POTASSIUM-L (Single Liquid)

(TPB)

CHEMPAK

Last update 09-2020

Ref. CC1-POT.050, 25 Test
CC1-POT.50U, 50 Test

INTENDED USE

For the colorimetric determination of potassium in human serum and plasma.

INTRODUCTION

Potassium is the principle cation of the intracellular fluid. It is also an important constituent of the extracellular fluid due to its influence on muscle activity. Its intracellular function parallels that of 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.

In previously described colorimetric methods for determination of potassium or sodium, prior deproteinization of serum or plasma specimen was required. Our improved method is the direct spectrophotometric measurement of potassium in blood or plasma.

PRINCIPLE

The amount of potassium is determined by using sodium tetrapheylboron in a specifically prepared mixture to produce a colloidal suspension.

PRESENTATION

All reagents to be stored at 2-8°C	No. of Bottles	
	25 Test	50 Test
• Potassium Liquid	25	50
• Potassium Standard (5mmol/l)	1	1

PRECAUTION

1. It is essential that all the glasswares used for assay should be potassium-free. Glasswares should be soaked in 0.1N HNO_3 or 1N HCl & rinsed thoroughly with potassium-free deionized water.
2. Potassium Reagent set is for *in-vitro* diagnostic use" only.
3. Sodium Tetraphenylboron is a corrosive substance. Avoid skin contact or ingestion.
4. DO NOT PIPETTE BY MOUTH. Flush with water if contact occurs.

PREPARATION OF WORKING REAGENT

Potassium-L reagent is ready to use.

REAGENT STORAGE AND STABILITY

All the reagents included in the kit are stable at 2-8°C until the expiry date indicated on the label.

SPECIMEN COLLECTION

1. Serum is recommended.
2. Potassium in serum is stable for at least 1 week at 2-8°C.
3. Specimen for serum potassium analysis should be free from hemolysis since the high concentration of potassium released from red cells significantly increase the serum levels and this invalidates the test results. Blood specimens should also be separated from the red cells shortly after collection to prevent any leakage of potassium from the intracellular into the intracellular fluid. Plasma form anticoagulants not containing potassium is also suitable.

REACTION PARAMETERS

Type of reaction	:	End Point
Wavelength	:	578 nm (570-580nm)
Flowcell Temperature	:	30°C
Incubation	:	5-10 min. at 30°C
Std. Concentration	:	5 mmol/L
Sample volume	:	25 µl (0.025 ml)
Reagent volume	:	1. 0 ml

TEST PROCEDURE

For instruments with 1.0 ml/0.5 ml cuvette capacities or flow cells requirements.

Pipette into Test Tubes	BLANK	STANDAR	TEST
Reagent (ml)	1.0	1.0	1.0
Standard (ml)	-	0.025	-
Sample (ml)	-	-	0.025

Mix and incubate at 30°C for 5-10 min. and read absorbance of test and standard against reagent blank at 578 nm (570-580 nm).

STABILITY OF FINAL REACTION MIXTURE

The reaction mixture is stable for one hour when protected from direct light.

TEST RESULTS

Abs. = Absorbance
STD = Standard

$$\text{Potassium Conc (mmol/L)} = \frac{\text{Abs. of Test}}{\text{Abs. of Standard}} \times 5$$

LIMITATIONS FOR INTERFERENCE

Turbid or icteric samples produce falsely elevated results. Bilirubin above 40 mg/dl and Urea Nitrogen above 80 mg/dl will produce elevated results. Hemolyzed sera produce elevated results. Sera containing high levels of ammonia should be avoided.

NORMAL VALUES

3.6– 5.5 mmol/L.
It is strongly recommended that each laboratory establish its own normal range.

LINEARITY

The method is linear upto 10 mmol/L.

REFERENCES

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3. Terri, A.E., and Sesin, P.G., Am.J. Clin. Path, 29:86 (1958).

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