

Analysis of Urea

Fast, Reproducible HPLC Method

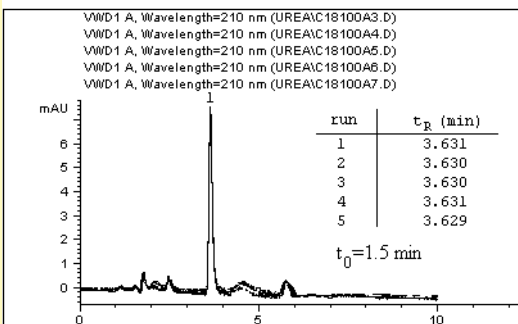
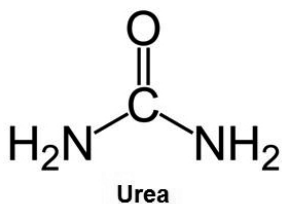


Figure above show 5 consecutive runs using 100% water mobile phase without any loss of precision.

Method Conditions

Column:	Cogent Bidentate C18™, 4µm, 100Å
Catalog No.:	40018-15P
Dimensions:	4.6 x 150 mm
Mobile phase:	A: DI water (ISOCRATIC Run: 100%A)
Flow rate:	0.5 mL/min.
Peak/Sample:	Urea (1 mg/mL in DI water)
Injection Volume:	10 microL
Detection:	UV 210 nm

Discussion

A Cogent Bidentate C18™ column was successfully used to retain Urea when a 100% DI water mobile phase was used. Since this hydrophobic column was made on TYPE-C Silica™ DI water can be used as the complete mobile phase without fear of phase “dewetting” and subsequent loss of retention time. The presented method has the advantage of being very simple, without time consuming derivatization or reaction steps when compared to other methods using ordinary C18 columns. Urea can be determined in complex mixtures using this very fast, reproducible (see insert on the chromatogram) method which could also be useful in the analysis of biological samples for diagnostic purposes.

For more information visit www.MTC-USA.com

Note: There is growing demand for a sensitive and reliable procedure for the determination of urea in many matrices such as milk, soil extracts, seawater and wine. In addition there are several clinical applications for the analysis of this compound. The most common approach for measurement of urea involves detection of ammonia (after hydrolysis) by color forming reactions – enzymatic, colorimetric methods. The other techniques require noxious reagents and produce an unpleasant odor [1]. Newer methods involve high-performance thin layer chromatography-densitometry, alkalimetric titration. HPLC is the most specific method but either organic normal phase chromatography or ion pairing chromatography have to be used to retain this very polar compound until this method.

[1] “Determination of urea using HPLC with fluorescence detection after automated derivatization with xanthidrol”, S. Clark, P.S. Francis, X.A. Conlan, N.W. Barnett, J. Chromatography A, 1161 (2007) 207-213.

Cat. No.	Description
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40018-15P	Cogent Bidentate C18™ HPLC Column, 4mm, 100A, 4.6mm x 150mm
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