

# CALCIUM TEST KIT

Arsenazo-III Method (Colorimetric)



<b>Product Code:</b> 10011 / 11011	<b>Reaction Type:</b> End Point with Standard
<b>Pack Size:</b> 25 x 1 ml / 50 x 1 ml	<b>Matrix Target:</b> Human Serum, Plasma & Urine
<b>Storage Temp:</b> Room Temperature (RT)	<b>Wavelength:</b> 620 nm (600–650 nm)

## INTENDED USE & CLINICAL SIGNIFICANCE

**Intended Use:** This liquid diagnostic reagent system is configured for the direct quantitative in vitro determination of Calcium concentrations in human serum, plasma, or processed urine matrices.

**Clinical Significance:** Calcium is critical for skeletal structure, neuromuscular excitability, and blood coagulation. Dynamic homeostasis is regulated by PTH and calcitonin. Hypercalcemia is tied to hyperthyroidism and multiple myeloma; hypocalcemia stems from hypoparathyroidism, nephrosis, and rickets.

## METHOD PRINCIPLE

Calcium ions react directly with Arsenazo-III (1,8-Dihydroxy-3,6-disulpho-2,7-naphthalene-bis(azo)-dibenzene-4,5-dicarboxylic acid) in an alkaline environment to synthesize an intense purple coordination complex:



The addition of 8-Hydroxyquinoline minimizes potential magnesium interference. The total optical density of the complex is evaluated at 620 nm and is directly proportional to the calcium concentration.

## STEP 1: REAGENT CONFIGURATION & PIPETTING BASELINE

Set up clean, dry test tubes designated as Blank (B), Standard (S), and Test (T):

Reagent / Component Line	Blank (B)	Standard (S)	Test (T)
<b>R1 - Calcium Reagent</b>	1000 µl	1000 µl	1000 µl
<b>Calcium Standard (10 mg/dl)</b>	—	10 µl	—
<b>Patient Specimen Matrix</b>	—	—	10 µl

**Operational Directive:** Mix well and incubate at Room Temperature for exactly 1 minute. Measure the absolute absorbance of the Standard ( $A_S$ ) and Test ( $A_T$ ) against the Reagent Blank (B) at 620 nm.

## STEP 2: CALCULATIONS & DATA TRACKING

Serum Calcium (mg/dl) =  $(\text{Abs. of Test} / \text{Abs. of Std.}) \times 10$  (Standard Concentration)

## TECHNICAL PARAMETERS & CLINICAL SUPPORT MATRIX

<b>Universal Safeguards</b>	Professional use only. <b>CRITICAL CONTAMINATION RULE:</b> Traces of chelating agents (e.g., EDTA) will completely prevent colored complex formation. Do not use EDTA, Citrate, or Oxalate anticoagulants. Glassware must be rinsed with 30% HCl followed by high-quality distilled water prior to use to avoid positive errors.
<b>Expected Range</b>	<b>Serum:</b> 8.5 – 11.0 mg/dl <b>Urine (24h):</b> Women: <250 mg/24 hours   Men: <300 mg/24 hours
<b>Analytical Linearity</b>	Linear up to 20 mg/dl (20 mg%). Dilute higher clinical matrices with saline and multiply by the dilution factor.

**Manufactured by: M/s. SAWIN BIOMEDICALS PVT. LTD.**

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