

SODIUM-L (Single Liquid)

(Phosphonazo III)

CHEMPAK

Last update 09-2020

Ref. CC1-SOD.058, 25 Test
CC1-SOD.58U, 50 Test

INTENDED USE

Reagent kit for quantitative estimation of sodium in human serum.

INTRODUCTION

Sodium is the major cation of extracellular fluid. It plays a central role in the maintenance of the normal distribution of water and the osmotic pressure in the various fluid compartments. The main source of body sodium is sodium chloride contained in ingested foods. Only about one-third of the total body's sodium is contained in the skeleton since most of it is contained in the extracellular body fluids.

DIAGNOSTIC SIGNIFICANCE

Hyponatremia (low serum sodium level) is found in a variety of conditions including, severe polyuria, metabolic acidosis, Addison's disease, diarrhea, and renal tubular disease. Hypernatremia (increased serum sodium level) is found in the following conditions: hyperadrenalism, severe dehydration, diabetic coma after therapy within insulin, excess treatment with sodium salts.

PRINCIPLE

The present method is based on reaction of sodium with a selective chromogen producing a chromophore whose absorbance varies directly as the concentration of sodium in the test specimen.

PRESENTATION

| All reagents to be stored at 2-8°C | No. of Bottles | |
|------------------------------------|----------------|---------|
| | 25 Test | 50 Test |
| • Sodium-L | 25 | 50 |
| • Sodium Standard (150 mmol/L) | 1 | 1 |

PRECAUTIONS

- Materials intended to be used for this test will be perfectly clean since traces of detergent can be interfere with assay.
- Contamination of glassware usually from detergents, result in falsely elevated concentrations. Therefore, glassware should be washed with 0.1N HNO₃ rinsed with high purity deionized water before use.
- Sodium assay is an inverse reaction, hence blank is higher than the standard and test.

PREPARATION OF WORKING REAGENT

Sodium-L is ready to use.

REAGENT STORAGE & STABILITY

Reagents are stored at 2-8°C. The reagents are stable until expiration date indicated on the package label.

SPECIMEN COLLECTION

Serum (Hemolysed sera should not be used)

1. Serum should be separated from the clotted blood without delay to prevent any leakage of sodium from the RBC, which contains 23 times higher concentration of Sodium than the serum.
2. Lipemic samples should be avoided. Turbid or icteric samples produces falsely elevated sodium results.

REACTION PARAMETERS

- Type of Reaction : End Point / Increasing OD
- Wavelength : 630 nm
- Flowcell Temperature : 30°C (RT)
- Cuvette Path Length : 1 cm
- Measurement : Against Reagent Blank
- Reagent Volume : 1.0 ml
- Sample Volume : 10 µl (0.01ml)
- Incubation : 5 minutes at R.T
- Std. concentration : 150 mmol/l

TEST PROCEDURE

| Pipette into test tubes | BLANK | STANDARD | TEST |
|-------------------------|-------|----------|------|
| Reagent (ml) | 1.0 | 1.0 | 1.0 |
| Standard (ml) | - | 0.01 | - |
| Serum (ml) | - | - | 0.01 |

Mix well and incubate for 5 minutes at room temperature (25-30°C) and read absorbance of standard and sample against reagent blank at 630 nm.

TEST RESULTS

$$\text{Sodium in mmol/L} = \frac{\text{Absorbance of Blank} - \text{Test}}{\text{Absorbance of Blank} - \text{Standard}} \times 150$$

NORMAL VALUE

135 - 155 mmol/L

It is strongly recommended that each laboratory establish its own normal range.

LINEARITY

The method is linear up to 200 mmol/L.

REFERENCES

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