

## Detailed Analysis of C18:1 cis/trans FAME Isomers Using the New Supelco SLB®-IL111

*Supelco extends its leadership in Fatty Acid Methyl Ester separations.*

Recently, highly innovative capillary GC columns were developed using revolutionary Ionic Liquid GC stationary phases. Ionic liquids are a class of solvents with low melting points that use a unique combination of cations and anions. They remain a liquid at room temperature instead of forming crystals.

- The SLB-IL111 column proved to be a highly efficient column for the analysis of **cis/trans FAME isomers**.
- Of particular interest is the ability of this column to resolve C18:1Δ15t from C18:1Δ9c and also C18:2Δ9c, 11t from C18:2Δ7t, 9c, compared to other columns made with a cyanopropyl siloxane phase.
- SP™-2560 and SLB-IL111 can be used in a complementary fashion to provide more complete and accurate fatty acid identification and composition information than is currently possible.
- Extremely useful for comprehensive (2D) GC applications, providing high orthogonality with higher temperatures for the polar dimension.

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Discount available until March 31st, 2012.  
Mention Promotion Code HEI when ordering.

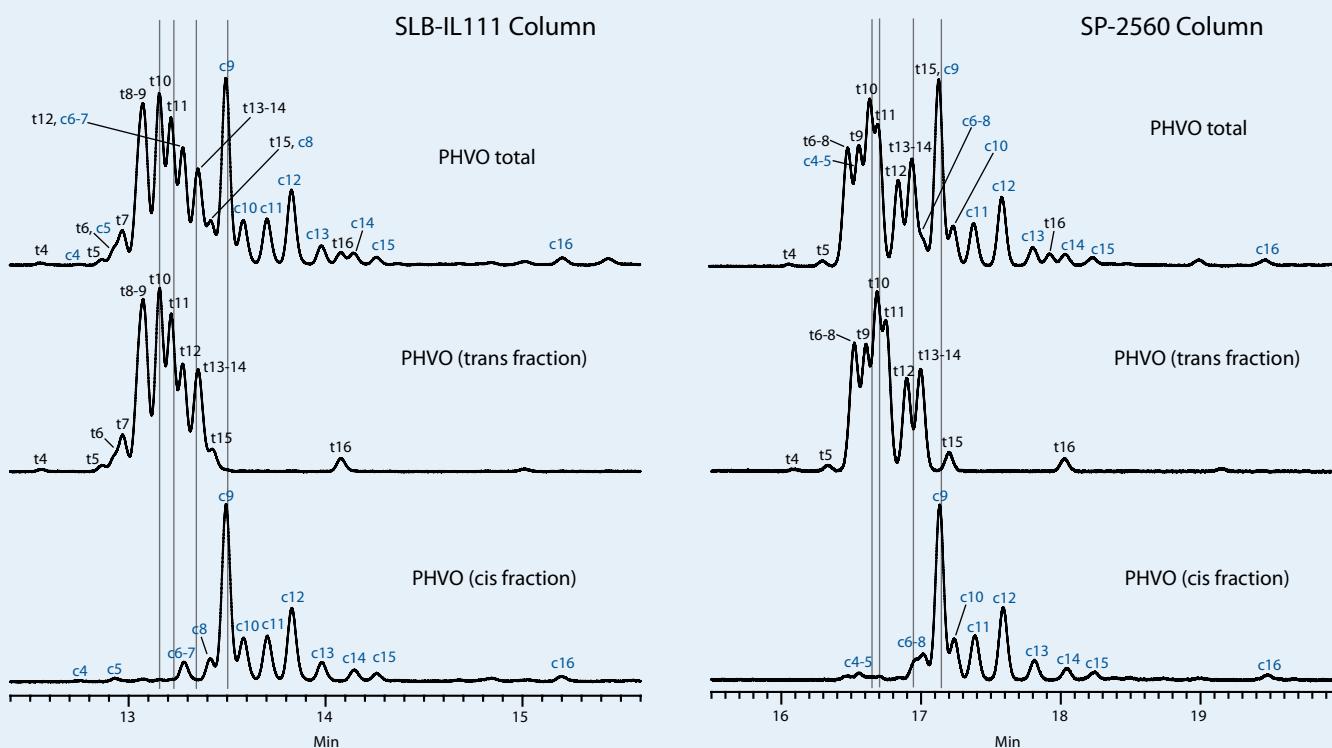
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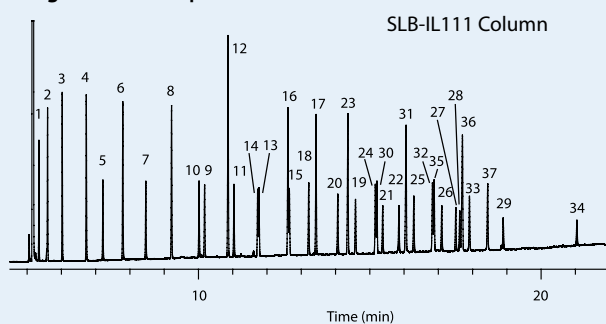
**Figure 1. Partially Hydrogenated Vegetable Oil (PHVO) and cis/trans Fractions**



