Manual Procedure

Automated procedure on request

MEDICHEM MIDDLE EAST
Clinical Chemistry Reagents
Liquid Stable Reagents

Cat. No. 14321	R1	3 x	50	ml
For 300 tests	R2	3 x	50	ml
Cat. No. 14322	R1	3 x	100	ml
For 600 tests	R2	3 x	100	ml

Creatinine Jaffé

Kinetic method, without deproteinization

Liquid Reagents

Test principle

Creatinine + Picric acid $\xrightarrow{Alkali}$ Creatinine-picrate Complex (yellow - orange)

Creatinine reacts with picric acid in alkaline conditions to form a colored complex (yellow-orange) that absorbs at 500 nm. The rate of color formation is proportional to the creatinine concentration in the sample.

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Reagent R1		
Sodium Hydroxide	320	mmol/L
Phosphate	50	mmol/L
Reagent R2		
Picric acid	18	mmol/L
Detergent		
Standard : The concentration as indicated on vial.		

Stability and preparation of working reagent

Reagent R1: *liquid.*
Reagent R2: *liquid.*
All reagents are stable up to expiry date given on the label when stored at + 2 ➔ + 25°C.

Working Reagent:
Mix 1 volume of reagent R1 with 1 volume of reagent R2.
Stability: 2 months at 2 - 25°C.

Specimen collection and handling

Non-hemolyzed serum, EDTA or heparinized plasma.
Stability: Serum: 7 days at 2 - 8°C, Urine 24/ hrs: 6 days at 2 - 8°C.
Urine: Dilute (1+49) with double distilled water, and multiply result by 50.

Calibrator / Standard

MediCal U Cat. No. 15011
Creatinine STD. Cat. No. 16091

ortnoc ytilauQl

Meditrol N Cat. No. 15171
Meditrol P Cat. No. 15181

erudecorP

Wavelength	Hg 492 nm (480 - 500 nm)
Spectrophotometer	485 nm
Cuvette	1 cm light path
Temperature	37°C
Measurement	against air or distilled water
Reaction	fixed time

Assay

	Calibrator / Standard	Sample
Sample	--	100 µl
Calibrator / Standard	100 µl	--
Working Reagent	1000 µl	1000 µl
Mix, start stopwatch, read the absorbance (A1) respectively after 20 sec. Then read again the absorbance (A2) after exactly 1 min. of initial reading, ΔA = (A2 – A1).		

Note : The reaction temperature must be constant during the assay.

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$$\text{Conc.}_{\text{Creatinine}}\ (\text{mg/dl}) = \frac{\Delta A_{\text{Sample}}}{\Delta A_{\text{Cal./STD}}} \times \text{Conc.}_{\text{Cal./STD.}}\ (\text{mg/dl})$$

$$\text{Creatinine in Urine /24 hr.} = \frac{\text{Creatinine mg/dl (Urine) x (vol./ L) }_{\textbf{Urine /24 hr.}}}{100}\ (\text{g/24 hr.})$$

$$\text{Creatinine Clearance} = \frac{\text{Creatinine mg/dl (Urine) x (vol./ ml) }_{\textbf{Urine /24 hr.}}}{\text{Creatinine mg/dl (Serum) x 1440}}\ (\text{ml/min.})$$

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Up to 15 mg/dl.
If the result exceeds 15 mg/dl, repeat the test using diluted sample (1+1) with sodium chloride solution (0.9 %) and multiply the result by 2.

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1. A high bilirubin concentration leads to a decrease in the creatinine titer.
2. Hemolysis interferes with the test.
3. Don't use lipemic sera, a high triglyceride level may lead to an overestimation of creatinine result.
4. The determination may be affected by the presence of large quantities of reducing substances.
5. A number of drugs and substances affect creatinine accuracy. See Young, *et al.*

noituacerP

Picric acid is a strong oxidizing agent. Avoid contact with skin. Wipe any spillage, since evaporated picric acid is explosive.

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Serum

New born		< 1.3	mg/dl
≤ 1 wk.		< 1.0	mg/dl
2 - 4 wk.		< 0.5	mg/dl
Adults < 50 yr.	women	< 1.1	mg/dl
	men	< 1.3	mg/dl
Adults > 50 yr.		< 1.4	mg/dl

Urine

Urine Random	90 - 300	mg/dl
Urine /24 hr.	0.6 - 2.0	g/24 hr.

Creatinine Clearance

Men / Women	71 - 151	ml/min

refeRsecne

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7. Young, DS., Effects of Drugs on Clinical Laboratory Tests, fifth edition 2000, AACC Press, Washington, D.C.