

Faster Sample Analysis of Fat Soluble Vitamins using CORTECS C₈ Columns

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GOAL

To achieve faster analysis of extremely hydrophobic compounds.

BACKGROUND

Fat soluble vitamins (FSVs), such as vitamin E, are very hydrophobic compounds. Using C₁₈, the most common reverse-phase liquid chromatography column chemistry, to analyze such compounds can lead to lengthy analysis times and higher costs per run.

THE SOLUTION

CORTECS® UPLC® C₈ Columns can help reduce the analysis time of highly hydrophobic compounds. As an example, Figure 1 shows the analysis of FSVs on a CORTECS UPLC C₈ Column vs. a CORTECS UPLC C₁₈ Column. An ACQUITY UPLC® H-Class System was used with a mobile phase composition of 90:10 methanol:water at a flow rate of 1.0 mL/min and UV detection at 285 nm. As the figure shows, a CORTECS UPLC C₈ Column 1.6 μm, 2.1 x 50 mm ([p/n 186008399](#)) was able to separate the four FSVs approximately four times faster than a CORTECS UPLC C₁₈ Column, 1.6 μm, 2.1 x 50 mm ([p/n 186007093](#)). The decreased hydrophobicity of the CORTECS C₈ Column reduces the analysis time and solvent cost for these particular compounds. The difference in hydrophobicity between CORTECS UPLC C₈ and CORTECS UPLC C₁₈ Columns can lead to very different chromatography under the same separation conditions.

CORTECS C₈ Column chemistry makes analyzing fat soluble vitamins faster and less expensive than the more commonly used C₁₈ Column chemistries.

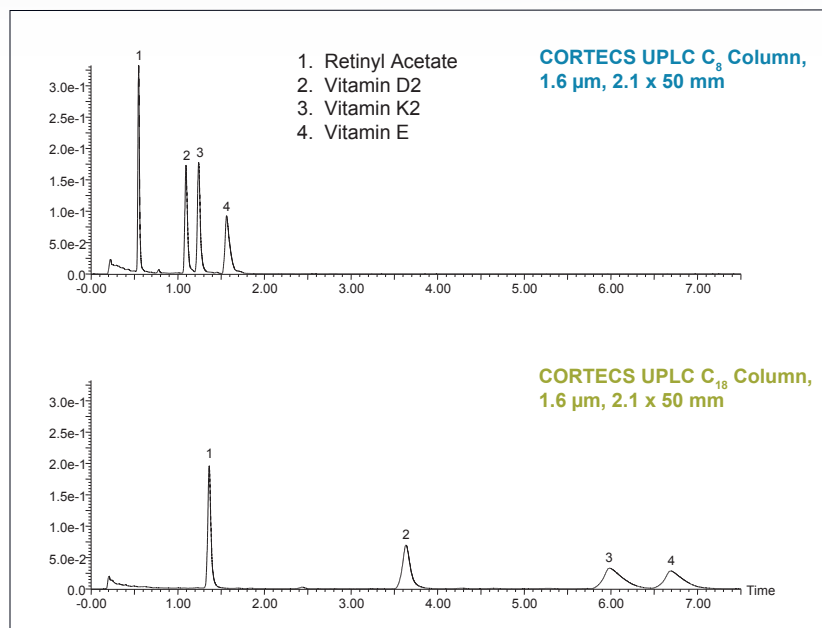


Figure 1. Analysis of four fat soluble vitamins using a CORTECS UPLC C₈ Column, 1.6 μm, 2.1 x 50 mm ([p/n 186008399](#)) and a CORTECS UPLC C₁₈ Column, 1.6 μm, 2.1 x 50 mm ([p/n 186007093](#)).

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SUMMARY

CORTECS UPLC C₈ Columns contain solid-core particles with a trifunctionally bonded C₈ ligand attached. Similar to columns with a C₁₈ ligand, the CORTECS UPLC Columns offer approximately the same selectivity; however due to the shorter alkyl chain, the CORTECS UPLC C₈ Column is less hydrophobic. The decreased hydrophobicity of the column leads to decreased retention times of many compounds, which can be advantageous when analyzing extremely hydrophobic analytes such as fat soluble vitamins.

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