

## Uric Acid (Uricase-POD Enzymatic colorimetric method)



### Order Information

Cat.No.	KitConfiguration
OMR1157	Reagent 1: 2X40 mL Reagent 2: 2X10mL

### Summary

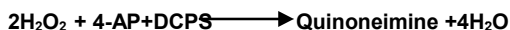
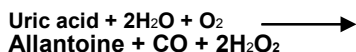
Uric Acid is waste product excreted by kidneys. The increased concentration of Uric Acid is found in Gout disease, arthritis or impaired renal functions.

### Method

Uricase-POD based Enzymatic colorimetric.

### Principle

Uric acid is oxidized by uricase to allantoin and hydrogen peroxide (2H<sub>2</sub>O<sub>2</sub>), which under the influence of POD, 4-aminophenazone (4-AP) and 2,4-Dichlorophenol sulfonate (DCPS) forms a red quinoneimine compound:



The intensity of the red color formed is proportional to the uric acid concentration in the sample.

### Reagent Preparation

Mix, 4 parts of reagent 1 with 1 part of reagent 2 = Working reagent.

Leave the working reagent for at least 30 min. at 15° - 25°C

before use. Working Reagent Stability: 4 weeks at 2° - 8°C. Protect working reagent from light.

### Reagents Storage Instructions and Stability

Reagent and standard are stable up to the end of the indicated month of expiry, if stored at 2° - 8°C, protected from light and contamination is avoided. Do not freeze the reagents!

Reagent 1: Enzyme Solution  
Reagent 2: Substrate Solution  
Standard: Uric Acid (Conc. 6 mg/dL)

### Warnings and Precautions

1. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
2. Always use safety pipettes to pull the reagents into a pipette.
3. Reagents may contain some non-reactive and preservative components. It is suggested to handle carefully, avoid direct contact with skin and do not swallow.
4. The reagents contain sodium azide (0.95 g/L) as preservative. Do not swallow. Avoid contact with skin and mucous membranes.
5. For professional use only.

### Waste Management

Please refer to local regulatory requirements.

### Materials required but not provided

NaCl solution 9 g/L  
General laboratory equipment

### Assay Procedure

Application sheets for automated systems are available on request

Wavelength	546nm
Lightpath	10mm
Temperature	37°C
Measurement	Against reagent Blank

	Blank	Sample/Standard
Sample/Standard	-	10 µL
Distilled water	10 µL	-
Reagent	1000 µL	1000 µL
Mix, incubate for 5 min. at 37°C. Read absorbance against the reagent blank		

### Calculation:

With Standard or Calibrator

$\Delta A$  Sample

Uric Acid (mg/dL) =  $\frac{\Delta A \text{ Sample}}{\Delta A \text{ Std. / Cal}} \times \text{Conc. of Std. / Cal}$

$\Delta A$  Std. / Cal

### Conversion Factor

Uric Acid (mg/dL) X 59.48 = Uric Acid (µmol/L)

### Quality Control

For internal quality normal and abnormal controls should be assayed with each batch of samples. Each laboratory should establish corrective action in case of deviations in control recovery.

### Performance Characteristics

#### Measuring range

The test has been developed to determine uric acid within a measuring range from 0.5 – 20 mg/dL. When values exceed this range samples should be diluted 1 + 4 with NaCl solution (9 g/L) and the result to be multiplied by 5.

#### Specificity/Interferences

No interference was observed by, Bilirubin up to 40 mg/dL, and triglycerides up to 2000 mg/dL.

#### Sensitivity/Limit of Detection

The lower limit of detection is 0.5 mg/dL.

#### Linearity

The maximum limit of detection is 20 mg/dL.

#### Precision

Intra-assay n = 20	Mean [mg/dL]	SD [mg/dL]	CV [%]
Sample 1	5.61	0.01	0.18
Sample 2	9.47	0.04	0.38

Inter-assay n = 20	Mean [mg/dL]	SD [mg/dL]	CV [%]
Sample 1	4.28	0.02	0.41
Sample 2	8.92	0.06	0.64

#### Method Comparison

A comparison of Nucleus Diagnosys Uric Acid (y) with a commercially available test (x) using 15 samples gave following results:

$$y = 0.935x + 0.334; r^2 = 0.981$$

#### Reference Range

Gender	Female	Male
Unit	mg/dL (µmol/L)	mg/dL (µmol/L)
Adults	2.6 – 6.0 (155 – 357)	3.5 – 7.2 (208 – 428)
Children		
0 - 5 days	1.9 – 7.9 (113 – 470)	1.9 – 7.9 (113 – 470)
1 - 4 yr.	1.7 – 5.1 (101 – 303)	2.2 – 5.7 (131 – 340)
5 - 11 yr.	3.0 – 6.4 (178 – 381)	3.0 – 6.4 (178 -381)
12 - 14 yr.	3.2 – 6.1 (190 -363)	3.2 – 7.4 (190 – 440)
15 - 17 yr.	3.2 – 6.4 (190 – 381)	4.5 – 8.1 (268 – 482)
Urine		
≤ 800 mg/24h (4.76 mmol/24h) assuming normal diet.		
≤600mg/24h(3.57mmol/24h)assuminglowpurinediet.		

Each laboratory should check if the references range are transferable to its own patient population and determine own reference ranges if necessary.

### Literature

1. Thomas L. Clinical laboratory diagnostics. 1st ed. Frankfurt: TH- Books Verlagsgesellschaft;1998.p.208-14.
2. Tietz Textbook of Clinical Chemistry. 3rd ed, Philadelphia: WB Saunders Company;1999.p.1204-70.
3. Disch Med Wschr 1973; 98: 380-384.

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