



Hydrocarbons, $C_4 - C_{12}$

Application Note

Energy & Fuels

Authors

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Introduction

Gas chromatography with an Agilent CP-Sil PONA CB column separates over 165 C_4 to C_{12} hydrocarbons in 130 minutes.



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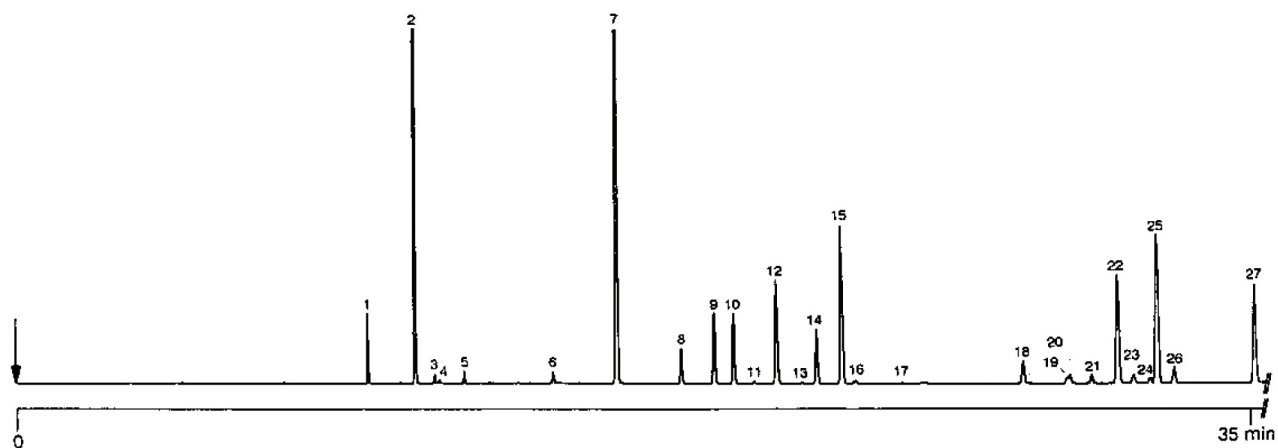
Conditions

Technique : GC-capillary
Column : Agilent CP-Sil PONA CB, 0.25 mm x 100 m fused silica WCOT CP-Sil PONA CB (df = 0.5 µm) (Part no. CP7530)
Temperature : 0 °C (15 min) → 50 °C, 1 °C/min; 50 °C → 130 °C, 2 °C/min; 130 °C → 180 °C, 4 °C/min; 180 °C (20 min)
Carrier Gas : He, 260 kPa (2.6 bar, 37 psi), 22.1 cm/s
Injector : Splitter, 200 mL/min
T = 200 °C
Detector : FID,
T = 250 °C
Sample Size : 0.15 µL

Peak identification

1. isobutane
2. n-butane
3. trans-2-butene
4. 2,2-dimethylpropane
5. cis-2-butene
6. 3-methyl-1-butene
7. isopentane
8. 1-pentene
9. 2-methyl-1-butene
10. n-pentane
11. isoprene
12. trans-2-pentene
13. 1-pentyne
14. cis-2-pentene
15. 2-methyl-2-butene ?
16. trans-1,3-pentadiene
17. cis-1,3-pentadiene
18. cyclopentene
19. 4-methyl-1-pentene
20. cis-2,3-pentadiene
21. cyclopentane
22. 2,3-dimethylbutane
23. C₆ olefin
24. C₆ olefin
25. 2-methylpentane
26. C₆ olefin
27. 3-methylpentane

