URIC ACID
URICASE / PAP METHOD

Cat no.	size
555001	4*25
555002	2*50
555003	4*50
555004	2*100

INTENDED USE
Quantitative determination of uric acid in human serum and plasma.

DIAGNOSTIC CHARACTERISTICS
In humans, uric acid is the major product of the catabolism of the purine bases which are obtained partly from the diet and partly from in vivo synthesis. Increased uric acid concentration in serum and urine maybe attributable to an overproduction of urate (increased purine synthesis) or to a defective elimination of urate.Hyperuricemia is commonly associated with gout, decreased renal function, dehydratation, myeloproliferative disorders, and other conditions not well known

PRINCIPLE OF THE METHOD
Uric acid in the sample originates, by means of the coupled reactions described below, a coloured complex that can be measured by spectrophotometry

$$UricAcid + H2O + O_2 \xrightarrow{Uricase} Allantoin + CO_2 + H_2O_2$$

$$TBHBA + 4\text{-}Aminoantipyrin + 2\ H_2O_2 \xrightarrow{POD} Quinonimine + 3H2O$$

COMPOSITION

REAGENT(R)	
Phosphate buffer pH 7	100 mmol/l
TBHBA	1 mmol/l
Aminoantipyrine	0,3 mmol/l
K4 [Fe(CN)6]	10 µmol/l
Peroxidase (POD)	≥ 2 kU/l
Uricase	≥ 30 U/l
STANDARD(S)	6.0 mg/dL

STORAGE
Store at 2-8ºC.
Reagent and Standard are stable until the expiry date shown on the label when stored tightly closed and if contaminations are prevented during their use.

REAGENT PREPARATION
Reagent and Standard are provided ready to use.

ADDITIONAL EQUIPMENT
- Thermostatic water bath at 37ºC
- Analyzer, spectrophotometer able to read at 546nm

SPECIMEN
Serum, plasma or urine collected by standard procedures.
Dilute urine 1/10 with distilled water before measurement.
Uric acid in serum or plasma is stable for 7 days at 2-8ºC.
Heparin, EDTA, oxalate and fluoride may be used as anticoagulants.
Uric acid in urine is stable for 4 days at room temperature if pH is adjusted to > 8 with NaOH. Do not refrigerate.

PROCEDURE
1. Bring the Reagent to room temperature.
2. Pipette into labeled test tubes:

	Blank	Standard	Sample
Reagent (R)	1.0 mL	1.0 mL	1.0 mL
Standard (S)	---	20 µL	---
Sample	---	---	20 µL

3. Mix thoroughly and incubate the tubes for 10 minutes at room temp or 5 minutes in water path at 37 C.
4. Measure the absorbance (A) of the Standard and Sample at 546 nm against the Blank. The color is stable for at least 1 hour.

CALCULATIONS
The Uric Acid concentration in the sample is calculated using the following general formula:

$$\frac{A\ Sample}{A\ Standard} \times 6.0 = mg/dL\ Uric\ Acid$$

$$\frac{A\ Sample}{A\ Standard} \times 357 = mmol/l\ Uric\ Acid$$

REFERENCE VALUES

Male	3.0 -7.0 mg/dL
Female	2.5 -6.0 mg/dL
Children	2.0 -5.5 mg/dL
Urine	250 -750 mg/day

QUALITY CONTROL
It is recommended to use the Genesis Control Serum level I And II to verify the performance of the measurement procedure.
Each laboratory should establish its own internal Quality Control.

METROLOGICAL CHARACTERISTICS
- Detection limit: 0.02 mg/dL.
- Linearity limit: 25.0 mg/dL.

- Repeatability (within run):

Mean Concentration	cv	n
5.0 mg/dL	0.4 %	20
8.22 mg/dL	0.5 %	20

- Reproducibility (run to run):

Mean Concentration	cv	n
5.0 mg/dL	2.1 %	25
8.22 mg/dL	1.9 %	25

INTERFERENCES
Hemoglobin (2 g/L), bilirubin (2.5 mg/dL) and lipemia interfere.
Other drugs and substances may interfere.

BIBLIOGRAPHY
1. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, 4th ed. Burtis CA, Ashwood ER, Bruns DE. WB Saunders Co, 2005.

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