Hydrocarbons, C_5 – C_{12}

Naphtha and reformate analysis to ASTM D 5134

Application Note

Energy & Fuels

Authors

Agilent Technologies, Inc.

Introduction

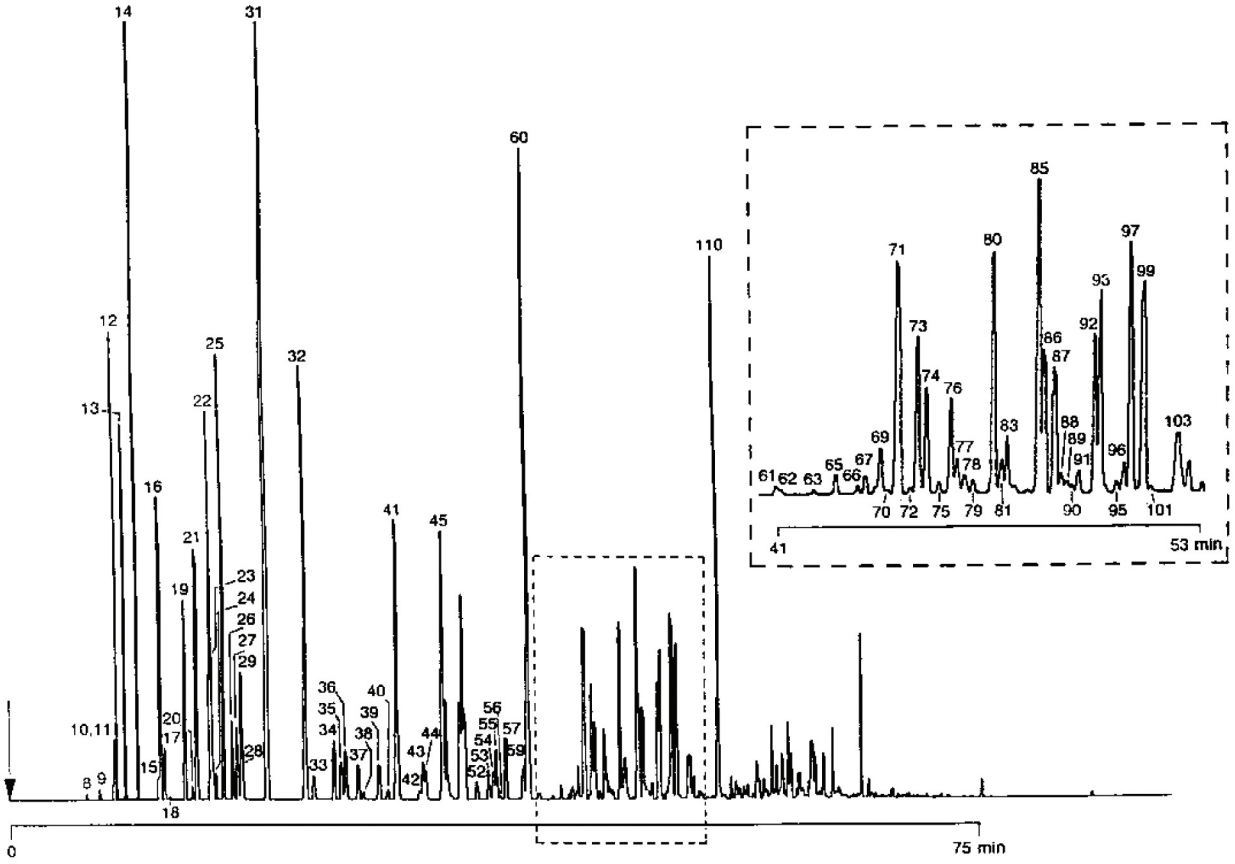
Gas chromatography with an Agilent CP-Sil PONA CB column separates 111 components during naphtha and reformate according to ASTM D5134 in 75 minutes.

