SODIUM REAGENT

Colorimetric method

Quantitative determination of Sodium in serum/plasma
Only fon in vitro diagnostic use

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 ob reaction of sodium with a selective chromogen producing a chromophore(phosphorazo III)chaning a color violet to blue in the presence of chealating agent whose absorbance varies directly as the concentration of sodium in the test specimen.

Reagent
Reagent I: sodium reagent
Standard: sodium standard (150 mEql/L)

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

Reagent preparation
All reagents are ready to use.
Reagent storage and stability
When stored at recommended storage temperature stated on label, reagent is stable until the expiration date stated on the bottle and kit box label.
Warning and precautions
- For in vitro diagnostic use.
- Do not use components beyond the expiration date.
- Do not mix materials from different kit lot numbers.
- Exercise the normal precautions required for handling all laboratory reagents.
- The reagent contains preservative.do not swallow.avoid contact with skin and mucous membranes.
- For detailed information refer material safety data sheet.
- Proceed carefully with this product because due to ist nature it can get contaminated easily.
- Most of the detergents and water softening products used in the laboratories contain chelating agents. A defective rising will invalidate the procedure.

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 volumen	10 µl
Reagent volumen	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 simple (AT) and standard (AS) against reagent blank at 630 nm.

Sample dilutions
- The method is linear upto a concentration of 180 mEq/L
- Dilute samples above this concentrations 1:1 with DI water.
- Repeat assay.multiply the result by 2.

Calculation

Sodiun (mmol/l) = AT/AS x conc of standard

Linearity
The method is linear upto a concentration of 180 mEq/L.Dilute samples above this concentrations 1:1 with DI water.Repeat assay.multiply the result by 2.
Limit of detection: the limit of detection for sodium is 22 mEq/L.

Reference values

Serum	135 – 155 mEq/l

Calibrators and controls
For the calibration of automated photometric systems the commercially avaible suitable multi-calibrator.
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.Each laboratory should establish corrective action in case of deviations in control recovery.

PERFORMANCE CHARACTERISTICS
WITHIN RUN

SAMPLE	MEAN CONCENTRATION	SD	CV %
Norm control	115.39	2.85	2.47%
Path control	165.92	4.73	2.85%

RUN TO RUN

SAMPLE	MEAN CONCENTRATION	SD	CV %
Norm control	116.38	2.93	2.52%
Path control	165.75	3.64	2.20%

Mehtod comparison
A comparison of sodium with a commercially available assay (x)
Using 59 samples gave following result: R^2=0.9800

INTERFERENCE

- Bilirubin: No interference found upto Bilirubin 40mg/dl
- Hemoglobin: No interference found upto 500mg/dl
- Ascorbic acid: No interference found upto 50mg/dl
- Lipemia: No interference found upto 1000mg/dl
- These characteristics have been obtained using an automatic analyzer.results may vary if a different instrument or a manual procedure is used.

Bibliography

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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).

PRESENTACIÓN:

50x1 ml CODIGO: RS29052