

**Reagent kit for quantitative estimation of Creatinine in Serum, Plasma & Urine.**

**DIAGNOSTIC SIGNIFICANCE:**

Creatinine is a waste product formed in muscle from the high energy storage compound, creatine phosphate. The amount of creatinine produced is fairly constant and is primarily a function of muscle mass. Creatinine is removed from plasma by glomerular filtration and then excreted in urine without any appreciable resorption by the tubules.

Creatinine is used to assess renal function; however, serum creatinine levels do not start to rise until renal function has decreased by at least 50%. Congestive heart failure, shocks and mechanical obstruction of urinary tract may also contribute to an elevated level of serum creatinine. An elevated serum creatinine level due to obstruction may rapidly fall when the obstruction is removed by surgery.

**PRINCIPLE:**

Creatinine + Alkaline Picrate → Creatinine Picrate Complex  
 Creatinine Picrate Complex  $\xrightarrow{\text{Acid reagent}}$  De-colour Creatinine Picrate Complex

**SPECIMEN COLLECTION:**

Fresh, clear serum with no hemolysis is the specimen of choice. Plasma prepared using heparin as an anticoagulant may also be used.

Urine of 24 hrs. collection is preferred. (Dilute urine 1:50 in distilled water). i.e., 1 ml Urine + 49 ml Distilled Water

**KIT PRESENTATION:**

PACK SIZE	2 X 25 ml	2 X 50 ml	2 X 100 ml
R1 – Creatinine (Buffer)	1 X 25 ml	1 X 50 ml	1 X 100 ml
R2 – Creatinine (Picric)	1 X 25 ml	1 X 50 ml	1 X 100 ml
R3 – Creatinine (Acid)	1 X 06 ml	1 X 11 ml	1 X 22 ml
Creatinine Standard	1 X 02 ml	1 X 02 ml	1 X 04 ml

**WORKING REAGENT PREPARATION:**

All reagents included in the kit are Ready To Use.

**REAGENT STORAGE & STABILITY:**

All reagents included in the kit are stable at RT until the expiry date stated on the label.

**ASSAY PARAMETERS:**

Reaction	: 2 Step End point	Sample Volume	: 100 µl
Wavelength	: 510 nm (500-520)	Reagent Volume	: 1.05 ml
Incub. Temp	: RT	Std Conc.	: 2 mg/dl
Zero Setting	: Distilled Water	Linearity	: 20 mg/dl
Incubation	: 10 mins + 2 mins.	Unit	: mg/dl

**PROCEDURE:**

Pipette into TT	Std	Test
R1-Creatinine (Buffer Reagent)	500 µl	500 µl
R2-Creatinine (Picric Acid Reagent)	500 µl	500 µl
Creatinine Std (2 mg/dl)	100 µl	--
Sample (Test)	--	100 µl
Mix & Incubate for 10 minutes at RT. Read absorbance of Standard (S1) and Test (T1) against Distilled water at 510 (500-520) nm. <b>Then add</b>		
R3-Creatinine (Acid Reagent)	50 µl	50 µl
Mix & incubate for 2 minutes at RT Read absorbance of Standard (S2) and Test (T2) against Distilled water at 510 (500-520) nm.		

**CALCULATION:**

$$\text{Serum/Plasma Creatinine (mg/dl)} = \frac{\Delta\text{Abs of Test X 2}}{\Delta\text{Abs of Standard}}$$

$$\text{Urine Creatinine (gm/L)} = \frac{\Delta\text{Abs of Test X 2 X Dilution Factor}}{\Delta\text{Abs of Standard X 100}}$$

Where  $\Delta\text{Abs} = (\text{AS}_1) - (\text{AS}_2)$  of Std /  $(\text{AT}_1) - (\text{AT}_2)$  of Test

$$\text{Urine Creatinine (gm/24 hrs)} = \text{Urine Creatinine in gm/L X Vol. of Urine 24 hrs (in Liter)}$$

**NORMAL VALUES:**

**Serum/Plasma Creatinine**

<b>Male:</b> 0.6 – 1.4 mg/dl	<b>Female:</b> 0.5 – 1.2 mg/dl
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**Urine Creatinine (gm / 24 hrs)**

<b>Male:</b> 1.0 – 2.0 gm/ 24 hrs	<b>Female:</b> 0.8 – 1.8 gm/24 hrs
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Each laboratory should establish its own reference range.

**LINEARITY:**

The method is linear up to 20 mg/dl. If the values exceed this limit, dilute the sample with Distilled Water and repeat the test. Multiply the result with dilution factor.

**REFERENCE:**

1. KAPLAN A., SZABO, L.L., Clinical Chemistry: Interpretation and Techniques, Lea and Febiger, Philadelphia (1983).
2. BOWERS, L.D. (1980) Clin. Chem. 26:551.

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Expiry Date



In-Vitro Diagnostics Use



Storage



Mfg. Date



Batch Number



Catalogue Number



See Package Insert