



MAGNESIUM

INTRODUCTION AND PRINCIPLE:

It is believed that the parathyroid gland may be involved in regulating Magnesium in Plasma. Decreased levels have been observed in case of diabetes, alcoholism, diuretics, hyperthyroidism, malabsorption, hyperalimentionation, myocardial infarction, congestive heart failure and liver cirrhosis. Increased serum Magnesium levels have been found in renal failure, diabetic acidosis, Addison's disease and Vitamin D intoxication.

Direct Magnesium determinations employing EGTA serves to complex and prevent calcium interference and a surfactant eliminates the effect of protein. The color produced is proportional to the Magnesium concentration.

REAGENTS AND STABILITY:

1. Magnesium Reagent : Ready – To – Use
2. Magnesium Standard : Ready - To – Use

Avoid Contamination of Ready – To – Use Reagent. Always use fresh pipette tips. Keep always the caps tightly closed.

The reagents are ready for use and stable until the expiry date mentioned on the label if stored at 2– 8^o C.

PROCEDURE:

WAVD LENGTH	: 520 nm
TEMPERATURE	: 37 ^o C
CUVETTE	: 10 nm path length
INCUBATION	: 5 mins.
STANDARD	: 2 mg/dL (refer the vial Label)

Pipette into cuvettes	Macro	Semi-Micro
Reagent	1000 ul	500 ul
Sample/Standard/Blank	10 ul	5 ul

Mix & incubate for 5 minutes and read the absorbance of all the cuvettes against reagent blank at 510-550 nm within 30 mins.

CALCULATIONS:

$$\frac{\text{Abs. of sample}}{\text{Abs. of Standard}} \times \text{Conc. of Std.} = \text{Conc. of Magnesium in mEq/L}$$

NOTE:

1. If it is necessary to report Magnesium in mg/dl instead of mEq/L, multiply the mEq/L value by 1.215 to obtain Magnesium values in mg/dl.
2. Citrate and oxalate must not be used.

EXPECTED VALUES : 1.5 – 2.5 mEq/L

LINEARITY : 5.0 mEq/L. (6 mg/dl)

REFERENCES:

1. Henry, J.B.: Clinical Diagnosis and Management; 17th ed., W.B. Saunders Co., Philadelphia (1984), p. 157.
2. Faulkner, W.R.: Selected Method for the Small Clinical Chemistry Laboratory, "Magnesium in Biological Fluids". AACC Washington, D.C. (1982) p. 277.
3. Peace, A.J. and Kaplan, L.A., Methods in Clinical Chemistry, p. 1031.
4. Baginski, E.S., Marie, S.S. Karcher R.E. and Zak, B. in selected methods of Clinical Chemistry, Vol, 9, P 277, Amer. Assn. For Clin. Chem., Washington, D.C. 1982.