CALCIUM

Colorimetric method (o-cresolphtalein)

Cat.No. 101-0338 Size 2 x 100 ml
Cat.No. 101-0450 Size 8 x 100 ml

PRINCIPLE:

Calcium ions form a violet complex with o-cresolphtalein complexone in an alkaline medium. Color intensity is proportional to the calcium concentration.

$$Ca^{2+} + o-Cresolphtalein \xrightarrow{OH^-} \text{violet complex dye}$$

SAMPLE:

Serum, plasma or urine diluted 1:2 with H_2O.
Stability 7 days at +2°C to +8 °C.

REAGENTS:

1. Buffer
   Ethanolamine buffer 500 mmol/L

2. Chromogen
   o-Cresolphtalein complexone 0.62 mmol/L
   8-Hydroxyquinoleine 69 mmol/L

3. Standard
   Calcium Standard concentration see on the vial label

Store at +2 °C to +8 °C.

PREPARATION OF REAGENTS

All the reagents are ready for use.
Stored at +2 °C to +8 °C up to the date of expiration as specified.

PROCEDURES:

Method:	End Point
Wavelength:	570 nm (550-580 nm)
Cuvette:	1 cm light path
Temperature:	25/30/37 °C
Color stability:	40 min.
Zero:	reagent blank

Pipette into test tubes:	Reagent blank	Standard	Sample
Standard	-	20 µl	-
Sample	-	-	20 µl
R1 Buffer	1000 µl	1000 µl	1000 µl
R2 Chromogen	1000 µl	1000 µl	1000 µl
Mix and wait 5 minutes at room temperature. Read absorbance of the sample and standard against the reagent blank. The colour is stable for at least 40 minutes.			

NOTE:

Volumes can be proportionally changed.

CALCULATION:

$$\frac{A_{sample}}{A_{standard}} \times \text{stand.conc.} = \text{mmol/L calcium}$$

EXPECTED VALUES:

Serum	Children	2.1 - 3.5 mmol/L (8.4 - 14.0 mg/dl)
	Adults	2.2 - 2.7 mmol/L (8.8 - 10.8 mg/dl)
Urine		2.5-7.5 mmol/24 h (100 - 300 mg/24h)

LINEARITY:

up to 3.75 mmol/L (15.0 mg/dl)

QUALITY CONTROL:

CONTRO-N	20 x 5 ml	Cat. No. 101-0083
CONTRO-P	20 x 5 ml	Cat. No. 101-0084

NOTES:

1. This test is very sensitive, so that the use of disposable materials is advisable. Glassware should be rinsed in dilute hydrochloric acid and then thoroughly with distilled water.
2. Traces of chelating agents such as EDTA, which may be present in detergents, sometimes prevent the formation of the coloured complex.

REFERENCE:

1. Stern, J. and Lewis W.H.P. Clin.Chim.Acta 2, 576, (1957).