Agilent Technologies

Conditions

Technique	: GC-capillary
Column	: Agilent CP-Sil PONA CB, 0.21 mm x 50 m CP-Sil PONA CB according to ASTM D 5134 (df = 0.5 µm) (Part no. CP7531)
Temperature	: 35 °C (30 min) ⟶ 200 °C, 2 °C/min; 200 °C (10 min)
Carrier Gas	: He, 215 kPa (2.15 bar, 30.5 psi)
Injector	: Split, 200 mL/min; T = 200 °C
Detector	: FID T = 250 °C
Sample Size	: 0.1 µL
Solvent Sample	: hexane

Peak identification



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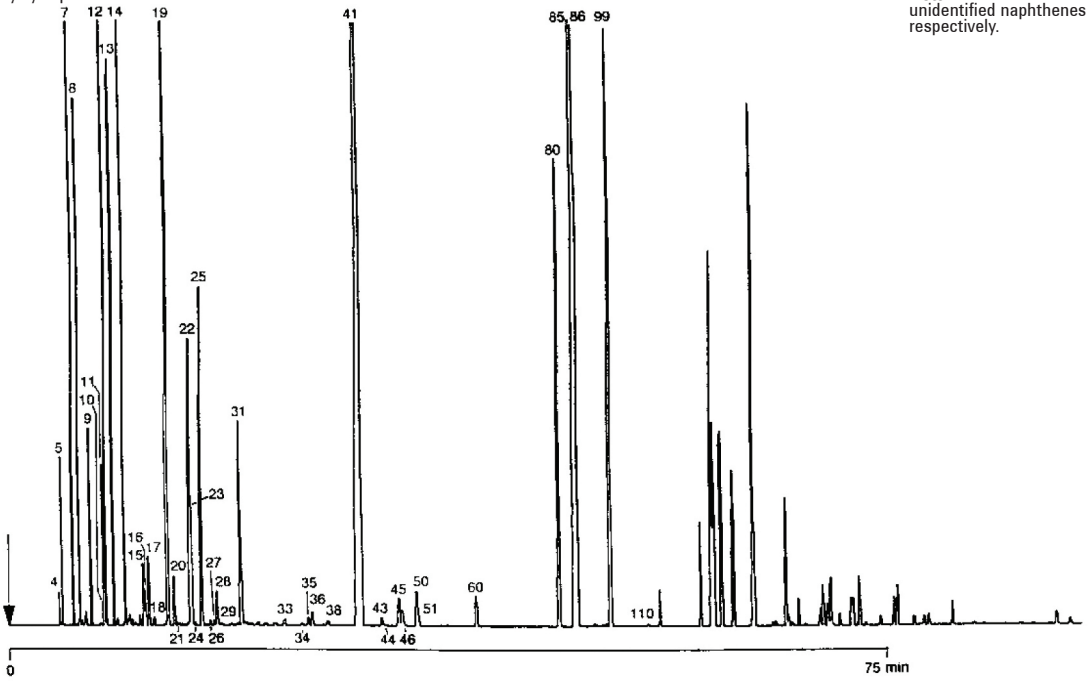
Peak identification

