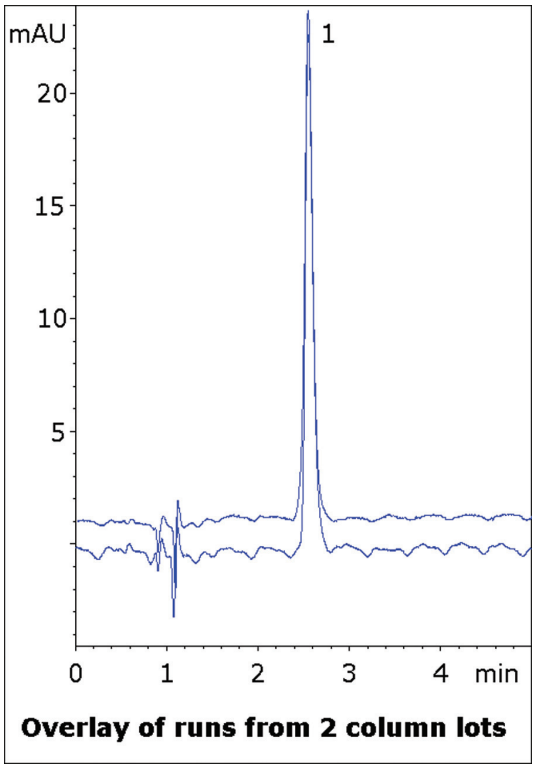
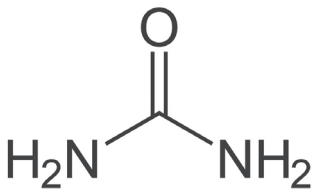
Urea

Retention of highly polar compound



Overlay of runs from 2 column lots



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Note: There is a growing demand for a reliable procedure for the determination of urea in many matrices such as milk, soil extracts, seawater, and wine. In addition, there are several common approaches for measurement of urea involving detection of ammonia (after hydrolysis) by enzymatic or colorimetric methods. HPLC is the most specific method but either organic normal phase or ion-pair reversed phase are generally required for retention.

Method Conditions

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

Catalog No.: 70000-7.5P

Dimensions: 4.6 x 75 mm

Mobile Phase: 5% DI H_2O / 95% acetonitrile / 0.1% (v/v) trifluoroacetic acid (TFA)

Injection vol.: 1µL

Flow rate: 1.0 mL/min

Detection: UV 205 nm

Sample: 1mg/mL urea reference standard in diluent of 50% acetonitrile / 50% DI H_2O / 0.1% TFA.

Peak: 1. Urea

t_0: 0.9 min

Discussion

Urea is very difficult to retain by conventional HPLC methods. It is highly polar and therefore shows little or no reversed phase retention. On the other hand, it can be readily retained past the solvent front when using the Cogent Diamond Hydride column and a simple isocratic mobile phase. Furthermore, the peak shape for the compound is symmetrical and does not exhibit tailing or fronting.

Data from two column lots is shown in the overlay, illustrating the lot-to-lot precision of the stationary phase.

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