PATHOZYME DIAGNOSTICS

LIQVIPATH POTASSIUM

(TPB METHOD)

CAT NO.: POT

Reagent for quantitative estimation of Potassium in human Serum and Plasma.

DIAGNOSTIC SIGNIFICANCE:

Potassium is the principal cation of the intracellular fluid, it is also an important constituent of the extracellular fluid and due to its extracellular function, namely influencing acid - base balance and osmotic pressure, including water retention.

Elevated potassium levels (hyperkalemia) are often associated with renal failure, dehydration shock of adrenal insufficiency. Decreased potassium levels (hypokalemia) are associated with malnutrition, negative nitrogen balance, gastrointestinal fluid losses, and hyperactivity of the adrenal cortex.

PRINCIPLE:

The amount of Potassium is determined by using Sodium Tetraphenylboron in a specifically prepared mixture to produce a colloidal suspension (Turbidity). The amount of turbidity is directly proportional to the Potassium concentration in sample & measured photometrically at 630 nm (600-650nm or with RED filter).

Sodium-Tetraphenylboron + Potassium ⟶ White Turbidity

SPECIMEN COLLECTION:

Serum is recommended. Serum should be separated from the clot immediately as soon as possible. Plasma from anticoagulants not containing Potassium is also suitable.

KIT PRESENTATION:

Pack Size	25 Test	50 Test	2 X 50 ml
Potassium Reagent	25 X 1 ml	50 X 1 ml	2 X 50 ml
Potassium Std. (5 mMol/L)	1 X 01 ml	1 X 01 ml	1 X 02 ml

REAGENT STORAGE & STABILITY:

Potassium reagent and standard are stable at 2-8^{0}C until the expiry date indicated on the label.

ASSAY PARAMETERS:

Reaction	**: End Point**	**Sample Volume**	**: 20 µl**
Wavelength	**: 630 nm (600-650)**	**Reagent Volume**	**: 1.0 ml**
Zero Setting	**: Distilled Water**	**Standard Conc.**	**: 5 mMol/L**
Incub. Temp.	**: RT**	**Linearity**	**: 15 mMol/L**
Incub. Time	**: 5 minutes**	**Unit**	**: mMol/L**

PROCEDURE:

Pipette into TT	Standard	Test
Potassium Reagent	1.0 ml	1.0 ml
Potassium Standard (5 mMol/L)	20 µl	--
Sample (Test)	--	20 µl

Mix and incubate at RT for 5 minutes. Read absorbance of Standard (**S**) and Test (**T**) after 5 minutes against **distilled water** at 630 nm (600-650 nm or with RED filter).

STABILITY OF FINAL REACTION MIXTURE:

The Turbidity of final reaction mixture is stable for 6 hours.

CALCULATION:

Potassium concentration (mMol/L) = Abs T ÷ Abs S X 5

NORMAL VALUES:

Serum **:** 3.5 - 5.5 mMol/L

Plasma **:** 4.0 - 4.8 mMol/L

Each laboratory establishes its own reference range.

LINEARITY:

The method is linear up to **15 mMol/L**. If values exceed this limit, dilute the sample suitably with **Pure Distilled Water** and repeat the assay. Apply dilution factor to obtain the test results.

REFERENCES:

1. Henry R.F. et. Al., Clinical Chemistry Principle and Techniques, 2nd Ed., Harper and Row, Hagerstown, M.D., (1974).
2. Tietz, N.W, Fundamentals of Clinical Chemistry, W.B., Saunders Co., Philadelphia, PA, p.874
3. Terri. A.E., and Sesin, P.G., Am. J. Clin. Path, 29:86 (1958).

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PATHOZYME DIAGNOSTICS
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PATHOZYME DIAGNOSTICS

LIQVIPATH SODIUM

(COLORIMETRIC METHOD)

CAT NO.: SOD

Reagent kit for quantitative estimation of Sodium in Serum or Plasma.

DIAGNOSTIC SIGNIFICANCE:

Sodium is the major cation of extra - cellular 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 extra – cellular body fluids.

Hyponatremia **(low serum sodium level)** is found in a variety of conditions including the following: severe polyuria, metabolic acidosis, addision's disease, diarrhea, and renal tubular disease.

Hypernatremia **(increased serum sodium level)** is found in the following conditions: hyperadrenalism, severe dehydration, diabetic comma after therapy within insulin, excess treatment with sodium salts.

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 chealating agent whose absorbance varies directly as the concentration of Sodium in the sample and measured at 630 nm (600-650nm or with RED filter).

SPECIMEN COLLECTION:

Serum or heparinized Plasma.

Sodium sample is stable for 2 weeks at 2 - 8°C.

KIT PRESENTATION:

Pack Size	25 Test	50 Test	2 X 50 ml
Sodium Reagent	25 X 1 ml	50 X 1 ml	2 X 50 ml
Sodium Std. (150 mMol/L)	1 X 01 ml	1 X 01 ml	1 X 02 ml

PRECAUTIONS:

As Sodium is a very widely distributed ion, care should be taken to avoid any contamination. All glassware being used for the test should first be rinsed with 1% or 0.1N HNO and then with good quality deionized / distilled water before use.

REAGENT STORAGE & STABILITY:

Sodium Reagent and Standard are stable at 2-8^{0}C until the expiry date indicated on the label.

ASSAY PARAMETERS:

Reaction	**: End point**	**Sample Vol.**	**: 10 µl**
Wavelength	**: 630 nm (600-650)**	**Reagent Vol.**	**: 1.0 ml**
Zero Setting	**: Reagent Blank**	**Std Conc.**	**: 150 mMol/L**
Incub. Temp.	**: R T**	**Linearity**	**: 180 mMol/L**
Incub. Time	**: 10 minutes**	**Unit**	**: mMol/L**

PROCEDURE:

Pipette into TT	Blank	Std	Test
Sodium Reagent	1.0 ml	1.0 ml	1.0 ml
Sodium Standard	--	10 µl	--
Sample (Test)	--	--	10 µl

Mix and incubate at RT for 10 minutes. Read absorbance of Standard (**S**) and Test (**T**) after 10 minutes against Reagent Blank at 630 nm (600-650nm or with RED filter).

CALCULATION:

Sodium conc. (mMol/L) = Abs T ÷ Abs S X 150

NORMAL VALUES:

Serum / Plasma **:** 135 – 155 mMol/L

LINEARITY:

This method is linear up to **180 mMol/L**. For samples with values higher than 180 mMol/L dilute the samples with **Pure Distilled Water** and repeat the assay. Apply proper dilution factor.

REFERENCES:

1. Tietz, N.W., Fundamentals of clinical Chemistry, W.B. SaundersCo. 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).

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