



MAGNESIUM

(Xylidyl Blue Method)

Liquid Reagent

INTENDED USE:

This reagent kit is used for *in-vitro* quantitative determination of Magnesium in human serum and plasma.

TEST PRINCIPLE:

At Alkaline pH magnesium reacts with Xylidyl blue and produce a chelating red coloured compound. The red increasing or the blue decreasing colours are proportional to magnesium concentration.

KIT CONTENTS:

Reagent 1: Magnesium Reagent

Reagent 2: Magnesium Standard (2.5 mg/dl)

Product Insert : 01 No.

PREPARATION OF THE WORKING REAGENT:

All the reagents are ready to use.

STORAGE AND STABILITY:



All the reagent should be stored at 2 – 8°C and are stable till the expiry date mentioned in the labels.

SPECIMEN COLLECTION AND STORAGE:

Unhemolysed serum is recommended. When using plasma avoid EDTA which may increase the results.

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. After use store the kit contents immediately as 2-8°C.
5. Avoid contamination of the reagents during assay process.
6. Use clean glassware and plastic ware free from dust or debris.

TEST PRECEDURE (Automated):

Refer to specific instrument application instructions.

TEST PRECEDURE (Manual):

Pipette into clean dry test tubes labelled Blank (B), Standard (S) and Test (T) as follows:

Wavelength : 505 nm

Temperature : 37°C

Cuvette : 1 cm

Pipette into Test Tube	Blank	Standard	Test
Magnesium Reagent-1	1.0 ml	1.0 ml	1.0 ml
Standard	-	10 µl	-
Sample	-	-	10 µl

Mix well and incubate for 5 minutes at 37°C.

Read the absorbance of Standard (A_s), and Tests (A_T) against Blank (A_B) at 505 nm.

CALCULATIONS:

Magnesium in mg/dl

$$\frac{\text{Abs of } A_T - A_B}{\text{Abs of } A_s - A_B} \times 2.5 \text{ (Conc. of Standard)}$$

NORMAL VALUES*:

1.9 – 2.5 mg/dl

*It is recommended that each laboratory should establish its own range representing its patient population.

PERFORMANCE:

Linearity: 5.0 mg/dl

CLINICAL SIGNIFICANCE:

Magnesium is clinically significant because it functions as a cofactor for over 300 biochemical reactions, supporting normal nerve and muscle function, bone strength, and a steady heartbeat. Low magnesium levels are associated with conditions like high blood pressure, cardiovascular disease, and type 2 diabetes.

AUTOMATED APPLICATIONS:

Magnesium reagent can be used in several automated analyzers. Application sheets for use on specific semiautomatic/automatic analyzers are available on request.

Input parameters for semiautomatic/automatic analyzers are given below:

INPUT PARAMETERS	VALUES
Type of reaction	End Point
Wavelength	505 nm
Incubation time	5 minutes
Standard Concentration	2.5 mg/dl
Units	mg/dl

Upper Normal Value	2.5 mg/dl
Lower Normal Value	1.9 mg/dl
Linearity	5 mg/dl
Reagent volume	1.0 ml
Sample/Standard volume	10 µl
Reaction Slope	Increasing

QUALITY CONTROL:

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

REFERENCES:

1. Bohuen C.Clin, Acta 155 (1957).
2. Mann, C Land Yoe, JH., Anal Chem 28., 202 (1955).
3. Fragay DA., Casey Clin, Biochem., 791 (1974).