

MAGNESIUM

Colorimetric Method with xylidyl blue
Liquid Reagent ready to use

REF 13220120 R 6X20mL

IVD

PRODUCT CODE: MAG-6D24

INTENDED USE

Quantitative determination of magnesium in serum, plasma and urina.

PRINCIPLE

With xylidyl-blue dye, magnesium forms a blue-violet complex, whose color intensity is proportional to the magnesium concentration in the sample.

SAMPLE

Serum, heparinized plasma (do not use EDTA). Avoid hemolyzed samples. Remove serum from clot as soon as possible.

Urine/24h adjusted to pH 3-4 with hydrochloric acid. Dilute the urine sample 1:5 with distilled water and multiply the result by 5.

KIT COMPONENTS

Reagent (A) Mg Volume = 50/100 ml	Good buffer Xylidyl blue EGTA Sodium azide	100 mM 0.1 mM 0.1 mM 10 mM
Standard Mg Volume = 10 ml	Magnesium solution	Value on label

The reagents are stable until the expiration date indicated on the label if stored at 15-25°C and protected from light. Do not use over expiry date.

Once opened reagents are stable for 2 months at 2-8°C if contamination is avoided. Do not freeze.

Keep bottles closed when not in use.

REAGENT PREPARATION

Liquid Reagent, ready to use.

PRECAUTIONS AND WARNINGS

Reagents may contain some non-reactive and preservative components. It is suggested to handle carefully it, avoiding contact with skin and swallow.

Use the normal precautions required in the laboratory.

Dispose of waste according to local laws.

PROCEDURE

Wavelength:	512 nm (500 – 520)
Lightpath:	1 cm
Temperature:	25, 30, 37°C
Reading:	against blank reagent
Method:	Increasing End Point
Sample/Reagent:	1/150

pipette:	blank	sample	standard
Reagent (A)	300 µl	300 µl	300 µl
water	3 µl		
sample		3 µl	
standard			3 µl

Mix, incubate at 25, 30, 37°C for 3 minutes. Read the absorbance of the standard (As) and the sample (Ax) against blank reagent.

RESULTS CALCULATION

Serum, plasma:

Magnesium mg/dl = $Ax/As \times 2.5$ (standard value)

Urine:

Magnesium mg/24h = $Ax/As \times 2.5 \times 5$ (dilution factor) x urine 24h Vol (dl)

Conversion factors mg/dl x 0.8228 = mEq/l

mg/dl x 0.4114 = mmol/l



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EXPECTED VALUES

Serum/plasma:	1.7 – 2.5 mg/dl	(1.40 - 2.06 mEq/l) (0.70 - 1.03 mmol/l)
Urina:	50 – 150 mg/24h	(4.11 - 12.34 mEq/l) (2.06 - 6.17 mmol/24h)

Each laboratory should establish appropriate reference intervals related to its population.

QUALITY CONTROL

You must perform the controls at each kit's use and verify that the values obtained are within the reference range reported in the operating instructions. For this purpose we recommend the use of Sicurobio control sera: ACUTROL 1 (REF. SB-8334) and ACUTROL 2 (REF. SB-8335).

PERFORMANCE

Sensitivity: the sensitivity of the method is 0.1 mg/dl.

Linearity: the method is linear up to 7 mg/dl. For higher values, dilute the sample 1:2 and multiply the result by 2.

Precision intra-assay:

	Level 1	Level 2	Level 3
Mean (mg/dl)	1.50	3.40	5.60
SD	0.010	0.040	0.040
CV %	1.10	1.22	0.73

Precision inter-assay:

	Level 1	Level 2	Level 3
Mean (mg/dl)	1.56	3.63	6.40
SD	0.020	0.044	0.072
CV %	1.30	1.20	1.18

Interferences: bilirubin does not interfere up to 50 mg/dl. Triglycerides does not interfere up to 500 mg/dl. Ascorbic acid does not interfere up to 50 mg/dl. Hemoglobin up to 500 mg/dl does not interfere.

Correlation against a reference method:

$Y = 1.024x - 0.035$ $r = 0.99$

REFERENCES

1. Vassault, A. et al. Ann. Biol. Clin., 44,686 (1986).
2. Young, D.S., et al., Clin. Chem. 21:1D (1975).
3. Kaplan LA, Pesce AJ, Clinical Chemistry, Mosby Ed. 1989