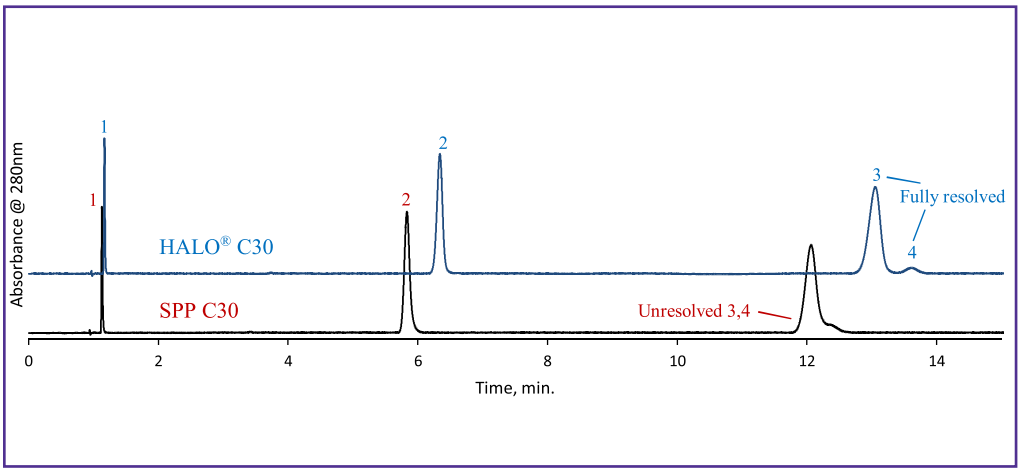
HALO®

VITAMINS

Vitamin K1 Isomer Analysis on HALO® C30

Application Note 180-V



PEAK IDENTITIES:

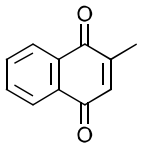
1. Menadione (K3)
2. Menaquinone 4 (K2)
3. 2,3-trans-phylloquinone (K1)
4. cis-phylloquinone (K1)

Vitamin K, a fat-soluble vitamin, is beneficial for blood clotting and bone health. Vitamin K1 is produced from plants and can be found in high amounts in green vegetables. It can also be converted into K2 within the body, while K3 is a synthetic form of vitamin K. The cis form of K1 is bio inactive so it is important to monitor how much is present in vitamin supplements. Baseline resolution of K1 isomers is obtained on a HALO® C30 column compared to a coelution on a competitor SPP C30 column.

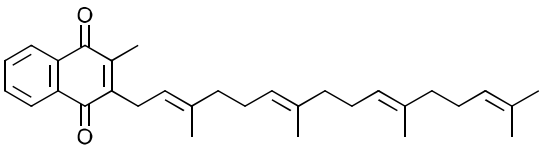
TEST CONDITIONS:

Column: HALO 160 Å C30, 2.7 µm, 4.6 x 150 mm
Part Number: 92114-730
Mobile Phase:
A: Water
B: Methanol
Isocratic: 95% B
Flow Rate: 1.5 mL/min
Initial Pressure: 341 bar (HALO®)
371 bar (competitor)
Temperature: 25 °C
Detection: UV 280 nm, PDA
Injection Volume: 1.0 µL
Sample Solvent: Methanol
Response Time: 0.025 sec
Data Rate: 40 Hz
Flow Cell: 1.0 µL
LC System: Shimadzu Nexera X2

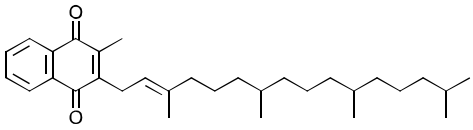
STRUCTURES:



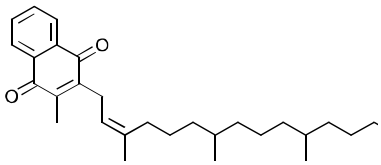
Vitamin K3: Menadione



Vitamin K2: Menaquinone 4



Vitamin K1: 2,3-*trans*-phylloquinone



Vitamin K1: *cis*-phylloquinone

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