PATHOZYME DIAGNOSTICS

LIQVIPATH UREA/BUN (UV-GLDH)

(UV-GLDH METHOD)

CAT No.: URL

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

DIAGNOSTIC SIGNIFICANCE:

Urea is the end product of Protein degradation. High level of Urea is responsible for Kidney Failure, Shock, Urine Retention, Liver disease. It is also increased in adrenocorticol insufficiency. Decreased level found in malnutrition, hepatic failure, pregnancy.

PRINCIPLE:

Urea is acted upon by urease releasing ammonia and Carbondioxide. The Ammonia generated is utilised by Glutamate Dehydrogenase (GLDH) in the presence of 2-Oxoglutarate (α-KG) to form Glutamate. Simultaneously converting NADH to NAD resulting in a decrease in absorbance at 340 nm.

$$\text{Urea} + H_2O \xrightarrow{\text{Urease}} \text{Ammonia} + CO_2$$

$$\text{Ammonia} + \alpha\text{-KG} + \text{NADH} \xrightarrow{\text{GLDH}} \text{Glutamate} + \text{NAD}$$

SPECIMEN COLLECTION:

Serum without hemolysis.
Heparinised, EDTA or Oxalated plasma.

KIT PRESENTATION:

Pack Size	2 X 25 ml	3 X 50 ml	5 X 100 ml
R1-Urea (Enzyme Reagent)	2 X 20 ml	3 X 40 ml	4 X 100 ml
R2-Urea (Starter Reagent)	2 X 05 ml	3 X 10 ml	2 X 52 ml
Urea Std. (40mg/dl)	1 X 02 ml	1 X 02 ml	1 X 02 ml

WORKING REAGENT PREPARATION:

Mixing 4 volumes of **R1-Urea (Enzyme Reagent)** with 1 volume of **R2-Urea (Starter Reagent).** i.e. 800 µl R1 + 200 µl R2.
The working reagent is stable for **30** days at 2-8°C.

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	**: Fix Time**	**Sample Volume**	**: 10 µl**
Wavelength	**: 340 nm**	**R1 + R2 Volume**	**: 800 µl + 200 µl**
Flow Cell Temp.	**: 37°C**	**Std Conc.**	**: 40 mg/dl**
Initial Delay	**: 30 Sec**	**Reaction Slope**	**: Decreasing**
Interval Time	**: 60 Sec**	**Zero Setting**	**: Dist. Water**
Read Time	**: 60 Sec**	**Linearity**	**: 300 mg/dl**
No. of Reading	**: 01**	**Unit**	**: mg/dl**

PROCEDURE:

Pipette into TT	Standard	Test
R1 - Urea (Enzyme Reagent)	800 µl	800 µl
R2 – Urea (Starter Reagent)	200 µl	200 µl
Urea Std (40mg/dl)	10 µl	--
Sample (Test)	--	10 µl

Mix & aspirate immediately and read difference in absorbance between 30 seconds (AT_1) and 90 seconds (AT_2) for Standard and Test at 340 nm.

CALCULATION:

$$\text{Urea (mg/dl)} = \frac{\Delta\text{Abs of Test} \times \text{Standard Conc.}}{\Delta\text{Abs of Standard}}$$

Where $\Delta Abs = (AT_1) - (AT_2)$

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

NORMAL VALUES:

Serum/Plasma Urea **:** 10 – 45 mg/dl (1.7- 7.5 mMol/L)

Serum/plasma BUN **:** 5 – 21 mg/dl

Each laboratory should establish its own reference range.

LINEARITY:

The method is **linear up to 300 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:

1. 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)
2. Talke H.,Schubert G. E.,Klin. Wschr.43, (1965),174

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Expiry Date | IVD In-Vitro Diagnostics Use | Storage | Mfg. Date | LOT Batch Number | REF Catalogue Number | See Package Insert

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