GC Analysis of 37 FAME Component Mixture using Agilent J&W CP-Select for FAME Column

Application Note

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Introduction

The GC analysis of fatty acids as their methyl esters derivatives (FAMEs) can be performed on a variety of different stationary phases in which polarity of the liquid phase plays an important role. The choice in liquid phase and other column dimensions such as column length, internal diameter and film thickness depends mainly on complexity of the fatty acid composition and the requirements in separation detail.

The CP-Select for FAME column is based on a fully crosslinked, high polarity liquid phase technology. The highly selective polar CP-Select for FAME stationary phase allows resolution of otherwise difficult to separate cis/trans FAME isomers. The immobilization of the liquid phase results in a highly durable GC column suitable for on-column and splitless injection techniques, and provides improved column lifetimes over non-bonded high polarity cyanopropyl siloxane phase columns.

This note details the separation on the CP-Select for FAME column of a 37 components FAME mixture which is commonly applied for FAME identification purposes.

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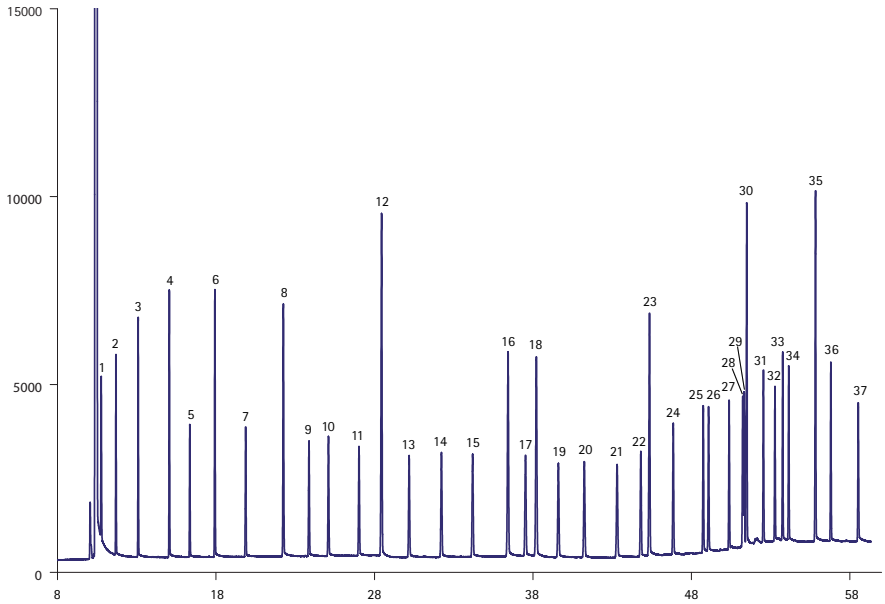
Peak Identification table

Peak	Compound	Retention Time (min)
1	C4:0	10.76
2	C6:0	11.69
3	C8:0	13.09
4	C10:0	15.06
5	C11:0	16.35
6	C12:0	17.93
7	C13:0	19.87
8	C14:0	22.25
9	C14:1	23.87
10	C15:0	25.1
11	C15:1	27.03
12	C16:0	28.45
13	C16:1	30.19
14	C17:0	32.23
15	C17:1	34.2
16	C18:0	36.43
17	C18:1n9t	37.53
18	C18:1n9c	38.22
19	C18:2n6t	39.61
20	C18:2n6c	41.25
21	C18:3n6	43.31
22	C18:3n3	44.81
23	C20:0	45.36
24	C20:1	46.86
25	C21:0	48.75
26	C20:2	49.08
27	C20:3n6	50.38
28	C20:4n6	51.24
29	C20:3n3	51.33
30	C22:0	51.49
31	C22:1	52.55
32	C20:5	53.27
33	C23:0	53.76
34	C22:2	54.14
35	C24:0	55.83
36	C24:1n9	56.8
37	C22:6n-3	58.53



GC analysis of 37 FAME mixture on CP-Select for FAME column

Conditions

Column:	CP-Select for FAME, 100 m x 0.25 mm, (part number CP7420)
Sample Volume:	1 µL
Concentration:	ca. 250 ng/ µL in dipropyleneglycol
Carrier Gas:	1 mL/min helium, constant flow
Injector:	220 °C, split, 1:50
Temperature:	80 °C (1 min), 20 °C/min, 160 °C, 1 °C/min, 198 °C, 5°C/min, 250 °C (15 min)
Detector:	FID, 275 °C

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