



Swemed DIAGNOSTICS

POTASSIUM KIT

(Turbidity Method)

INTRODUCTION & PRINCIPLE:

Potassium is the principle cation of the intracellular fluid. It is also an important constituent of the extra cellular fluid due to its influence on muscle activity. Its intracellular function parallels that of its extra cellular function, namely influencing acid-base balance and osmotic pressure, including water retention.

The amount of Potassium is determined by using sodium tetraphenylboron in a specifically prepared mixture to produce a turbid suspension, the turbidity of which is proportional to Potassium concentration.

REAGENTS & STABILITY:

1. Potassium Reagent R1: Ready – To – Use
2. Potassium Standard : Ready – to – Use

SPECIMEN COLLECTION AND STORAGE:

1. Serum is the sample of choice.
2. Potassium in serum is stable for at least 2 weeks at 2 – 8° C.
3. Specimens 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 extra cellular fluid. Plasma from anticoagulants not containing Potassium is also suitable.

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.

PROCEDURE:

WAVE LENGTH	: 630 nm
TEMPERATURE	: RT
INCUBATION	: 5 mins.
CUVETTE	: 10 mm path length
STANDARD	: 4mEq/L (refer the vial label)

Pipette into cuvettes	Macro	Semi-Micro
Reagent R1	1000 ul	500 ul
Sample/STD	20 ul	10 ul

Mix and incubate for 5 minutes and read the absorbance at 620nm against reagent blank immediately.

LIMITATIONS:

Our method has been found to be linear between 8 mEq/L. It is important to note that our method may not produce accurate results when used with Potassium calibrator other than that provided by us. Other products contain preservatives that interfere with this procedure and tend to produce falsely elevated results. Samples with values above 8 mEq/L should be diluted 1:1 with normal saline, re-assayed and results multiplied by two.

CALCULATION:

Abs. = Absorbance; STD = Standard

$$\frac{\text{Abs. of sample}}{\text{Abs. of STD}} \times \frac{\text{Conc. of STD (mEq/L)}}{\text{Conc. (mEq/L)}} = \text{Potassium}$$

Note: Some commercially available control sera contain preservatives that may give falsely elevated results. In such cases, use laboratory controls with known values.

EXPECTED VALUES : 3.4 – 5.3 mEq/L
LINEARITY : 8 mEq/l

REFERENCE

1. Terri, A.E. and Sesin, P.G. Am. J. Clin. Path. 29:86 (1978)
2. Tietz, N. W., "Fundamentals of Clinical Chemistry", W.B., Saunder Co., Philadelphia, PA, p. 874.