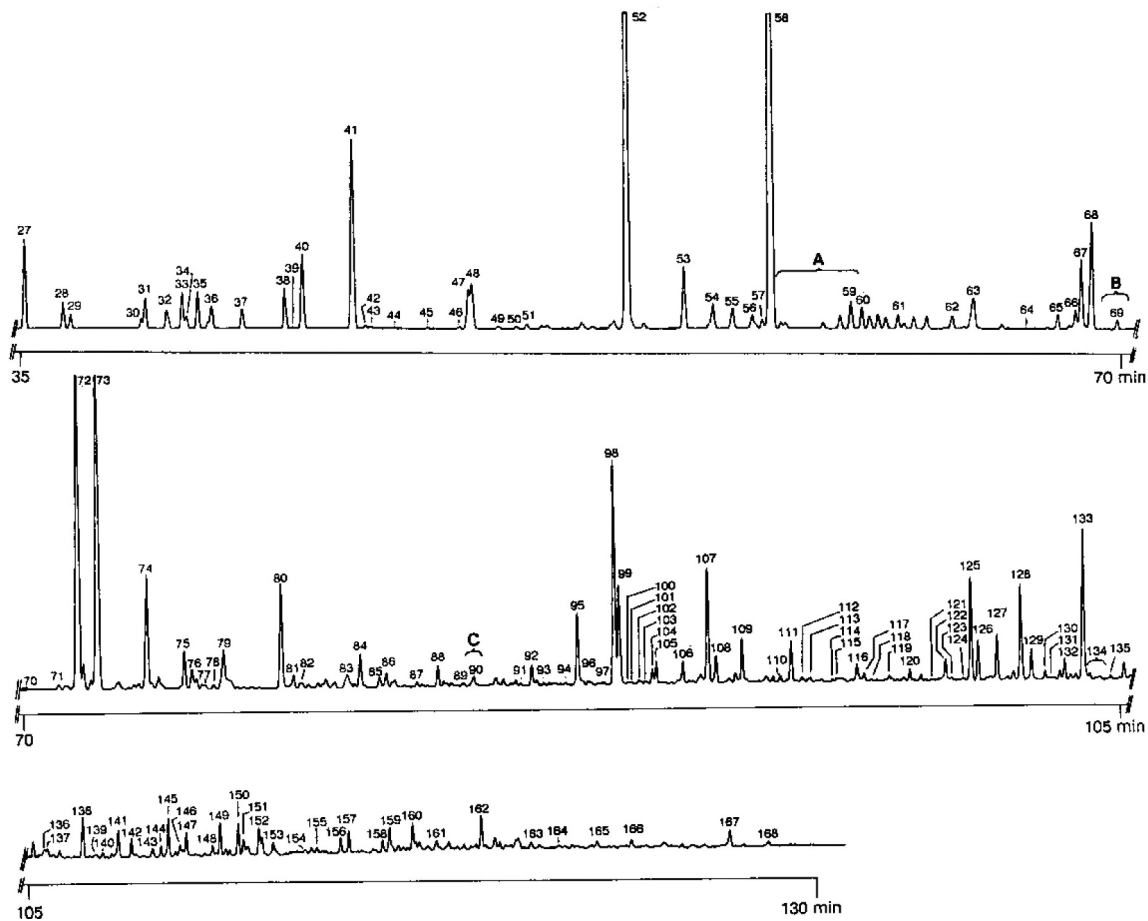
? = tentative identification



Peak identification

27. 3-methylpentane	62. trans-2-heptene	97. 3,3,4-trimethylhexane ?	133. 1,2,4-trimethylbenzene
28. C ₆ olefin	63. cis-2-heptene	98. m-xylene	134. C ₁₀ paraffin
29. 1-hexane	64. methylcyclohexane	99. p-xylene	135. 1-decane
30. C ₆ olefin	65. 2,2-dimethylhexane	100. 3,5-dimethylheptane	136. C ₁₀ paraffin
31. n-hexane	66. ethylcyclopentane	101. 2,3-dimethylheptane	137. n-decane
32. C ₆ olefin	67. 2,5-dimethylhexane	102. 3,4-dimethylheptane	138. 1,2,3-trimethylbenzene
33. trans-2-hexane	68. 2,2,3-trimethylpentane	103. 4-ethylheptane ?	139. 1-methyl-4-isopropylbenzene
34. C ₆ olefin	69. 2,4-dimethylhexane	104. 4-methyloctane ?	140. C ₁₁ paraffin
35. 2-methylpentadiene	70. trans-cis-1,2,3-trimethylcyclopentane	105. 2-methyloctane	141. indane
36. C ₆ olefin	71. trans-cis-1,2,3-trimethylcyclopentane	106. 3-methyloctane	142. naphthene + 3-ethylnonane ?
37. cis-2-hexene	72. 2,3,4-trimethylpentane	107. o-xylene	143. 1,3-diethylbenzene ?
38. C ₆ olefin	73. toluene + 2,3,3-trimethylpentane	108. C ₉ paraffin ?	144. 1-methyl-3-propylbenzene
39. C ₆ olefin	74. 2,3,4-dimethylhexane	109. 1-nonene	145. 1-methyl-4-propylbenzene
40. methylcyclopentane	75. 2-methylheptane	110. cis-3-nonene	146. 1,4-diethylbenzene ?
41. 2,4-dimethylpentane	76. 4-methylheptane	111. C ₉ paraffin	147. 1,3-dimethyl-5-ethylbenzene
42. C ₆ olefin	77. cis-trans-1,2,4-trimethylpentane	112. 1-methyl-1-ethylcyclohexane	148. 1-methyl-2-propylbenzene
43. 2,2,3-trimethylbutane	78. 3,4-dimethylhexane	113. C ₁₀ paraffin	149. C ₁₁ paraffin
44. C ₆ olefin	79. 3-methylheptane ?	114. isopropylbenzene	150. 1,4-dimethyl-2-ethylbenzene
45. C ₆ olefin	80. 2,2,5-trimethylhexane ?	115. trans-butylcyclopentane ?	151. 1,3-dimethyl-4-ethylbenzene
