min
Sample conc	1.0%
Inj vol	200 µL
Detector	RI
System	Agilent PL-GPC 50

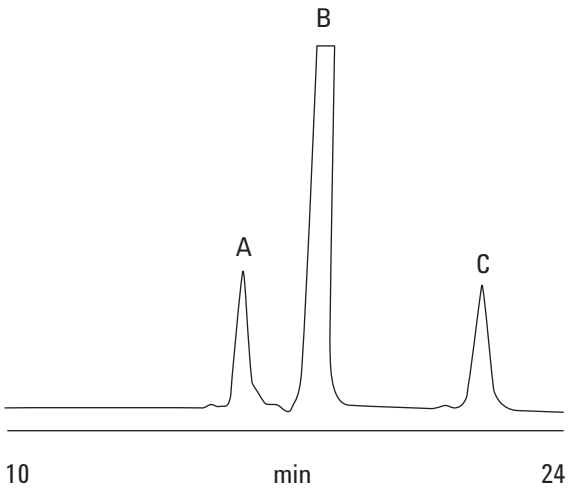

Figure 1. Preliminary analytical separation of a phenol distillate sample on Agilent PLgel 10 µm 100Å, 7.5 x 300 mm columns.

Conditions - Preparative

Columns	2 × Agilent PLgel 10 µm 100Å, 25 × 300 mm (p/n PL1210-6120)
Eluent	Acetone
Flow rate	1.0 mL/min
Sample conc	10%
Inj vol	2000 µL
Detector	RI
System	PL-GPC 50

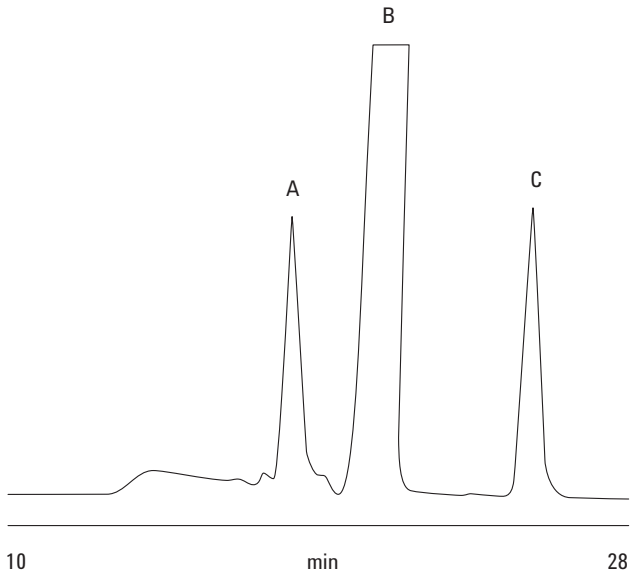

Figure 2. Preparative separation of the same phenol distillate sample on Agilent PLgel 10 µm 100Å, 25 x 300 mm columns.

Conclusion

Agilent PLgel analytical and preparative columns can be used to investigate the composition of complex materials such as phenol distillates by gel permeation chromatography.

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Printed in the USA
April 30, 2015
5990-8421EN

Agilent Technologies