

Dialkyl Phthalate Analysis on Agilent PLgel 3 μ m with Gel Permeation Chromatography

Application Note

Materials Testing and Research, Polymers

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Introduction

Many commercial polymers contain additives that improve the physical properties of the bulk material. The analysis and quantitation of polymer additives is of vital importance for quality and process control. One such group of additives are the dialkyl phthalates, which act as plasticizers in many polymers.

Agilent PLgel 3 μ m 100Å columns have been specifically designed for the analysis of low molecular weight discrete molecules such as dialkyl phthalates. Using these columns, polymers with molecular weights over 4,000 g/mol are excluded so only the low molecular weight additives are resolved.



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Analysis of Dialkyl Phthalates

Analyte samples were made up at 0.2% (w/v) in tetrahydrofuran and injected without further treatment. Figure 1 shows a chromatogram of four dialkyl phthalates and toluene, demonstrating the base line resolution of Agilent PLgel 3 μm 100Å columns with low molecular weight species.

Conditions

Samples	Dialkyl phthalates, 0.2% (w/v)
Columns	2 \times Agilent PLgel 3 μm 100Å, 300 \times 7.5 mm (p/n PL1110-6320)
Eluent	THF
Flow rate	1.0 mL/min
Injection volume	20 μL
Detector	RI
System	Agilent PL-GPC 50

KEY

1. Dioctyl phthalate
2. Di-n-butyl phthalate
3. Diethyl phthalate
4. Dimethyl phthalate
5. Toluene

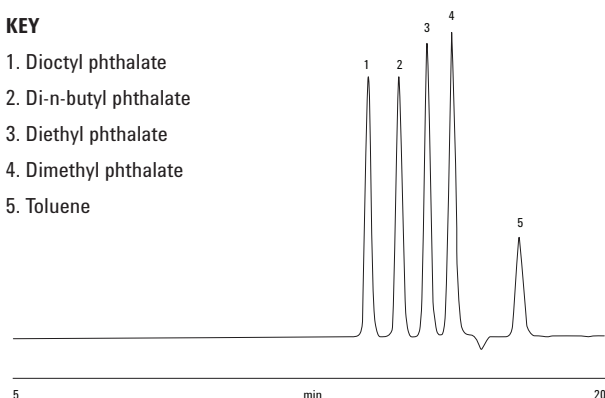


Figure 1. Four dialkyl phthalates separated on an Agilent PLgel 3 μm two-column set.

Conclusions

Agilent low-pore-size PLgel columns can be used to separate low molecular weight molecules with very high resolution.

For More Information

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