



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 malabsorption syndrome, diuretic or aminoglycoside therapy; hyperparathyroidism or diabetic acidosis. Elevated concentration of magnesium is found in uremia, chronic renal failure, glomerulonephritis, Addison'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 2-8°C.

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 2-8°C.

- Urine: Should be acidified to pH 1 with HCl. If urine is cloudy; warm the specimen to 60°C for 10 min. to dissolve precipitates. Dilute the sample 1/10 with distilled water and multiply the result by 10.

-Stability: 3 days at 2-8°C

### PRECAUTIONS AND WARNINGS

Do not ingest or inhale. 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 |                              |  |                                       |
|-----------------------------|------------------------------|--|---------------------------------------|
|                             | Authorized Representative    |  | Expiration date                       |
|                             | For in-vitro diagnostic use  |  | CAUTION, consult instructions for use |
|                             | Catalogue number             |  | Manufactured by                       |
|                             | Lot number                   |  | Temperature Limit                     |
|                             | Consult instructions for use |  |                                       |

### 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 (16-25°C).

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:

$$A \text{ Sample} \times 2.0 = \text{mg/dL}$$

$$A \text{ Standard} \times 0.412 = \text{mmol/L}$$

### 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<br>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)<sup>2</sup>: 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.

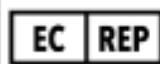
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