

# ANA BIO CLR Magnesium

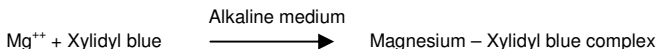
## (Xylidyl blue Method)

### Intended Use

Magnesium is used for the quantitative determination of magnesium concentration in serum and plasma based on the colorimetric Xylidyl blue method.

### Principle

Magnesium ions react with xylidyl blue in an alkaline medium to form purple coloured complex. The intensity of the purple colour formed is directly proportional to the magnesium concentration.



**Note;** Calcium is excluded from the reaction by complexing with Ethylene Glycol Tetraacetic Acid.

### Reagents provided

1. Reagent
2. Standard – 2 mg/dl

### Reagent storage and stability

The reagent kit should be stored at 2 - 8 °C and is stable till the expiry date indicated on the label. Contamination of the reagent should be strictly avoided.

### Specimen collection and preservation

Blood should be collected in a clean dry container. Serum is preferred but heparinized plasma can also be used. EDTA plasma and haemolysed specimen should not be used. Magnesium is stable in serum or plasma for 7days when stored at 2-8 °C and 1 year at - 20 °C. Centrifuge samples containing precipitate before performing the assay.

### Assay guidelines for Analyzer

Reaction type	End Point
Reaction slope	Increasing
Incubation time	5 minutes at 37 °C.
Wavelength	546 nm (520 – 570 nm)
Zero setting with	Reagent
Blank absorbance limit	≥1.100
Sample Volume	10 µl (0.01ml)
Reagent Volume	1000 µl (1.0ml)
Standard Concentration	2 mg/dl
Factor Calculation	2 mg/dl ÷ Abs. of Standard
Linearity	Up to 5 mg/dl

### Assay guidelines for Manual procedure

Bring the reagent and standard to room temperature before performing the assay.

Reagents	Blank	Standard	Sample
Reagent	1000 µl (1.0 ml)	1000 µl (1.0 ml)	1000 µl (1.0 ml)
Standard	-	10 µl (0.01 ml)	-
Sample	-	-	10 µl (0.01 ml)

1. Mix thoroughly and incubate at 37°C for 5 minutes.
2. Read the absorbance against reagent blank at 546 nm.
3. The final colour is stable for 30 minutes (when protected from light). Do not read the test after 30 minutes.

### Calculation

$$\text{Mg}^+ \text{ Con. (mg/dl)} = \frac{\text{Sample OD}}{\text{Std. OD.}} \times \text{Con. of Std.}$$

**Note:**

- Avoid the contamination of reagent into standard during its repeated use.
- Glassware is the most common source of contamination in the Magnesium assay. It is strongly recommended that the glassware required for assay is rinsed with 0.1 N HCl followed by repeated rinsing with de-mineralized water.
- The specimen and reagent volumes can proportionally be altered without affecting the final results.

**Normal Range**

Men	1.8 - 2.6 mg/dl
Women	1.9 - 2.5 mg/dl
Children	1.5 - 2.3 mg/dl
Neonates	1.2 - 2.6 mg/dl

**Note:** Expected range varies from population to population. It is therefore recommended that each laboratory should establish its own normal range.

**Limitation**

1. If Magnesium value exceeds 5 mg%, then dilute the specimen suitably with normal saline and repeat the assay. In such case the result obtained should be multiplied with the dilution factor to obtain the correct magnesium value.
2. Do not use haemolysed samples. Haemolysis interferes due to magnesium released from erythrocytes.


**Quality Control**

To ensure adequate quality control, it is recommended that each batch should include normal and abnormal commercial reference control serum. It should be realized that the use of quality control material checks both instrument and reagent functions together. Factors which might affect the performance of this test include proper instrument function, temperature control, cleanliness of glassware, and accuracy of pipetting.

**References**

1. Tietz NW, ed. **Clinical Guide to Laboratory Tests**, 3<sup>rd</sup> ed. Philadelphia, Pa: W.B. Saunders Company, 1995:380-382.
2. Endres DB, Rude RK, Mineral and Bone Metabolism in; Burtis CA, Ashwood ER, editors, **Teitz Text book of Clinical Chemistry 3<sup>rd</sup> ed. Philadelphia**, Pa; W.B. Saunders Company 1999,p. 1395-1457.
3. Mann CK, Yoe JH. Spectrophotometric Determination of Magnesium with 1-Azo-2-hydroxy-3-(2, 4-dimethyl-carboxanilido)-naphthalene-1-(2-hydroxy benzene) **Anal Chem. Acta** 1957; 16:155-60.
4. Farrell EC "Magnesium" in Clinical Chemistry. Theory, Analysis and Correlation. The CV Mosby Company. Kaplan LA, Pesce AJ (Ed) 1984; Chapter 55; 1065-70.

**Symbols**

<b>IVD</b>	In Vitro Diagnostics.		Caution.		Keep away from sun light.		Date of Manufacture.
<b>LOT</b>	Batch No.		Read Instructions.		Fragile.		Product Expiry Date.
<b>CONT</b>	Content.		Storage Temperature.		Keep Dry.		Manufactured By.
<b>REF</b>	Catalogue No.						

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