UREA (NED Method)

CHEMPAK
Last update 04-2014

Urea (NED Method)
Reagent kit for Quantitative determination of Urea in serum.

- Liquid Stable Reagent
- Two reagent system
- End point as well as Fix time chemistry

PRINCIPLE:
Urea condenses with O-Phthalaldehyde and Naphthyl ethylene Diamine (NED) to form an orange colored complex. The rate of formation of this complex is directly proportional to urea concentration and is monitored on an initial rate (Fix time) & by End Point at 505nm.

$$\text{Urea + O- Phthalaldehyde} \xrightarrow{H+} \text{Isoindoline}$$

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.

REAGENT COMPOSITION:

Active Ingredients	Concentration
Reagent-1	
* O-phthaladehyde	2 mmol/L
Reagent-2	
* Nephthyl – ethylene Diamine	1.5 mmol/L
Urea Standard (40 mg/dL)	

Also contains non-reactive fillers and Stabilizers.

PRESENTATION:

Store at all regent 2-8^{0}C	Pack Size 100 ml
1 Urea (O-Phthalaldehyde)	1
2 Urea (NED)	1
Urea Standard (40mg/dL)	1

PRECAUTION:
Chempak Urea (NED) is only for *in-vitro* diagnostics. Strongly Corrosive reagent. Avoid contact of reagent with mouth, eyes, skin.

SPECIMEN:
Use unhemolysed Serum or Heparinized Plasma.

NOTE:
Protect Working Reagent from high temperature and strong light.

PREPARATION OF WORKING REAGENT:
Reagent 1& 2 are ready to use as supplied.
Prepare working reagent freshly as per daily requirement.

REAGENT STORAGE AND STABILITY:
Reagent 1 and 2 are stable at 2-8^0 C until the expiry date printed on the container label.

REACTION PARAMETERS:

- Type of reaction : Fix Time
- Wavelength : 505nm (490-520)
- Temperature : 37^{0}C
- Sample Volume : 0.025ml
- Reagent Volume : 1 ml
- STD Concentration : 40 mg/dL
- Delay Time : 30 sec.
- Interval Time : 90 sec.
- Measuring Time : 120 sec.
- No. of Readings : 1
- Zero setting with : Distilled Water
- Light path : 1 cm

PROCEDURE FOR FIX-TIME:

Pipette in to test tubes		Standard	Test
Sample	(ml)	-	0.025
Standard	(ml)	0.025	-
Reagent -1	(ml)	0.5	0.5
Mix Properly & Wait for 1-2 min.			
Reagent -2	(ml)	0.5	0.5

Mix and aspirate. Record the absorbance of Standard (ST) and Test (TS) at 30 seconds (ST_1, TS_1) and again at 120 seconds (ST_2, TS_2) at 505 nm, against distilled water.

TEST RESULTS:

$$\text{Urea Concentration (mg/dl)} = \frac{(TS_2-TS_1)}{(ST_2-ST_1)} \times 40$$

REACTION PARAMETERS:

- Type of reaction : End point
- Wavelength : 505nm (490-520)
- Temperature : 37^0 C
- Incubation Time : 15 min.
- Standard Concentration : 40 mg/dl
- Sample Volume : 0.01 / 0.025 ml
- Reagent Volume : 1 ml / 2 ml
- Zero setting with : Reagent blank
- Light path : 1 cm

PROCEDURE FOR END POINT :

Pipette Into	Procedure for 2 ml			Procedure for 1 ml		
Test Tubes	BLK	STD	TEST	BLK	STD	TEST
Sample (ml)	-	-	0.025	-	-	0.01
Standard (ml)	-	0.025	-	-	0.01	-
Reagent -1 (ml)	1.0	1.0	1.0	0.5	0.5	0.5
Mix Properly & Wait for 1-2 min.						
Reagent -2 (ml)	1.0	1.0	1.0	0.5	0.5	0.5

Mix well and incubate reagent for 15 mins. at 37^{O}C. Read absorbance of test and standard against reagent blank at 505 nm (490-520) or with Green Filter.

TEST RESULTS:

$$\text{Urea Concentration (mg/dl)} = \frac{\text{(Abs. of Test)}}{\text{Abs. of Standard}} \times 40$$

LINEARITY:
Linearity of the Urea (NED) is 200 mg/dL.

NORMAL VALUE:
Serum Urea: 10-45mg/dl

INTERFERENCE:
No interference from Hemoglobin.

REFERENCES:
Tietz, n.W., in clinical guide to Laboratory Tests, W.B. Saunders Co.London, 1983, page 492.

An ISO 13485: 2012 & GMP Certified Company

3/7,B.I.D.C., Gorwa, Vadodara 390 016 (INDIA)
Web: www.reckondiagnostics.com
Phone: +91·265·2281631
Email: mail@reckondiagnostics.com

RECKON DIAGNOSTICS P. LTD.