SODIUM TEST KIT

Phosphonazo Chromogenic Method (Colorimetric End Point)

SAWIN BIOMEDICALS PVT LTD.

Product Code: 10048 / 11048 / 12048	**Reaction Type:** End Point with Standard
Pack Size: 25x1 ml / 50x1 ml / 50 ml	**Matrix Target:** Human Serum & Heparinized Plasma
Storage Temp: Room Temperature (RT)	**Wavelength:** 630 nm (Zero: Reagent Blank)

INTENDED USE & CLINICAL SIGNIFICANCE

Intended Use: This liquid diagnostic reagent system is configured for the direct quantitative in vitro colorimetric determination of Sodium (Na^+) concentrations in human serum specimens.

Clinical Significance: Sodium is the primary extracellular cation, critical for maintaining fluid balance, osmotic pressure, and cell membrane charge properties. Homeostatic regulation balance balances dietary intake and renal excretion, driven by aldosterone (which promotes renal conservation) and Atrial Natriuretic Protein (ANP) tracks. Clinical monitoring aids in diagnosing water and electrolyte imbalances, renal clearance abnormalities, and endocrine disorders affecting water retention.

METHOD PRINCIPLE

The method relies on the specific structural interaction of sodium ions with a selected Phosphonazo chromogen in a buffered alkaline environment. This interaction creates an intense, highly stable chromophore complex:

> Sodium Ions (Na^+) + Phosphonazo Chromogen → ***[Alkaline Medium]*** → Chromophore Complex (Absorbance at 630 nm)

The optical density of the resulting colored complex is evaluated photometrically at 630 nm. The absorbance intensity is directly proportional to the sodium concentration in the specimen.

STEP 1: REAGENT CONFIGURATION & PIPETTING BASELINE

Glassware Safety Constraint: All glassware must be pre-treated with 1N Nitric Acid and rinsed with high-purity deionized water before testing. Detergent residues can introduce significant sodium contamination, leading to falsely elevated results.

Reagent / Component Line	Standard (S) Track	Patient Test (T) Track
R1 - Sodium Reagent	1000 µl	1000 µl
Sodium Standard (150 mEq/L)	10 µl	—

Reagent / Component Line	Standard (S) Track	Patient Test (T) Track
Serum Sample (Cleanly processed)	—	10 µl

Operational Directive: Mix completely and incubate at Room Temperature for exactly 5 minutes. Measure the optical densities of the Standard (A_{Std}) and Test (A_{Test}) against the Reagent Blank at 630 nm.

STEP 2: CALCULATIONS & DATA TRACKING

> Sodium Concentration (mEq/L) = ***(Abs. of Test / Abs. of Standard) × 150 (Standard Conc.)***

TECHNICAL PARAMETERS & CLINICAL SUPPORT MATRIX

Universal Safeguards	Professional in vitro diagnostic use. Reagents are ready to use and stable up to the labeled expiration dates when stored at room temperature. Use separate micro pipette tips to avoid contamination between standards and samples.
Expected Range	**Serum:** 135 – 155 mEq/L **Urine (24h excretion):** 40 – 220 mEq/L
Analytical Linearity	Linear up to 180 mEq/L. High samples should be diluted with deionized water, re-assayed, and multiplied by the dilution factor.

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