

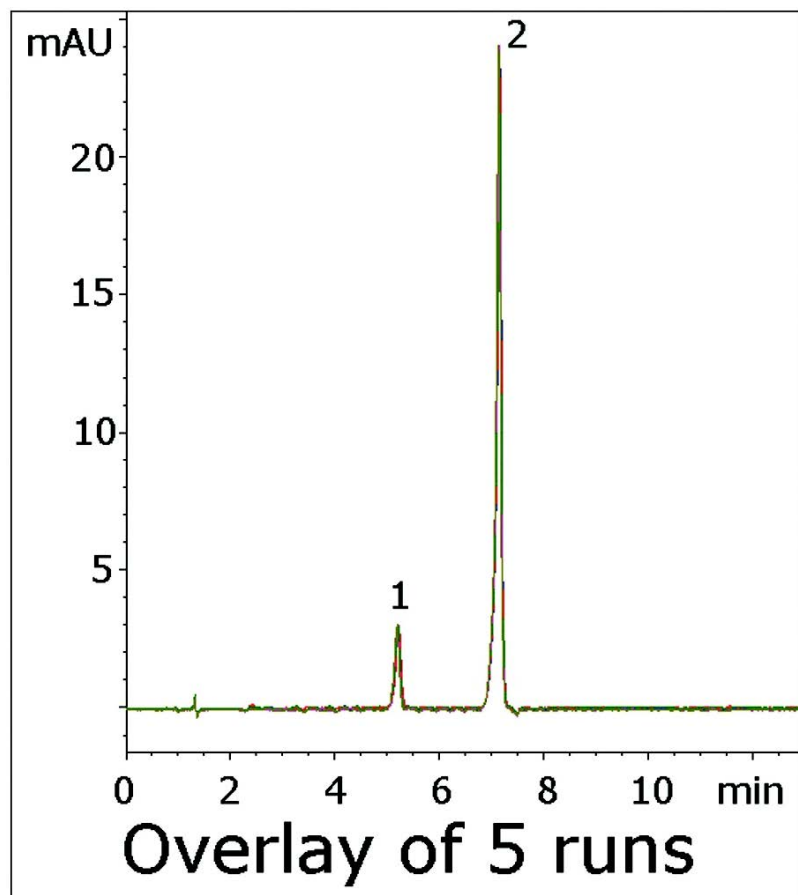


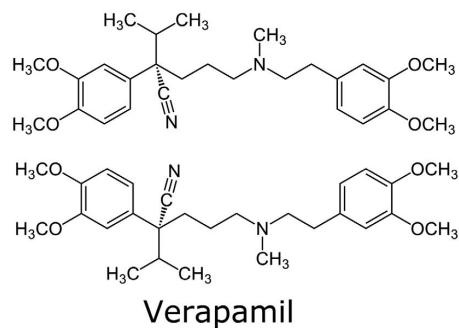
## Verapamil and Impurity Analyzed with HPLC - AppNote

### **Alternative to USP Method with Improved Peak Efficiency**

The USP impurities Method for Verapamil uses an Acetate Buffer with the ion pair agent 2-Aminoheptane to reduce Peak Tailing of the API and its Impurity. This Application Note uses an LCMS compatible Mobile Phase and produces Symmetrical Peaks for both Compounds. Excellent Resolution was also obtained between the two Peaks, far exceeding the USP System Suitability of  $R_s \geq 1.5$ .

This Method is a significant improvement over the USP monograph and illustrates the considerable potential for analyses of Amine containing solutes.





### Peaks:

1. Verapamil Related Compound B
2. Verapamil

### Method Conditions

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

**Catalog No.:** 70000-7.5P

**Dimensions:** 4.6 x 75mm

#### Mobile Phase:

A: DI Water / 10mM Ammonium Formate

B: 95:5 Acetonitrile / 10mM Ammonium Formate (v/v)

#### Gradient:



Time (minutes)	%B
0	100
9	85
10	100

**Post Time:** 4 minutes

**Injection vol.:** 1 $\mu$ L

**Flow rate:** 1.0mL / minute

**Detection:** UV @ 278nm

**Sample Preparation:** Sample mixture contained 0.1mg / 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.

**t<sub>0</sub>:** 0.9 minutes

**Note:** Verapamil is an L-type calcium channel blocker used in the treatment of Hypertension, Angina Pectoris, and Cardiac Arrhythmia.



**Attachment**



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