

INTENDED USE : This Reagent kit is intended for "*In Vitro*" quantitative determination of CALCIUM concentration in serum and urine.

CLINICAL SIGNIFICANCE : In the human body 98 - 99% of Calcium is present in bound form in bones and teeth. About 50% of the blood Calcium circulates in ionic form, the other part as bound to proteins. The concentration of ionic Calcium is influenced by the acid-base household of the body. The ratio of ionic / protein-bound Calcium is higher in acidosis and lower in alkalosis. Elevated Calcium levels are found in association with primary hyperparathyroidism, neoplastic diseases (eg. breast cancer, bronchial cancer, pancreatic tumor), osteoporosis, Paget's disease and Addison's disease, overdosage of the vitamins A and D, hyperthyroidism, Lower Calcium values are measured in hypoparathyroidism, disturbances of the absorption, chronic renal failure, nephrotic syndrome, hepatic cirrhosis, acute pancreatitis.

PRINCIPLE : At a neutral pH, the Ca^{2+} forms with arsenazo III a complex, the color intensity of which is directly proportional to the concentration of Calcium in the sample.

REAGENT COMPOSITION :

Reagent T1 : Arsenazo III Reagent

Calcium Standard : 10 mg/dl

MATERIALS REQUIRED BUT NOT PROVIDED :

- Clean & Dry Glassware.
- Micropipettes & Tips.
- Colorimeter or Bio-Chemistry Analyzer.

SAMPLES : Serum free of hemolysis. Urine diluted in ratio of 1:3 with distilled water; adjust to pH 3-4 with 0.1N HCl.

STABILITY OF REAGENT : When Stored tightly closed at room temperature protected from light and contaminations prevented during their use; reagents are stable up to the expiry date stated on the label.

WORKING REAGENT : This Reagent is ready for use.

ASSAY PROCEDURE :

	Blank	Standard	Sample
Reagent	1000 μl	1000 μl	1000 μl
Standard	-	10 μl	-
Sample	-	-	10 μl

Mix and read the optical density (A) after a 5 minute incubation at 37°C.

GENERAL SYSTEM PARAMETERS :

Reaction Type	End Point (Increasing)
Wavelength	630 nm
Light Path	1cm
Reaction Temperature	37°C
Blank / Zero Setting	Reagent
Reagent Volume	1000 μl
Sample Volume	10 μl
Incubation Time	5 Minutes
Standard Concentration	10 mg/dl
Low Normal	8.8 mg/dl
High Normal	10.2 mg/dl
Linearity	15 mg/dl

CALCULATION :

$$\text{Calcium Conc. (Mg/dl)} = \frac{\text{OD of Sample}}{\text{OD of Standard}} \times \text{Conc. of Standard}$$

LINEARITY : Reagent is Linear up to 15 mg/dl. Dilute the sample appropriately and re-assay if Calcium concentration exceeds 16 mg/dl. Multiply result with dilution factor.

REFERENCE NORMAL VALUE : 8.8 - 10.2 mg/dl

QUALITY CONTROL : For accuracy it is necessary to run known controls with every assay.

SENSITIVITY / LIMIT DETECTION : The Lower Limit of detection is 0.4 mg/dl (0.1 mmol /L).

LIMITATION & PRECAUTIONS :

- Storage conditions as mentioned on the kit to be adhered.
- Do not freeze or expose the reagents to higher temperature as it may affect the performance of the kit.
- Before the assay bring all the reagents to room temperature.
- Avoid contamination of the reagent during assay process.
- Use clean glassware free from dust or debris.

BIBLIOGRAPHY :

Bishop, M. L. Dubeb - Von Laufen, J. L., Burtis, Carl Aa and Ashwood, Titz 110, 61.

Mfd. In India By:

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