## Peak IDs

1. Butyric Acid Methyl Ester (C4:0) at 4 wt %
2. Caproic Acid Methyl Ester (C6:0) at 4 wt %
3. Caprylic Acid Methyl Ester (C8:0) at 4 wt %
4. Capric Acid Methyl Ester (C10:0) at 4 wt %
5. Undecanoic Acid Methyl Ester (C11:0) at 2 wt %
6. Lauric Acid Methyl Ester (C12:0) at 4 wt %
7. Tridecanoic Acid Methyl Ester (C13:0) at 2 wt %
8. Myristic Acid Methyl Ester (C14:0) at 4 wt %
9. Myristoleic Acid Methyl Ester (C14:1) at 2 wt %
10. Pentadecanoic Acid Methyl Ester (C15:0) at 2 wt %
11. cis-10-Pentadecenoic Acid Methyl Ester (C15:1) at 2 wt %
12. Palmitic Acid Methyl Ester (C16:0) at 6 wt %
13. Palmitoleic Acid Methyl Ester (C16:1) at 2 wt %
14. Heptadecanoic Acid Methyl Ester (C17:0) at 2 wt %
15. cis-10-Heptadecenoic Acid Methyl Ester (C17:1) at 2 wt %
16. Stearic Acid Methyl Ester (C18:0) at 4 wt %
17. Oleic Acid Methyl Ester (C18:1n9c) at 4 wt %
18. Elaidic Acid Methyl Ester (C18:1n9t) at 2 wt %
19. Linoleic Acid Methyl Ester (C18:2n6c) at 2 wt %
20. Linolelaidic Acid Methyl Ester (C18:2n6t) at 2 wt %
21. γ-Linolenic Acid Methyl Ester (C18:3n6) at 2 wt %
22. α-Linolenic Acid Methyl Ester (C18:3n3) at 2 wt %
23. Arachidic Acid Methyl Ester (C20:0) at 4 wt %
24. cis-11-Eicosenoic Acid Methyl Ester (C20:1n9) at 2 wt %
25. cis-11,14-Eicosadienoic Acid Methyl Ester (C20:2) at 2 wt %
26. cis-8,11,14-Eicosatrienoic Acid Methyl Ester (C20:3n6) at 2 wt %
27. cis-11,14,17-Eicosatrienoic Acid Methyl Ester (C20:3n3) at 2 wt %
28. Arachidonic Acid Methyl Ester (C20:4n6) at 2 wt %
29. cis-5,8,11,14,17-Eicosapentaenoic Acid Methyl Ester (C20:5n3) at 2 wt %
30. Heneicosanoic Acid Methyl Ester (C21:0) at 2 wt %
31. Behenic Acid Methyl Ester (C22:0) at 4 wt %
32. Erucic Acid Methyl Ester (C22:1n9) at 2 wt %
33. cis-13,16-Docosadienoic Acid Methyl Ester (C22:2) at 2 wt %
34. cis-4,7,10,13,16,19-Docosahexaenoic Acid Methyl Ester (C22:6n3) at 2 wt %
35. Tricosanoic Acid Methyl Ester (C23:0) at 2 wt %
36. Lignoceric Acid Methyl Ester (C24:0) at 4 wt %
37. Nervonic Acid Methyl Ester (C24:1n9) at 2 wt %

