POTASSIUM

(Colorimetric Method)

CHEMCount

INTRODUCTION

Potassium is fairly abundant in the body with a total content of about 135 grams (3500 mmol). Most, 98% to be exact, is found inside the cells, while the remaining 2% or about 2700mg is found outside the cells, more specifically in blood serum. Hypokalemia (potassium level below 3.6 mEq/L) is a serious condition that has been implicated in many aspects of cardiovascular disease including artrial fibrillation, stroke, heart attack, hypertension, and sudden cardiac death (SCD). Hypokalemia is also a strong predictor of early death in heart failure. Serum potassium levels can increase in response to kidney disease, medication use, adrenal gland disorders and dehydration. The most common cause of hyperkalemia is kidney disease. Medications that might cause elevated serum potassium levels include blood pressure medications knows as ace inhibitors or ARB's, fluid pills that are "potassium sparing", and anti-inflammatory medications (NSAID's) Symptoms of elevated serum potassium levels include muscle weakness, palpitations, EKG changes and tingling. When symptoms of hyperkalemia occur, potassium levels may already be dangerously high.

METHOD PRINCIPLE

Potassium reacts with sodium tetraphenyl boron in a specially prepared buffer to form a colloidal suspension. The amount of the turbidity produced is directly proportional to the concentration of potassium in the serum.

KIT CONTENTS

Reagent Name	Pack Size	Pack Size
R1 - Potassium Reagent	25 x 1 ml	2 x 50 ml
R2 - Standard	2 ml	2 ml

Please refer the standard value mentioned in the vial.

WORKING REAGENT PREPARATION AND STABILITY

The reagent is ready to use.

The reagent is stable up to the kit expiry date printed on the package when stored at **2-8°C** Protect from contamination.

WARNINGS AND NOTES

Product for in vitro diagnostic use only.

ADDITIONAL EQUIPMENT

- Automatic analyzer or photometer able to read at 630 nm
- Thermostat at 37°C
- General laboratory equipment

SPECIMEN

Serum free from hemolysis.

PROCEDURE

These reagents may be used both for manual assay (Sample Start and Reagent Start method) and in several automatic analyzers.

Programme Sheets are available on request.

Wavelength	630 nm
Temperature	37°C
Cuvette	1 cm

Pipette into the cuvette:

Reagent	Standard (S)	Test (T)
R1 Potassium Reagent	1000 µl	1000 µl
Bring upto the temperature of determination, Then add		
R2 - Standard	50 µl	
Sample		50 µl

Mix well and incubate for **5** minutes. Read the absorbance of test sample A(T) and standard sample A(S) **against Water blank (B).**

CALCULATION

Potassium concentration = A(T) / A(S) x standard concentration

REFERENCE VALUES

3.50 - 5.50 mmol/L

It is recommended for each laboratory to establish its own reference ranges for local population.

QUALITY CONTROL

To Ensure adequate quality control, each run should include assayed normal and abnormal controls. If commercial controls are not available it is recommended that known value samples be aliquoted, frozen and used as controls.

PERFORMANCE CHARACTERISTICS

Linearity: up to 9 mmol/L . For higher concentration of potassium dilute the sample with distilled water and repeat the assay. Multiply the result by dilution factor.

WASTE MANAGEMENT

Please refer to local legal requirements.

LITERATURE

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 edition Ed, Harper and Row, Hargersein, M.D. (1974)
3. Maruna RFL., Clin Chem, Acta. 2:581, (1958)
4. Trinder, P: Analyst, 76:596, (1951)

SYSTEM PARAMETERS

Method	End Point
Wavelength	630 nm
Zero Setting	Water Blank
Temperature Setting	37° C
Incubation Temperature	37° C
Incubation Time	5 mins
Delay Time	-----
Read Time	-----
No. of Reading	-----
Interval Time	-----
Sample Volume	0.05 ml (50 ul)
Reagent Volume	1.0 ml (1000 ul)
Standard Concentration	Refer Standard vial
Units	mmol/l
Factor	-----
Reaction Slope	Increasing
Linearity	9 mmol/l

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