GENESIS

Instructions For Use

Magnesium (Xylidyl Blue. Colorimetric)

Cat no.	size
1303 101	2*25
1303 102	4*25

Intended use
Magnesium reagent is intended for the in-vitro quantitative, diagnostic determination of Magnesium in human serum and plasma.

DIAGNOSTIC CHARACTERISTICS
Magnesium is the second more abundant intracellular cation of the human body after potassium, being essential in great number of enzymatic and metabolic processes. Is a cofactor of all the enzymatic reactions that involve the ATP and comprises of the membrane that maintains the electrical excitability of the muscular and nervous cells. A low magnesium level is found in malabsortion syndrome, diuretic or aminoglucoside therapy; hyperparathyroidism or diabetic acidosis. Elevated concentration of magnesium is found in uremia, chronic renal failure, glomerulonephritis, Addisons's disease or intensive anti acid therapy. Clinical diagnosis should not be made on a single test result; it should integrate clinical and other laboratory data.

PRINCIPLE OF THE METHOD
Magnesium forms a coloured complex when reacts with Magon sulfonate in alkaline solution. The intensity of the color formed is proportional to the magnesium concentration in the sample.

COMPOSITION

Reagent (R)	Xylidyl Blue	0.1 mmol/L
	Thioglycolic acid	0.25 mmol/L
	DMSO	3000 mmol/L
Standard (S)		2.0 mg/dL

STORAGE…
Store at 2-8ºC.
Reagent and Standard are stable until the expiry date shown on the label when stored tightly closed, protected from the light, and if contaminations are prevented during their use.

REAGENT PREPARATION
Reagent and Standard are provided ready to use.

ADDITIONAL EQUIPMENT
− Analyzer, spectrophotometer able to read at 546nm.

SPECIMEN AND STABILITY
− Serum, heparinized plasma: Free of hemolysis and separated from cells as rapidly as possible.
- Do not use oxalates or EDTA as anticoagulant.
Stability: 7 days at 2-8ºC.
− Urine: Should be acidified to pH 1 with HCl. If urine is cloudy; warm the specimen to 60ºC for 10 min. to dissolve precipitates. Dilute the sample 1/10 with distilled water and multiply the result by 10.
-Stability: 3 days at 2-8ºC

PRECAUTIONS AND WARNINGS
Do not ingest or inhalate. In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.

Symbols in Product Labeling

EC REP	Authorized Representative		Expiration date
IVD	For in-vitro diagnostic use		CAUTION, consult instructions for use
REF	Catalogue number		
LOT	Lot number		Manufactured by
	Consult instructions for use		Temperature Limit

PROCEDURE
1. Assay Parameters:
Mode:……end point
Wavelength……..546 nm
Cuvette:……...1 cm light path
2. Pipette into labeled test tubes:

	Blank	Standard	Sample
REAGENT (R)	1.0 mL	1.0 mL	1.0 mL
STANDARD (S)	---	10 µL	---
SAMPLE	---	---	10 µL

3. Mix thoroughly and incubate the tubes for 5 minutes at room temperature (16-25ºC).
4. Measure the absorbance (A) of Standard and Sample at 546 nm against Blank. The color is stable for at least 30 minutes.

CALCULATIONS
Magnesium concentration in the sample is calculated using the following general formula:

$$\frac{A\ Sample}{A\ Standard} \times 2.0 = mg/dL \qquad \times 0.412 = mmol/L$$

REFERENCE VALUES

Newborn	1.2 - 2.6 mg/dl	Adult female	1.9 - 2.5 mg/dl
Children	1.5 - 2.3 mg/dl	Urine:	1.0-10.0 mg/dl 73-122 mg/24h
Adult male	1.8 - 2.6 mg/dl	C.S.F.:	2.4 - 3.5 mg/dl

QUALITY CONTROL
It is recommended to use the Control Serum level I and II to verify the performance of the measurement procedure.
Each laboratory should establish its own internal Quality Control.

METROLOGICAL CHARACTERISTICS
Sensitivity: 1.0 mg/dL
Linearity: 6.0 mg/dL.
If the results obtained were greater than linearity limit, dilute the sample 1/2 with NaCl 9 g/L and multiply the result by 2.

Precision:

	Intra-assay (n=20)		Inter-assay (n=20)	
Mean (mg/dL)	1.99	3.55	1.98	3.41
SD	0.03	0.04	0.09	0.15
CV (%)	1.68	1.14	4.55	4.42

Accuracy: Results obtained using genesis reagents (y) did not show systematic differences when compared with other commercial reagents (x).
The results obtained were the following:
Correlation coefficient (r) ²: 0.92276
Regression equation: y=1.027x + 0.102

INTERFERENCES
No interferences detected during the use of magnesium reagent.

BIBLIOGRAPHY
1. Farrell E C. Magnesium. Kaplan A et al. Clin Chem The C.V. Mosby Co. St Louis. Toronto. Princeton 1984; 1065-1069. 2. Young DS. Effects of drugs on Clinical Lab. Tests, 4th ed AACC Press, 1995.

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