Hydrocarbons, C_3 – C_{120}

High temperature simulation distillation to proposed IP PM-CX/98

Application Note

Energy & Fuels

Authors

Agilent Technologies, Inc.

Introduction

High temperature simulated distillation is usually done by the (unofficial) extended ASTM D-2887 method. There are several new methods in preparation for the simulated distillation of hydrocarbons up to C_{120}, such as the IP method PM-CX/98. The best column and phase for this application is Agilent CP-SimDist UltiMetal. The column is made of deactivated stainless steel and coated with a 1000k methyl silicone. The high temperature stability allows operation temperatures up to 450 °C. The CP-SimDist UltiMetal column will produce reproducible retention times, even for hydrocarbons as high as C_{100}. UltiMetal columns are very user friendly and can be cut with a special cutting tool (Part no. CP8099) to make a sharp cut for optimal connections in temperature-programmed on-column or direct on-column injection systems.

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Conditions

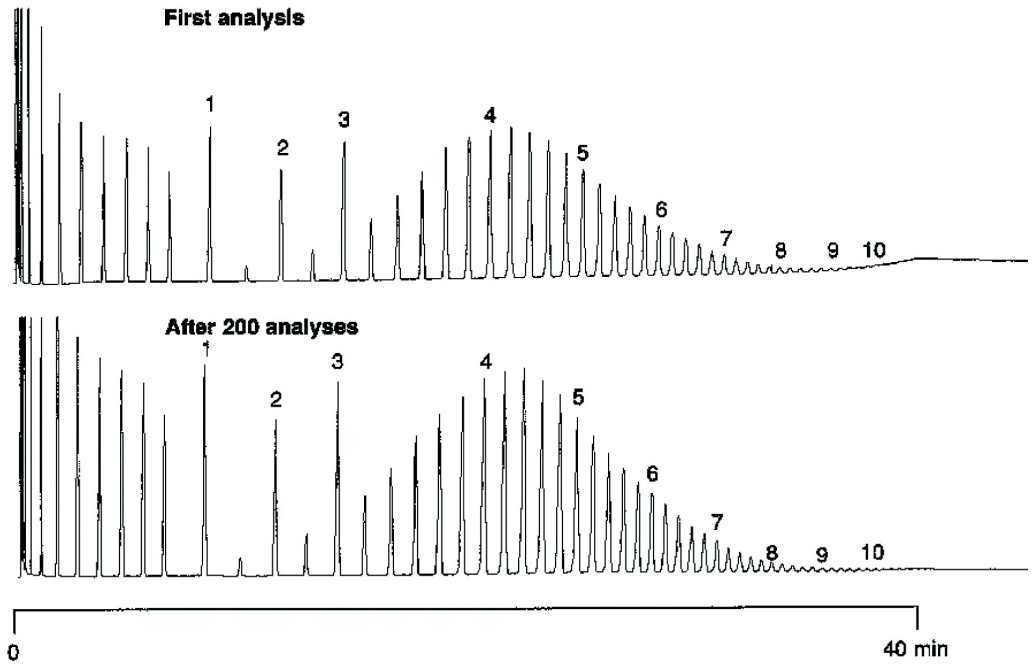
Technique	: GC-wide-bore
Column	: Agilent CP-SimDist UltiMetal, 0.53 mm x 5 m WCOT CP-SimDist (df = 0.09 µm) (Part no. CP7569)
Temperature	: 40 °C → 430 °C, 10 °C/min
Carrier Gas	: He, 60 kPa (0.6 bar, 8 psi)
Injector	: Temperature-programmed on-column, SimDist 750, Analytical Controls T = 100 °C → 430 °C, 15 °C/min
Detector	: FID T = 430 °C
Sample Size	: 1.0 µL
Concentration Range	: 2 %
Solvent Sample	: CS_2

Reproducibility of retention times

Number of analyses	R1 C_{106}
1	37.4
11	37.351
21	37.339
31	37.321
41	37.315
51	37.285
61	37.276
71	37.282
81	37.262
91	37.24
101	37.229
111	37.208
121	37.203
131	37.178
151	37.14
171	37.109
191	37.09
201	37.06

Peak identification

1. C_{20}
2. C_{24}
3. C_{28}
4. C_{40}
5. C_{50}
6. C_{60}
7. C_{70}
8. C_{80}
9. C_{90}
10. C_{100}



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