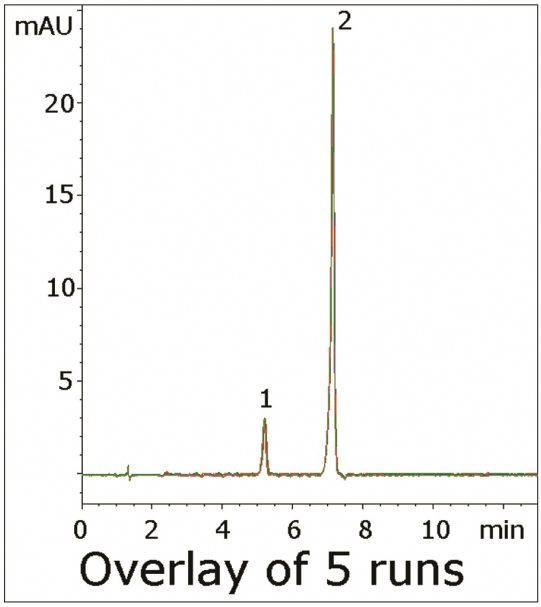
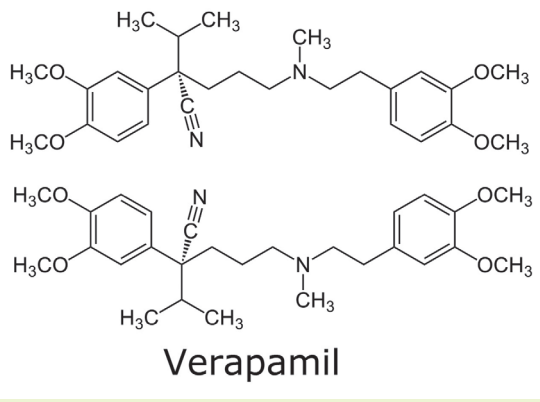
Verapamil Impurities Method

Excellent peak efficiency with an LC-MS compatible mobile phase





Note: Verapamil is an L-type calcium channel blocker used in the treatment of hypertension, angina pectoris, and cardiac arrhythmia.

Method Conditions

Column: **Cogent Diamond Hydride™**, 4µm, 100Å

Catalog No.: 70000-7.5P

Dimensions: 4.6 x 75 mm

Solvent: A: DI H_2O / 10 mM ammonium formate
B: 95/5 acetonitrile / 10 mM ammonium formate (v/v)

Gradient:

time (min.)	%B
0	100
9	85
10	100

Post Time: 4 min

Injection vol.: 1µL

Flow rate: 1.0 mL/min

Detection: 278 nm

Samples: Sample mixture contained 0.1 mg/mL verapamil and 0.02mg/mL verapamil related compound B in a diluent of 50/50 solvent A/solvent B. Peak identities were confirmed with individual standards.

Peaks: 1. Verapamil related compound B
2. Verapamil

t_0: 0.9 min

Discussion

The USP impurities method for Verapamil uses an acetate buffer with the ion pair agent 2-aminoheptane. The ion pair agent is used to reduce peak tailing of the API and its impurity. This method featuring the Cogent Diamond Hydride column uses an LC-MS compatible mobile phase *and* produces high efficiency symmetrical peaks for both compounds. Furthermore, excellent resolution was obtained between the two peaks, which far exceeds the USP system suitability of $R_S \geq 1.5$. For these reasons, the method is a significant improvement over the USP approach and illustrates the considerable potential of the column for analyses of amine-containing solutes.

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