

## Colloidal gold functionalized by amino groups

### Catalog Number: orb170034 (Product Manual)

The diagnostic kit is designated for quantitative determination of creatinine in serum or plasma and it is calculated for conducting 200 assays. Total outlay of working reagent 1 ml on assay

#### Principle:

Creatinine reacts with picric acid under alkaline conditions to form a characteristic yellow orange complex. The color is derived from creatinine as well as certain non-specific substances likely to be present in the sample. Upon addition of acid, the color contributed by creatinine is destroyed, while that produced by non-specific substances remains. The differences in color intensity measured at 500 nm before and after acidification is proportional to the creatinine concentration.

#### Material:

serum, plasma

#### Reagents

1 Picric acid	30 mmol	50 ml
2 Sodium hydroxide	800 mmol	
Sodium phosphate .	20 mmol	50 мл
3. Trichloroacetic acid	30%	10 ml
4. Acetic acid	17 M	10 мл
5. Creatinine (standard)	100 μmol	20 мл

#### Preparation to assay:

Dilute reagent 2 twice by distilled water. Bring volume of reagent 3 to 50 ml by distilled water.

## Assay

Pipet (ml)	Sample	Standard	Control
Serum or urine ( last is diluted 100 times)	0.5	-	-
Creatinine (st)	-	0.5	-
Water	-	-	0.5
TCA	0.5	0.5	0.5

Solutions are mixed, incubated 5 minutes and centrifuged 3000-4000 x g 10 minutes and supernatants are taken.

Pipet (ml)	Sample	Standard	Control
Supernatants	0.5	0.5	0.5
Reagent 1	0.5	0.5	0.5
Reagent 2	1.0	1.0	1.0

The solutions are mixed incubated at room temperature 20 minutes and optical density of sample and standard against control at 500 nm is measured (A1) Then to tubes 0.1 ml of reagent 4 is added and after 5 minutes of incubation optical density is measured again. (A2)

Creatinine concentration is calculated from equation

$$\frac{A1_{\text{sample}} - A2_{\text{sample}}}{A1_{\text{stand}} - A2_{\text{stand}}} \times 100$$

$$C (\mu\text{mol/l}) = \frac{A1_{\text{sample}} - A2_{\text{sample}}}{A1_{\text{stand}} - A2_{\text{stand}}}$$

For urine results obtained multiply to 100

Clearance of creatinine is calculated from equation:

$$\frac{\text{Urine creatinine (mmol/l)} \times \text{Volume of daily urine} \times 1000}{\text{Plasma creatinine (mkmol/l)} \times 1440}$$

$$\text{Plasma creatinine (mkmol/l)} \times 1440$$

Normal values	Serum	Urine
	mkmol/l	mkmol/kg. day
Children	27-62	71-194
Adults		
Man	80-115	124-230
Female	53-97	97-177

**References:**

Polar E, Metcuff J Clin Chem. 1965, v. 11, N 8, 763-770