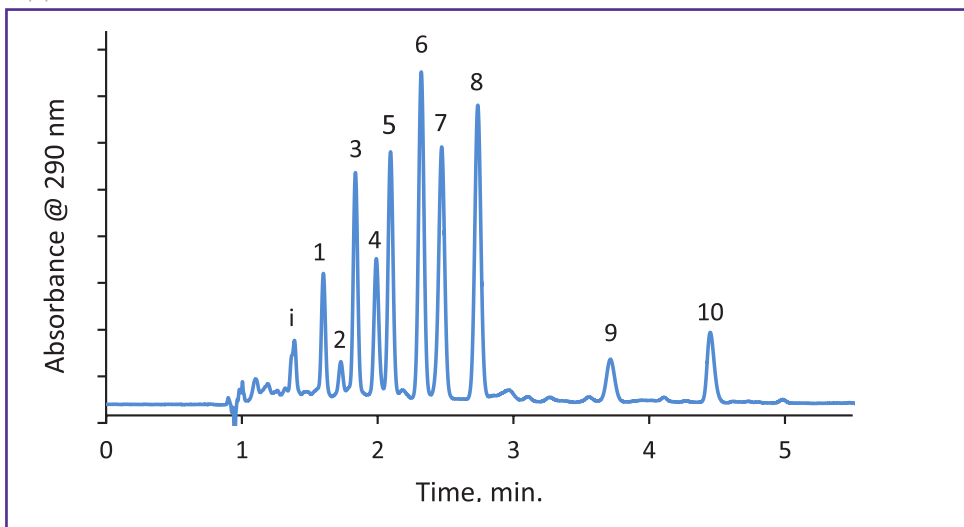




Rapid Separation of Vitamin E Congeners on HALO® PFP

Application Note 146-V



PEAK IDENTITIES:

- i = impurity
1. δ -Tocotrienol
 2. β -Tocotrienol
 3. γ -Tocotrienol
 4. α -Tocotrienol
 5. δ -Tocopherol
 6. β -Tocopherol
 7. γ -Tocopherol
 8. α -Tocopherol
 9. α -Tocopherol acetate
 10. α -Tocopherol nicotinate

TEST CONDITIONS:

Column: HALO 90 Å PFP, 2.7 μ m,
4.6 x 150 mm

Part Number: 92814-709

Mobile Phase:

A: Water

B: Methanol

Gradient:	Time (min)	%B
	0.00	92
	2.75	92
	3.00	95
	5.00	95

Flow Rate: 1.5 mL/min

Pressure: 380 bar

Temperature: 25 °C

Detection: UV 290 nm, PDA

Injection Volume: 5.0 μ L

Sample Solvent: Ethanol

Response Time: 0.05 sec

Data Rate: 40 Hz

Flow Cell: 1.0 μ L

LC System: Shimadzu Nexera X2

Vitamin E capsules can contain up to eight related, but different constituents, including up to four tocopherols and four tocotrienols. Ester derivatives of vitamin E are made to increase the stability of the compound. Vitamin E is important due to its antioxidant properties in both the body and in food and cosmetics.

The sample used for analysis was combination of standards and a vitamin supplement purchased locally. The soft gel vitamin supplement contained the four tocotrienols and α -tocopherol. Only the liquid in the soft gel was used for the analysis. The four tocopherols, α -tocopherol acetate, and α -tocopherol nicotinate were standards obtained from SigmaAldrich. The small, unidentified peaks are unknown materials from the soft gel capsule.

STRUCTURES:

Tocopherol/Tocotrienol

Alpha (α)

Beta (β)

Gamma (γ)

Delta (δ)

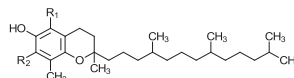
R1 R2

CH₃ CH₃

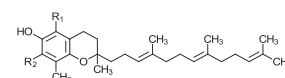
CH₃ H

H CH₃

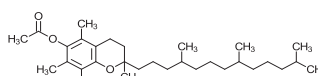
H H



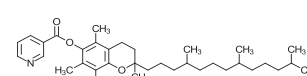
Tocopherol



Tocotrienol



α -Tocopherol acetate



α -Tocopherol nicotinate