46. C ₆ olefin	81. cis-1-ethyl-2-methylcyclohexane ?	116. 2,2-dimethyloctane	152. 1,2-dimethyl-4-ethylbenzene
47. benzene	82. cis-1-ethyl-3-methylcyclohexane ?	117. 1-methyl-4-isopropylhexane	153. 1,3-dimethyl-2-ethylbenzene
48. 1-methyl-1-cyclopentane	83. cis,cis-1,2,3-trimethylpentane	118. 2,4-dimethyloctane ?	154. 1,2-dimethyl-3-ethylbenzene
49. C ₆ olefin	84. n-octane	119. 2,6-dimethyloctane ?	155. n-undecane
50. 3,3-dimethylpentane	85. trans-2-octene	120. butylcyclopentane	156. 1,2,4,5-tetramethylbenzene
51. cyclohexane	86. isopropylcyclopentane	121. 3,3-dimethyloctane	157. 1,2,3,5-tetramethylbenzene
52. 2-methylhexane	87. 2,3,5-trimethylhexane ?	122. propylbenzene	158. trans-1-butyl-2-methylbenzene
53. 3-methylhexane	88. 2,2-dimethylheptane	123. 3,6-dimethyloctane ?	159. 1-ethyl-2-propylbenzene ?
54. cis-1,3-dimethylcyclopentane	89. cis-1,2-dimethylcyclohexane	124. 3-methyl-5-ethylheptane ?	160. 1-methyl-3-butylbenzene
55. trans-1,3-dimethylcyclopentane	90. ethylcyclohexane	125. 1-ethyl-3-methylbenzene	161. pentylbenzene
56. 3-ethylpentane	91. 1,1,4-trimethylcyclohexane	126. 1-ethyl-4-methylbenzene	162. naphthalene
57. trans-1,2-dimethylpentane	92. 3,3-dimethylheptane	127. 1,3,5-trimethylbenzene	163. n-dodecane
58. 2,2,4-trimethylpentane	93. 2,5-dimethylheptane	128. 3,3,4-trimethylheptane	164. 1,3,5-triethylbenzene
59. 1-heptane	94. 2,3,3-trimethylhexane	129. 1-ethyl-2-methylbenzene	165. 1,2,4-triethylbenzene
A. C ₆ olefin	95. ethylbenzene	130. 3-ethyloctane	166. 1-methyl-4-pentylbenzene ?
60. n-heptane	96. trans-1,2,4-trimethylcyclohexane	131. 3-methylnonane	167. 2-methylnaphthalene
61. cis-3-heptane		132. C ₁₀ paraffin	168. 1-methylnaphthalene

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