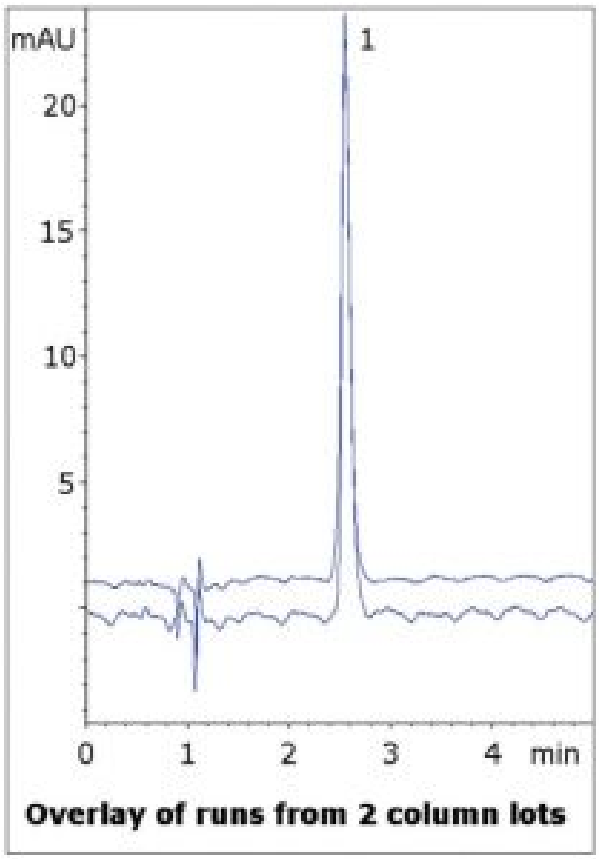
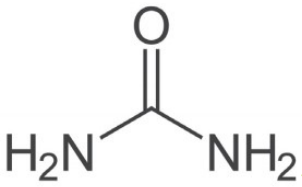
Retention of Urea, a Highly Polar Compound

Urea is very difficult to retain by conventional HPLC methods. It is highly polar and therefore shows little or no Reversed Phase retention. However, this Method shows how it can be readily retained past the solvent front using 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 Robustness of the Method.



Overlay of runs from 2 column lots



Peak:

Urea

Method Conditions

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

Catalog No.: 70000-7.5P

Dimensions: 4.6 x 75mm

Mobile Phase: 5% DI Water / 95% Acetonitrile / 0.1% (v/v) Trifluoroacetic Acid (TFA)

Injection vol.: 1µL

Flow rate: 1.0mL / minute

Detection: UV @ 205nm

Sample Preparation: 1mg / mL Urea reference standard in diluent of 50% Acetonitrile / 50% DI Water / 0.1% TFA

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t_0: 0.9 minutes

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.*

COGENT HPLC Columns™

Attachment

No 229 Urea Analyzed by HPLC pdf 0.4 Mb Download File

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