

Magnesium Phosphonazo III

IVD

| REF. | Pack size |
|------------|-------------------------|
| 212 01 050 | (1 x 50 ml) 50 tests |
| 212 02 030 | (2 x 30 ml) 60 tests |
| 212 05 030 | (5 x 30 ml) 150 tests |

Intended Use

Magnesium reagent is intended for in-vitro quantitative and diagnostic determination of Magnesium in human serum, plasma or urine on both manual and automated systems.

Introduction

Magnesium is not a true trace element; along with potassium, magnesium is a major intracellular cation. Magnesium is an activator for various physiochemical processes, including phosphorylation, protein synthesis and DNA metabolism. It is also involved in neuromuscular conduction and excitability of skeletal and cardiac muscle.

Method

Phosphonazo III , Colorimetric Endpoint.

Principle

Magnesium ions form a colored chelate complex when reacting with Phosphonazo III, the intensity of the color is proportional to the magnesium concentration. Calcium ions are masked by EGTA.

Reagents

| | | |
|-------------------|-----|--------|
| Reagent(R) | | |
| MOPS (pH 6.8) | 1 | mol/L |
| EGTA | 60 | µmol/L |
| Phosphonazo III | 110 | µmol/L |

| | | |
|---------------------|------------|---------------|
| Standard(ST) | | |
| 2.5 mg/dL | 1.0 mmol/L | (1.03 mmol/L) |

Reagents preparation, storage and stability

Magnesium reagent is supplied ready-to-use and stable till the expiration date labeled on the bottles when stored at 2 - 8 °C. Once opened , the reagent and standard are stable for 3 months at 2 - 8 °C.

Deterioration

Failure to recover control values within assigned range may indicate reagent deterioration

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

Specimen collection and preservation

Serum, Plasma (free from haemolysis) and Urine
The only acceptable anticoagulant is Heparin.
The specimen should be separated from the clot as soon as possible. EDTA, Sodium fluoride and oxalate should be avoided because they interfere with the results.

Procedure

| | |
|-----------------|---------------|
| Wavelength | 630 nm |
| Optical path | 1 cm |
| Assay type | End-point |
| Direction | Increase |
| Temperature | 25 °C |
| Zero adjustment | Reagent blank |

| | Reagent Blank | Standard | Specimen |
|--------------------|---------------|----------|----------|
| Reagent (R) | 1.0 ml | 1.0 ml | 1.0 ml |
| Standard | _____ | 10 µl | _____ |
| Specimen | _____ | _____ | 10 µl |

Mix well and let stand for 10 minutes at room temperature , then read absorbance of specimen and standard against reagent blank. The color is stable for at least 1 hour.

Calculation

$$\text{Serum Magnesium conc. (mg/dL)} = \frac{(A_{\text{specimen}})}{(A_{\text{standard}})} \times 2.5$$

Quality control

Normal and abnormal control serum of known concentration should be analyzed with each run.

Expected Values

- 1- Serum/Plasma:
 - a) Newborn 1.2 - 2.6 mg/dL (0.48 - 1.05 mmol/L)
 - b) Children 1.5 - 2.3 mg/dL (0.60 - 0.95 mmol/L)
 - c) Women 1.9 - 2.5 mg/dL (0.77 - 1.03 mmol/L)
 - d) Men 1.8 - 2.6 mg/dL (0.73 -1.06 mmol/L)
- 2- Urine: 1-10 mg/dL (3-5mmol/24h)
73-122 mg/24h
- 3- C.S.F.: 2.4 - 3.5 mg/dL

Interference

Haemoglobin
It interferes because magnesium is released by erythrocytes.

Icterus
No significant interference up to a bilirubin level of 40 mg/dL.

Lipemia
No significant interference up to 2000 mg/dl

Calcium
No significant interference up to 25mg/dl

Drugs
No interference was observed by ascorbic acid up to 30 mg/dl

Performance Characteristics

A study using 20 human specimens between this Magnesium reagent and reference method yielded a correlation coefficient of 0.988 and a linear regression equation of $y = 1.025x + 0.0625$

Precision

Within run (Repeatability)

| | Level 1 | Level 2 |
|--------------|---------|---------|
| n | 20 | 20 |
| Mean (mg/dL) | 1.95 | 3.4 |
| SD | 0.02 | 0.12 |
| CV% | 1.02 | 3.53 |

Run to run (Reproducibility)

| | Level 1 | Level 2 |
|--------------|---------|---------|
| n | 20 | 20 |
| Mean (mg/dL) | 1.95 | 3.4 |
| SD | 0.02 | 0.13 |
| CV% | 1.03 | 3.82 |

Sensitivity

0.2 mg/dL.

Linearity

5.0 mg/dL

Waste Disposal

This product is made to be used in professional laboratories. Please consult local regulations for a correct waste disposal.

S56: dispose of this material and its container at hazardous or special waste collection point.









S57: use appropriate container to avoid environmental contamination.


S61: avoid release in environment. refer to special instructions/safety data sheets.

References


1. Mann ck.yoe JH. Spectrophotometric determination of Mg Anal
2. Thomas L. Clinical Laboratory Diagnostics 1st ed Frankfurt: TH-Books Verlagsgesellschaft.

SYMBOLS IN PRODUCT LABELLING

| | |
|-------------------------------------------------------------------------------------|---------------------------------------|
|  | For in-vitro diagnostic use |
|  | Batch Code/Lot number |
|  | Catalogue Number |
|  | Consult instructions for use |
|  | Temperature Limitation |
|  | Use by/Expiration Date |
|  | CAUTION. Consult instructions for use |
|  | Manufactured by |

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IFUF212

Rev.(2), 11/3/2020