



Analysis of Hydrocarbons by GPC using Agilent OligoPore Columns

Technical Overview

Introduction

To demonstrate the capability of OligoPore columns, a high temperature separation of a series of hydrocarbon standards was done in trichlorobenzene at 145 °C.

OligoPore columns make use of an innovative new medium that exhibits significantly increased pore volumes compared to conventional low pore size columns for gel permeation chromatography, resulting in higher resolution in the oligomeric region.

OligoPore columns are specially designed for the analysis and fingerprinting of oligomers and oligomeric distributions. Increased resolution in the oligomeric region is obtained by the increased pore volume of OligoPore media when compared to conventional media of a similar pore and particle size. Plate counts were determined for the columns before and after the analysis as a measure of efficiency and these values were used to assess the mechanical stability of the columns. The Agilent PL-GPC 220 was chosen as the GPC system since it provides full PC control and unbeatable reproducibility for any GPC/SEC application, across the entire operating range. The instrument is designed to run almost all polymer, solvent and temperature combinations, with full automation, from 30 to 220 °C. Figure 1 shows a chromatogram of the linear hydrocarbon standards obtained using three OligoPore columns in TCB at 145 °C. The flow rate was reduced to 0.8 mL/min to maintain the column operating pressure below the recommended maximum (1200 psi). The guaranteed minimum specification for the plate count of OligoPore columns is at least 55,000 plates/m. After the high temperature analysis, plate counts of the columns were on average 60,000 plates/m, above the minimum specification. The high temperature separation and the measured plate counts indicate the excellent performance and mechanical stability of OligoPore columns.



Conditions

Samples: Hydrocarbon standards
Columns: 3 x OligoPore,
300 x 7.5 mm
(p/n PL11113-6520)
Eluent: THF + 0.0125 % BHT
Flow Rate: 0.8 mL/min
Injection Volume: 100 µL
Temperature: 145 °C
Detection: RI

Peak Identification

1. C₁₂
2. C₁₆
3. C₂₀
4. C₂₄
5. C₃₆

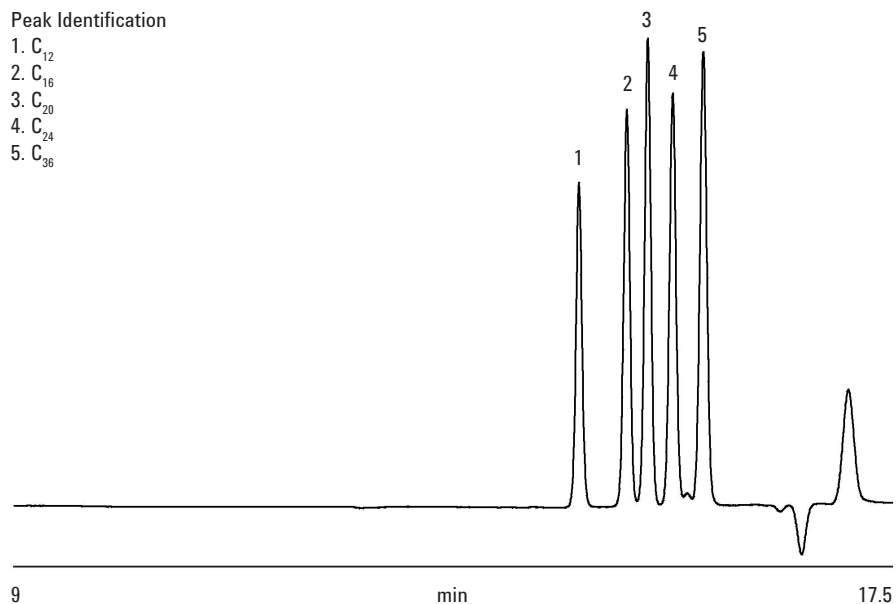


Figure 1. Chromatogram of the linear hydrocarbon standards obtained using three OligoPore columns in TCB

These data represent typical results. For further information, contact your local Agilent Sales Office.

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