

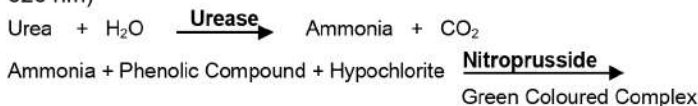
Reagent kit for quantitative estimation of Urea in Serum, Plasma, or Urine.

DIAGNOSTIC SIGNIFICANCE:

Increased urea levels can occur in liver diseases, congestive heart failure, diabetes, infections and in diseases which impair kidney functions. It is also increased in adrenocortical insufficiency, acute intestinal occlusion; various poisonings, shocks, urine retention, and raised protein break down. Decreased levels are seen in malnutrition, hepatic failure & pregnancy.

PRINCIPLE:

Urease breaks down Urea into Ammonia and Carbon Dioxide. In alkaline medium, Ammonia reacts with Hypochlorite and Phenolic Compound to form Dicarboxyindophenol, a coloured compound. The reaction is catalysed by Sodium Nitroprusside. The intensity of colour produced is measured photometrically at 578 nm (570-620 nm)



SPECIMEN COLLECTION:

Serum without hemolysis. Heparinised, EDTA or Oxalated plasma. Urine.

KIT PRESENTATION:

| PACK SIZE | 100 Test | 200 Test |
|--------------------------|-----------|------------|
| R1-Urea (Enzyme Reagent) | 2 X 50 ml | 2 X 100 ml |
| R2-Urea (Colour Reagent) | 2 X 50 ml | 2 X 100 ml |
| Urea Standard (40mg/dl) | 1 X 2 ml | 1 X 2 ml |

PREPARATION OF WORKING REAGENT:

R1-Urea (Enzyme Reagent) & R2-Urea (Colour Reagent) are Ready To Use.

REAGENT STORAGE & STABILITY:

All reagents included in the kit are stable at 2-8°C until the expiry date stated on the label.

ASSAY PARAMETERS:

| | |
|-------------------------------|--------------------------------|
| Reaction : End point | Sample Volume : 10 µl |
| Wavelength : 578 nm (570-620) | R1 + R2 Volume : 1.0ml + 1.0ml |
| Incub. Temp : 37 °C | Standard Conc. : 40 mg/dl |
| Zero Setting : Reagent Blank | Linearity : 350 mg/dl |
| Incubation : 5 mins + 5 mins. | Unit : mg/dl |

PROCEDURE:

| Pipette into TT | Blank | Standard | Test |
|--|--------|----------|--------|
| R1-Urea (Enzyme Reagent) | 1.0 ml | 1.0 ml | 1.0 ml |
| Urea Std (40 mg/dl) | -- | 10 µl | -- |
| Sample (Test) | -- | -- | 10 µl |
| Mix & incubate for 5 minutes at 37 °C or 15 minutes at RT | | | |
| R2-Urea (Colour Reagent) | 1.0 ml | 1.0 ml | 1.0 ml |
| Mix & Incubation for 5 minutes at 37 °C or 15 minutes at RT. Read absorbance of Standard (S) and Test (T) against Reagent Blank at 578 (570-620) nm. | | | |

STABILITY OF REACTION MIXTURE:

The colour of final reaction mixture is stable for one hour.

CALCULATION:

Urea (mg/dl) = Abs T ÷ Abs S X 40

BUN Concentration (mg/dl) = 0.467 x Urea (mg/dl)
Urea concentration (mg/dl) x 0.167 = Urea (mMol/L)

PROCEDURE FOR ESTIMATION OF UREA IN URINE:

Dilute the sample 1:50 with distilled water, follow the procedure given for serum urea estimation and calculate the test results as follows.

Urea conc. (gms/liter) = $\frac{\text{Abs. of test} \times 40 \times \text{dilution factor} \times 1}{\text{Abs. of Std.} \times 100}$

NORMAL VALUES:

Serum/Plasma Urea : 10 - 45 mg/dl (1.7- 7.5 mMol/L)
Serum/plasma BUN : 5 - 21 mg/dl
Urine Urea : 20 -30 gm / 24 hrs.
Each laboratory should establish its own reference range.

LINEARITY:

The method is linear up to 350 mg/dl. For Urea concentration higher than linearity limit, mix one volume of sample with one volume of 0.9 % saline and repeat the assay. Multiply the results obtained by two.

REFERENCE:

- HENRY, R.J. Clinical Chemistry, Principles and Techniques Harper and Row, New York, 1968, Page268.
- CHANEY, A.L. MARBACH, C.P. Clinical Chemistry, 8:130(1962) SEARCY, R.L. REARDON, J.E. FORMAN, J.A. Amer. J. Med. Technol 33.15 (1967)

IFU No.: 044/00 Rev. No.: 00/120723

