

Quantitative determination of Sodium ion in Serum

Only for *In vitro* Diagnostic Use

ORDER INFORMATION

REF	Cont.
SODM 50	50 X 1 ML

CLINICAL SIGNIFICANCE

This test is performed when symptoms of a sodium imbalance are present, or when disorders associated with abnormal sodium levels develop. Sodium (Na⁺) is the major positive ion in the fluids outside of cells. The concentration of sodium inside cells is only about 5 mEq/L compared with 140 mEq/L outside. The sodium content of the blood is a result of a balance between the amount in the food and beverages you consume, and the amount your kidneys excrete. (In addition, a small percent is lost through the stool and sweat.) Many factors affect sodium levels, including the steroid hormone aldosterone, which decreases loss of sodium in the urine. ANP (atrial natriuretic protein) is a hormone secreted from the heart that increases sodium loss from the body. Despite the integral relationship between sodium and water, the body regulates them independent of each other if necessary.

PRINCIPLE

The Present method is based on reaction of sodium with a selective chromogen (phosphonazo III) changing a colour from violet to blue in the presence of chelating agent whose absorbance varies directly as the concentration of sodium in the test specimen

REAGENT COMPOSITION

Reagent I : Sodium Reagent
Standard : Sodium standard (150 mEq/L).

SAMPLE COLLECTION AND PRESERVATION

Freshly drawn non hemolysed serum,heparinised plasma ,CSF or urine is the specimen of choice.
Serum Sodium is stable for at least 24 hours at room temperature and two weeks at 2-8°C.

REAGENT PREPARATION

The reagent is provided in ready to use format.

REAGENT STORAGE AND STABILITY

The reagents are stable until the expiry date as indicated on the bottle label at room temperature (15-30°C).

AUTOMATED PARAMETERS	
Wavelength	630 nm (620 – 650 nm)
Reaction Type	End Point
Cuvette 1 cm	1 cm
Reaction Temperature R.T.	R.T.
Reaction Type	Increasing
Measurement Against	Reagent blank
Sample Volume	10 µl
Reagent Volume	1000 µl
Incubation	5 mins.
Low Normal	135 mmol/L
High Normal	155 mmol/L
Linearity	180 mmol/L

MANUAL ASSAY PROCEDURE

PIPETTE INTO TEST TUBES

	BLANK	STANDARD	TEST
Color Reagent	1000 µl	1000 µl	1000 µl
Standard	-	10 µl	-
Serum	-	-	10 µl

Mix & Incubate for 5 min. at RT. Measure absorbance of Sample (AT) and Standard (AS) against Reagent Blank at 630 nm.

CALCULATION

$$\text{Sodium (mmol/l)} = \text{AT/AS} \times \text{Conc of Standard}$$

LINEARITY

The method is linear to a concentration of 180 mEq/l

REFERENCE VALUES

Serum	135 - 155 mEq/l
-------	-----------------

NOTES

1. NA-p CAL: Proceed carefully with this product because due its nature it can get contaminated easily.
2. Detergents usually contain high sodium concentrations. The equipment (test tubes, pipettes, stoppers, cuvettes) must therefore be rinsed carefully with distilled water. Avoid contamination by traces of sodium.
3. Disposable plastic tubes are recommended for the determination to avoid contaminations.
4. Calibration with the aqueous standard may cause a systematic error in automatic procedures. In these cases, it is recommended to use a serum Calibrator.

QUALITY CONTROL

It is recommended to run a normal and a pathological control serum which is commercially available to verify the performance of the measured procedure. The value of controls should fall within the established limit

BIBLIOGRAPHY

1. Tietz, N.W., Fundamentals of clinical Chemistry, W.b. Saunders Co. Phila, P.A. p. 874.
2. Henry R.F., et, al, Clinical Chemistry Principles and Technics. 2nd Ed, Harper and Row, Harper and Row, Hargersein, M.D. (1974)
3. Maruna RFL., Clin Chem. Acta. 2:581, (1958)
4. Trinder, P:Analyst, 76:596, (1951)