

# MAGNESIUM

Colorimetric Method

50 Tests

## PRINCIPLE :

Magnesium ions react in an alkaline medium with the metallochrome dye calmagite to form a chromophore which absorbs at 520 nm. Calcium is excluded from the reaction by complexing with ethylene glycol bis ( $\beta$  - aminoethyl ether) - N, N tetracetic acid (EGTA).

## SAMPLE :

Serum, heparinized plasma, urine or CSF. Plasma prepared using anticoagulants such as EDTA, citrate or oxalate should not be used. 24 hour urine collection may contain sediment that absorbs magnesium. Add a few drops of concentrated hydrochloric acid to bring pH between 3-4 and to dissolve the sediment. Dilute urine 1+4 with d.H<sub>2</sub>O and multiply the result by 5.

## NORMAL VALUES :

### Adults:

Serum/Plasma 0.7 – 1.1 mmol/l (1.70 – 2.70 mg/dl)  
CSF 0.98 - 1.27 mmol/l (2.40 - 3.10 mg/dl)  
Urine 2.1 - 8.22 mmol/ 24hrs (50 -200 mg/ 24 hrs)

## REAGENTS :

1.	Standard	1.0 mmol/L (2.43 mg/dl)
2.	Dye Reagent Calmagite EGTA Dimethylsulphoxide	0.2 mmol/L
3.	Buffer Diethanolamine Buffer Surfactants	1.0 mol/L, pH12.5

## STABILITY :

Contents ready for use. Stable up to expiry date when stored at 15 to 25°C .

## PROCEDURE:

### Working Reagent:

Mix equal volumes of Dye 2 and Buffer 3. immediately before use.

The use of disposable tubes is recommended. Glassware should be rinsed with dilute hydrochloric acid and rinsed with distilled water.

	Reagent Blank ml	Standard ml	Sample ml
Working Reagent	1.0	1.0	1.0
Distilled Water	0.02	---	---
Standard	---	0.02	---
Sample	---	---	0.02

Mix, incubate for two min. at room temperature and read the absorbance of standard ( $A_{\text{standard}}$ ) and sample ( $A_{\text{sample}}$ ) at 520 nm, against the reagent blank within 30 min. The method is linear up to 2.67 mmol/l (6.49 mg/dl). Samples with higher concentrations should be diluted 1 + 1 with redistilled water and reassayed. Multiply the result by 2.

## CALCULATION :

Magnesium Concentration (mmol/l)

$$= \frac{A_{\text{Sample}}}{A_{\text{Standard}}} \times 1.0$$

Magnesium Concentration (mg/dl)

$$= \frac{A_{\text{Sample}}}{A_{\text{Standard}}} \times 2.43$$

## QUALITY CONTROL:

For accuracy and reproducibility control:  
Assayed Multi-Sera Normal and Elevated.

## REFERENCE :

- 1- Grindler et al. Clin. Chem. (1971): 17; 662
- 2- Teitz N. W. Clinical Guide to Laboratory Tests. W. B. Saunders Co. (1983).

## MAGNESIUM

Colorimetric Method  
+15 to +25°C                      50 Tests  
In vitro diagnostic use

CAT. No.                                      MG 16 10

## REAGENTS

<b>R1</b>	Standard	2 ml
<b>R2</b>	Dye Reagent	25 ml
<b>R3</b>	Buffer	25 ml

## CONTACTS

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