Polystyrene Oligomer Analysis on Agilent PLgel with Gel Permeation Chromatography

Application Note

Materials Testing and Research, Polymers

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Introduction

High performance, low pore size Agilent PLgel columns are ideal for resolving low molecular weight polystyrene standards into their oligomeric components, indicating several peaks for one standard.

Verified for Agilent
1260 Infinity
GPC/SEC System

Agilent Technologies

Analysis of Polystyrene Oligomers

Structures of low molecular weight polystyrene oligomers are shown in Figure 1. The lowest MW peak can be assigned using phenyl hexane as a marker. This is styrene monomer plus the initiator fragment, with a MW of 162. Successive peaks increase in molecular weight by the MW of the styrene repeat unit, 104 (Figure 2).

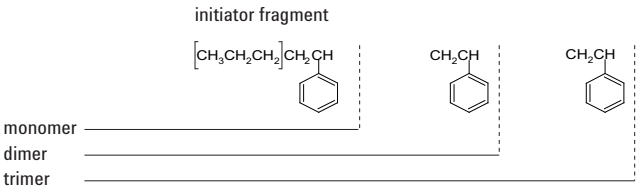

Figure 1. Structures of low molecular weight polystyrene oligomers.

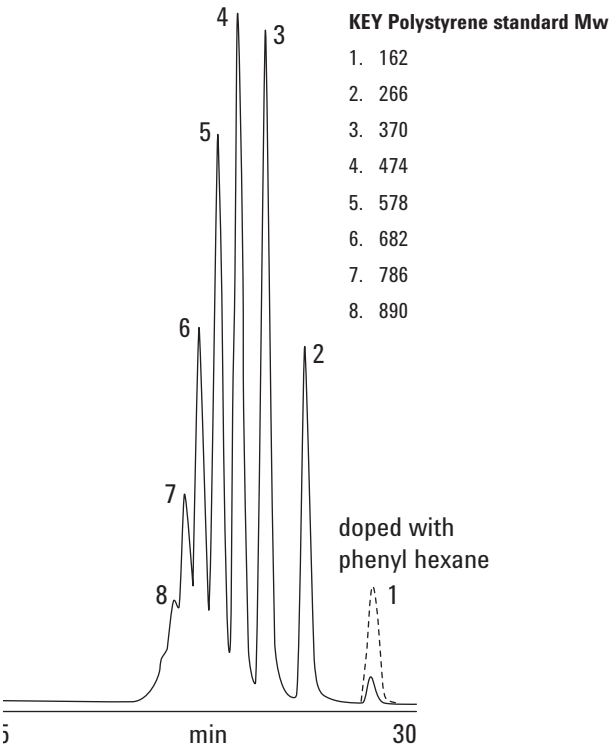

Figure 2. Low molecular weight oligomers of polystyrene on an Agilent PLgel 5 µm two-column set.

Conditions

Columns	2 × Agilent PLgel 5 µm 100Å, 600 × 7.5 mm (p/n PL1110-8520)
Eluent	THF
Flow rate	1.0 mL/min
Detector	RI
System	Agilent PL-GPC 50

Conclusion

High resolution GPC with low-pore-size PLgel columns can be used to resolve individual oligomers of polystyrene.

For More Information

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