

Reagent for quantitative estimation of Magnesium in human Serum and Plasma.

DIAGNOSTIC SIGNIFICANCE:

Magnesium is one of the most abundant cations in the body and is essential to many physiological processes. Approximately one half of the body Magnesium is present in the bone, most of the soft tissues and blood cells with a small amount present in the blood. Decreased levels have been observed in cases of diabetes alcoholism, diuretics, hyperthyroidism, malabsorption, myocardial infarction, congestive heart failure and liver cirrhosis. Increased magnesium serum levels have been found in renal failure, diabetic acidosis, Addison's disease and Vitamin D intoxication.

PRINCIPLE:

Magnesium ions form a purple colored complex with Xylidyl Blue in alkaline solution. The intensity of the purple color is proportional to the Magnesium concentration.



SPECIMEN COLLECTION:

Serum of Heparinised Plasma. Don't use citrate oxalate or EDTA as anticoagulants.

FOR URINE:

Twenty four hour urine is collected & should be acidified to a pH 2-3 by the addition of approx 10 to 15 ml conc. HCl and diluted 1+4 with Distilled Water before use. Multiply results by 5.

KIT PRESENTATION:

Pack Size	25 Test	50 Test	2 X 50 ml
Magnesium Reagent	25 X 1 ml	50 X 1 ml	2 X 50 ml
Magnesium Std. (2 mg/dl)	1 X 01 ml	1 X 01 ml	1 X 02 ml

REAGENT STORAGE & STABILITY:

Magnesium reagent and standard are stable at 2-8°C until the expiry date indicated on the label.

PRECAUTION:

Care must be taken to avoid magnesium contamination. The use of magnesium free disposable plastic tubes or cuvettes is strongly recommended. If glassware is used, it should be soaked in dilute HCl or a strong laboratory cleanser and thoroughly rinsed with distilled or deionized water.

ASSAY PARAMETER:

Reaction : End point	Sample Volume : 10 µl
Wavelength : 510 nm (505-520)	Reagent Volume : 1.0 ml
Zero Setting : Reagent Blank	Std Conc. : 2 mg/dl
Incubation : 5 minutes at 37°C	Linearity : 10 mg/dl

PROCEDURE:

Pipette into TT	Blank	Std.	Test
Magnesium Reagent	1.0 ml	1.0 ml	1.0 ml
Magnesium Standard (2 mg/dl)	--	10 µl	--
Sample (Test)	--	--	10 µl

Mix and incubate at 37°C for 5 minutes. Read absorbance of Standard (S) and Test (T) after 5 minutes against Reagent Blank at 510 nm (505-520 nm).

The color of final reaction mixture is stable for 1 hour.

CALCULATION:

Serum/ Plasma Magnesium conc. (mg/dl) = Abs T ÷ Abs S X 2

Unit Conversion

mg/dl X 0.4114 = mMol/L

mg/dl X 0.82 = mEq/L

NORMAL VALUES:

Serum/Plasma : 1.6 – 2.6 mg/dl

Urine (mg/24hr.) : (60-210 mg/24 hr.)

Each laboratory should establish its own reference range.

LINEARITY:

The method is linear up to 10mg/dl. When values exceed this range samples should be diluted 1+4 with NaCl solution (9 g/L) and the result multiplied by 5.

REFERENCES:

1. Young DS. Effects on Clinical Laboratory tests. Third edition 1990, 3:57-9.
2. Tietz NW, Fundamentals of Clinical Chemistry, WB Saunders CO. Philadelphia 1976; 16:885.

IFU No.: 035/00 Rev. No.: 00/120723

