

SAFETY PRECAUTIONS AND WARNINGS:

This reagent is for *In vitro* diagnostic use only.

INTENDED USE:

This reagent kit is intended for "*in vitro*" quantitative determination of **POTASSIUM** concentration in serum.

CLINICAL SIGNIFICANCE:

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 2700 mg 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 atrial 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 known 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.

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.

REAGENT COMPOSITION:

Reagent 1: Potassium reagent
Potassium standard: 5 mEq/L

MATERIALS REQUIRED BUT NOT PROVIDED:

- Clean & Dry Glassware.
- Micropipettes & Tips.
- Colorimeter or Bio-Chemistry Analyzer.

SAMPLES:

Serum free of hemolysis.
Separate serum from the clot as soon as possible as potassium may leach from the RBC'S which have a very high potassium level.

STABILITY OF REAGENT:

When Stored tightly closed at 2 to 8°C temperature protected from light and contaminations prevented during their use; reagents are stable up to the expiry date stated on the label.

WORKING REAGENT:

The Reagent is ready for use.

GENERAL SYSTEM PARAMETERS:

Reaction type	End Point
Wave length	630nm
Light Path	1 Cm
Reaction Temperature	37°C
Blank / Zero Setting	Reagent
Reagent Volume	1ml
Sample Volume	20 µl
Incubation Time	5 Minutes
Standard Concentration	5.0 mEq/L
Low Normal	3.6 mEq/L
High Normal	5.5 mEq/L
Linearity	7.0 mEq/L

ASSAY PROCEDURE:

	Blank	Standard	Sample
Reagent	1ml	1ml	1ml
Standard		20 µl	
Sample			20 µl

Mix and read the optical density (A) after a 5- minute incubation at 37°C.

CALCULATION:

$$\text{Potassium Conc. (mEq/L)} = \frac{\text{OD of Sample}}{\text{OD of Standard}} \times \text{Conc. of Standard}$$

LINEARITY:

Reagent is Linear up to 7 mEq/L.
Dilute the sample appropriately and re-assay if Potassium concentration exceeds 7 mEq/L. multiply result with dilution factor.

REFERENCE NORMAL VALUE:

3.6-5.5 mEq/L

QUALITY CONTROL:

For accuracy, it is necessary to run known controls with every assay.

LIMITATION & PRECAUTIONS:

1. Storage conditions as mentioned on the kit to be adhered.
2. Do not freeze or expose the reagents to higher temperature as it may affect the performance of the kit.
3. Before the assay bring all the reagents to room temperature.
4. Avoid contamination of the reagent during assay process.
5. Use clean glassware free from dust or debris.

BIBLIOGRAPHY:

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