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Application Note SI-01317

Analysis of Polywax® 655 using a VF-5ht UltiMetal™ Column

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Polywax 655 (MW 700) is a homopolymer of ethylene and is often used for creating boiling point versus retention time calibration curves for SimDist type of analyses. This Polywax 655 analysis is performed using a VF-5HT UltiMetal column, developed using the proprietary UltiMetal technology, providing a virtually unbreakable metal column material with excellent inertness properties similar to fused silica tubing. The UltiMetal column tubing is coated with the VF-5 low bleed arylene stabilized liquid phase resulting in a highly temperature stable and durable column perfectly suited to a variety of high temperature applications. Many of these high temperature analyses are performed using a flame ionization detection device, which combines simplicity and robustness of construction with a high sensitivity.

In this particular application, and more uncommonly, a triple quadrupole MS is applied in CI mode, providing more sensitivity for the hydrocarbons than the EI mode. The overall detector sensitivity for these n-alkanes, however, remains limited. The high maximum column temperature enables a fast bake-out of highly retained sample material if present in the sample.

Conditions

Technique: CP-3800 GC
Column: VF-5ht UltiMetal, 30 m x 0.25 mm, df = 0.1 µm
Sample: PolyWax 655, saturated (approx 0.1 %) in CS₂
Carrier Gas: Helium, constant flow mode 3 mL/min
Injector: On-column (1079), high performance liner, 100 °C (0 min) to 400 °C with 15 °C/min
Injection Volume: 1.0 µl
Temperature: 50 °C (1 min) to 450 °C (20 min) with 10 °C/min
Detection: 320-MS, chemical ionization mode (CI), methane 5 Torr
Transfer line: 300 °C; Ion source: 300 °C;
Manifold (quadrupole): 40 °C; m/z 45-900

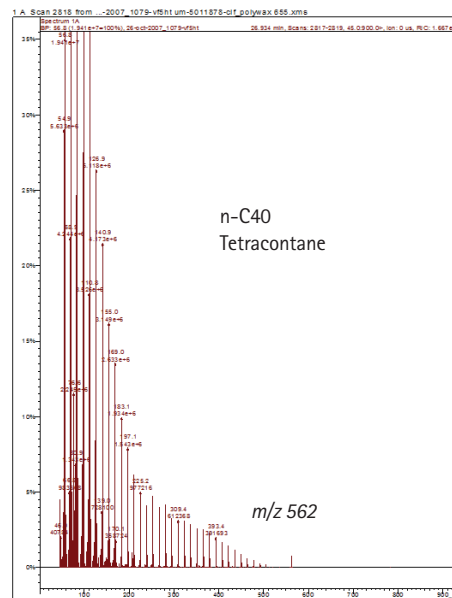
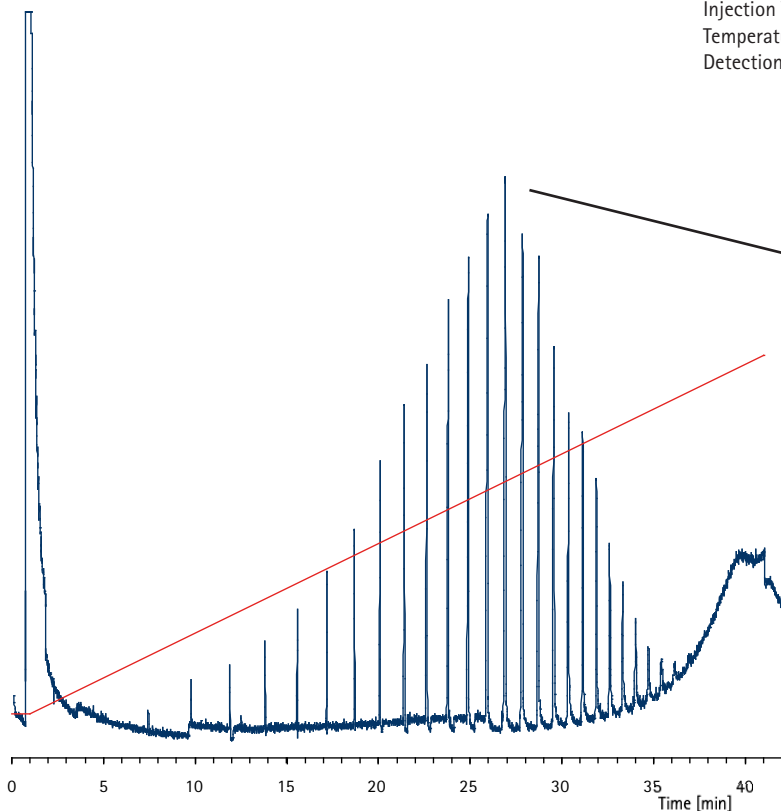


Figure 1. Analysis of Polywax 655 using a VF-5ht UltiMetal column.

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

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