1. methane
2. ethane
3. propane
4. isobutane
5. n-butane
6. 2,2-dimethylpropane
7. isopentane
8. n-pentane
9. 2,2-dimethylbutane
10. cyclopentane
11. 2,3-dimethylbutane
12. cyclopentane
13. 3-methylpentane
14. n-hexane
15. 2,2-dimethylpentane
16. methylcyclopentane
17. 2,4-dimethylpentane
18. 2,2,3-trimethylbutane
19. benzene
20. 3,3-dimethylpentane
21. cyclohexane
22. 2-methylhexane
23. 2,3-dimethylpentane
24. 1,1-dimethylcyclopentane
25. 3-methylhexane
26. cis-1,3-dimethylcyclopentane
27. trans-1,3-dimethylcyclopentane
28. 3-ethylpentane
29. trans-1,2-dimethylcyclopentane
30. 2,2,4-trimethylpentane
31. n-heptane
32. methylcyclohexane + cis-1,2-dimethylcyclopentane
33. 1,1,3-trimethylcyclopentane + 2,2-dimethylhexane
34. ethylcyclopentane
35. 2,5-dimethylhexane + 2,2,3-trimethylpentane
36. 2,4-dimethylhexane
37. 1,trans-2,cis-4-trimethylcyclopentane
38. 3,3-dimethylhexane
39. 1,trans-2,cis-3-trimethylcyclopentane
40. 2,3,4-trimethylpentane
41. toluene + 2,3,3-trimethylpentane
42. 1,1,2-trimethylcyclopentane
43. 2,3-dimethylhexane
44. 2-methyl-3-ethylpentane
45. 2-methylpentane
46. 4-methylheptane + 3-methyl-3-ethylpentane
47. 3,4-dimethylhexane
48. 1,cis-2,trans-3-trimethylcyclopentane
49. cis-1,3-dimethylcyclohexane
50. 3-methylheptane + 1,cis-2,trans-3-trimethylcyclopentane
51. 3-ethylhexane + trans-1,4-dimethylcyclohexane
52. 1,1-dimethylcyclohexane
53. 2,2,5-trimethylhexane + trans-1,3-ethylmethylcyclopentane
54. cis-1,3-ethylmethylcyclopentane
55. trans-1,2-ethylmethylcyclopentane
56. 2,2,4-trimethylhexane + 1,1-ethylmethylcyclopentane
57. trans-1,2-dimethylcyclohexane
58. 1,cis-2,cis-3-trimethylcyclopentane
59. trans-1,3-dimethylcyclohexane + cis-1,4-dimethylcyclohexane
60. n-octane
61. isopropylcyclopentane + 2,4,4-trimethylhexane
62. unidentified C_9-naphthene
63. unidentified C_9-naphthene
64. unidentified C_9-naphthene
65. cis-1,2-ethylmethylcyclopentane + 2,3,5-trimethylhexane
66. 2,2-dimethylheptane
67. cis-1,2-dimethylcyclohexane
68. 2,2,3-trimethylhexane + 9N
69. 2,4-dimethylheptane
70. 4,4-dimethylheptane + 9N
71. ethylcyclohexane + n-propylcyclopentane
72. 2-methyl-4-ethylhexane
73. 2,6-dimethylheptane + 9N
74. 1,1,3-trimethylcyclohexane
75. unidentified C_9-naphthene
76. 2,5-dimethylheptane + 9N
77. 3,5-dimethylheptane + 3,3-dimethylheptane + N
78. unidentified C_9-naphthene
79. unidentified C_9-naphthene
80. ethyl benzene
81. unidentified C_9-naphthene
82. unidentified naphthene + 2,3,4-trimethylhexane
83. unidentified napthenes
84. unidentified naphthene + paraffin
85. m-xylene
86. p-xylene
87. 2,3-dimethylheptane
88. 3,4-dimethylheptane[c] + N
89. 3,4-dimethylheptane[c]
90. unidentified napthene
91. 4-ethylheptane + N
92. 4-methyloctane
93. 2-methyloctane
94. unidentified napthene
95. unidentified napthene
96. 3-ethylheptane + N
97. 3-methyloctane
98. unidentified napthene
99. o-xylene + 1,1,2-trimethylcyclohexane
100. unidentified napthene + 2,4,6-trimethylheptane
101. unidentified naphthene
102. unidentified paraffin
103. unidentified napthenes
104. unidentified napthene
105. unidentified napthene + paraffin
106. unidentified napthene
107. unidentified napthene
108. unidentified napthene
109. unidentified napthene
110. n-nonane
111. unidentified napthene

[c] - stereoisomers

Note: The abbreviations N and P refer to unidentified naphthenes and paraffins respectively.



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