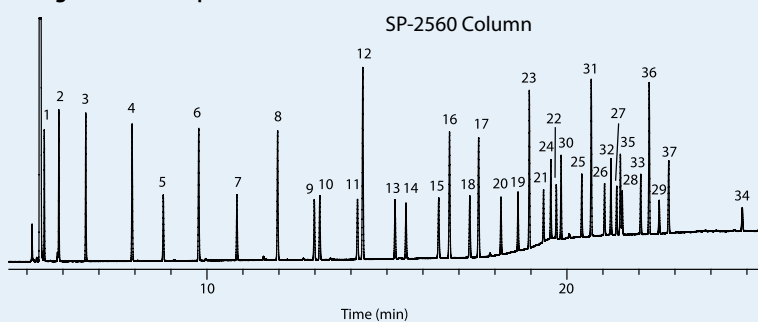
Figure 2. 37-Component FAME Mix



### SLB-IL111 Conditions

column: SLB-IL111, 100 m x 0.25 mm I.D., 0.20 μm (29647-U)  
oven: 140 °C (5 min.), 8 °C/min. to 180 °C, 5 °C/min. to 260 °C  
det.: FID, 260 °C

Figure 3. 37-Component FAME Mix



### SP-2560 Conditions

column: SP-2560, 100 m x 0.25 mm I.D., 0.20 μm (24056)  
oven: 140 °C (5 min.), 8 °C/min. to 180 °C, 4 °C/min. to 210 °C, 20 °C/min. to 250 °C (7 min.)  
inj.: 250 °C  
det.: FID, 250 °C  
carrier gas: hydrogen, 40 cm/sec  
injection: 1 μL, 100:1 split  
liner: 4 mm I.D., cup design  
sample: Supelco 37-Component FAME Mix (47885-U),  
analytes at concentrations indicated in methylene chloride

## Featured Products

Description	Cat. No.
SLB-IL111, 100 m x 0.25 mm I.D., d <sub>f</sub> , 0.20 μm	29647-U*
SLB-IL111, 15 m x 0.10 mm I.D., d <sub>f</sub> , 0.08 μm	28925-U*
SLB-IL111, 30 m x 0.25 mm I.D., d <sub>f</sub> , 0.20 μm	28927-U*
SP-2560, 100 m x 0.25 mm I.D., 0.20 μm	24056
Supelco® 37-Component FAME Mix analytical standard, 10 mg/mL in methylene chloride (varied), 1 mL	47885-U
Linoleic Acid Methyl Ester Mix, cis/trans analytical standard, 10 mg/mL in methylene chloride (as total weight), 1 mL	47791
Linolenic Acid Methyl Ester Isomer Mix analytical standard, 10 mg/mL in methylene chloride (as total weight), 1 mL	47792

## Reference

1. P. Delmonte, A.-R.F. Kia, J.K.G. Kramer, M.M. Mossoba, L. Sidisky, and J.I. Rader, Separation "Characteristics of Fatty Acid Methyl Esters Using SLB-IL111, A New Ionic Liquid Coated Capillary Gas Chromatographic Column" J. Chromatogr. A 1218 (2011) p. 545.

## Trademarks

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