



URIC ACID REAGENT KITS
C134-0A, V134-13

Contents	Product No.	Package
URIC ACID REAGENT Uric Acid Enzyme Reagent (R1) Uric Acid Color Reagent (R2)	C134-0A C133-04 C134-03	6 x 24 mL 6 x 6.5 mL
URIC ACID REAGENT Uric Acid Enzyme Reagent (R1) Uric Acid Color Reagent (R2)	V134-13 V134-14 V134-15	6 x 10 mL 6 x 3.2 mL

REAGENT PREPARATION

The reagents are packaged ready for use.
No preparation is required.

REAGENT STORAGE AND STABILITY

Store the unopened reagent at 2-8°C.
When stored as directed, the reagent is stable until the expiration date stated on the label.

NOT FOR USE IN UNPROFESSIONAL SETTINGS

FOR TECHNICAL ASSISTANCE:

Email: catachem@catacheminc.com

Contact Form: www.catacheminc.com

Call: 203-262-0330



Intended Use

For IN VITRO quantitative determination of Uric Acid in serum.

Clinical Significance

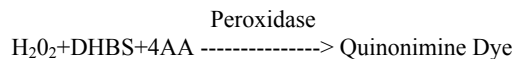
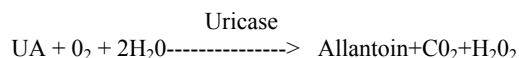
Determinations of Uric Acid are primarily used for diagnosing leukemia, polycythemia, gout, renal failure, psoriasis, as well as, for monitoring the causes and treatments. (1)

Method History

Automated methods with uricase: ureate oxidase (EC1.7.3.3) are discussed by Gochman and Schmitz. (2) The first Uric Acid method utilizing immobilized uricase for automated systems was introduced by L.P. Leon, et al. (3) These authors reported the superiority of the immobilized uricase for its long-term stability at room temperature and the capability of assaying several thousands of samples with the same enzyme unit. The Catachem Uric Acid method for manual or automated chemistry is a modification of the method reported by L.P. Leon. (4)

Method Principle

The uricase enzyme catalyzes the oxidation of Uric Acid to produce allantoin and hydrogen peroxide. The hydrogen peroxide formed is quantified by oxidative coupling of 4 aminoantipyrine with 3-5 dichloro-2-hydroxybenzene sulfonic acid (DHBS) in the presence of peroxidase. (5) The intensity of the color produced is directly proportional to the concentration of the Uric Acid in the sample. The color complex formed is read at ~ 500nm. The reaction scheme illustrates the reactions that occur in this method.



Reagent Content

The concentrations of the active ingredients in the reagents are as follows:

Table with 2 columns: Reagent Name and Concentration. Includes R1 reagent (DHBS, Buffer and stabilizers) and R2 reagent (4-aminoantipyrine, Peroxidase, Uricase, Buffer and stabilizers).

Precautions

Avoid contact of reagents with skin and eyes. Should contact occur, wash affected area with plenty of cold water.

DO NOT PIPETTE BY MOUTH.

Preparation Of Working Reagent

Catachem Uric Acid Reagents are liquid and ready to use.

Reagent Storage And Stability

Store the Catachem Uric Acid reagents at 2-8°C. When stored as directed, these reagents are stable until the expiration date stated on the label. Once opened the reagents are stable for 30 days when stored at 2-8°C and capped when not in use.

Specimen Collection And Preparation

The use of clear, non-hemolyzed serum that has been separated from the clot as soon after collection as possible is recommended. Uric Acid in serum is stable for several days at room temperature and for longer periods of time when stored at 2-8°C. (1)

Interfering Substances

A comprehensive discussion has been reported on the effects of interfering substances on a uricase assay of Uric Acid in serum (4). A summary of the influence of drugs on clinical laboratory procedures may be found by consulting D.S. Young, et al. (13)

Expected Values

The range of expected values in humans determined for this method is 2.2 - 7.7 mg/dL for adult females and 3.7 - 9.0 mg/dL for adult males. These values are suggested guidelines. It is recommended that each laboratory establish the normal range for the species under test and for the area in which the laboratory is located.

Procedure

Important: Read entire procedure instructions before proceeding with assay.

Materials Not Provided

- Spectrophotometer, with temperature control
Matched cuvettes 1 cm light path
Pipettes appropriate sizes

Materials Provided Uric Acid Reagents

Analytical Parameters

Table with 2 columns: Parameter and Value. Includes Wavelength (500nm), Temperature (37°C), Pathlength (1 cm), Reaction mode (endpoint), Reaction time (5 minutes 37°C), Reagent R1 volume (0.8 ml), Reagent R2 volume (0.2 ml), Sample volume (0.03 ml (30 µL)), Total volume (1.03 ml).

Sample-to-reagent ratio 1:33

Assay Procedure

- 1. Pipette 0.8 mL ml of R1 Reagent & 0.2 mL R2 reagent into each of three cuvettes marked "Calibrator", "Sample", and "Blank".



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MANUAL/AUTOMATED APPLICATION

2. Pipette 0.03 ml of Calibrator, Sample, and water into the cuvettes marked "Calibrator", "Sample", and "Blank" respectively.
3. Incubate all cuvettes for 5 minutes at 37-C.
4. Set spectrophotometer wavelength at 500 nm and zero the instrument with the cuvette marked "Blank". Read the absorbance of both "Calibrator" and "Sample".
5. Calculate the Uric Acid concentration (mg/dL) in the sample(s), as shown in calculations and results and calculations.

Results and Calculations

$$\text{UA (mg/dL)} = \frac{\text{Sample Absorbance}}{\text{Calibrator Absorbance}} \times \text{Calibrator (mg/dL)}$$

Example:

Sample Absorbance	=	0.100	
Calibrator Absorbance	=	0.050	
Calibrator (mg/dL)	=	5	
Uric Acid (mg/dL)	=	$\frac{0.100}{0.050} \times 5$	
	=	10 mg/dL	

Quality Control

To monitor the performance of the Working Reagent and the procedure used, we recommend the regular use of a normal and abnormal control serum.

Method Performance Characteristics Sensitivity:

0.014 - 0.018 absorbance units per mg/dL.

Linear Range: 0-20 mg/dL.

Precision: Within-run and day-to-day precision is summarized below.

Uric Acid Precision Study

Uric Acid	Within-Run		Total Precision	
	Mean	SD	SD	CV
mg/dL	mg/dL	%	Mg/dL	%
2.1	0.0 +	1.9	0.05	2.2
11.6	0.08	0.65	0.08	0.68
21.5	0.09	0.42	0.12	0.54

Correlation

A comparison of this method using an automated analyzer as a reference Uric Acid method based upon the uricase/ peroxidase reaction resulted in the following regression statistics:

Range	=	2.5 - 15.1
N	=	124
Y	=	0.991x - 0.198
r	=	0.997
Sy.x	=	0.23

References

1. Fundamentals of Clinical Chemistry. Edited by Norbert Tietz. WB Saunders, Philadelphia (1976).
2. Gochman N, Smitz JM. Clin Chem 17 (1971) 1154.
3. Leon LP, Smith JB, Snyder LR, Horvath C. Clin Chem 24 (6):1023 (1978).
4. Leon LP, Smith JB, Yeung A, Yeh CK, Horvath C. Journal of Automatic Chemistry 4 No 1 (1982).
5. Trinder P. Ann Clin Biochem 6, 24 (1969).
6. Young DS, Pestaner LD, Gibberman V. Clin Chem 21 No 5 (1975).