



MAGNESIUM KIT

(Calmagite Method)

(For veterinary invitro diagnostic use only)

INTENDED USE

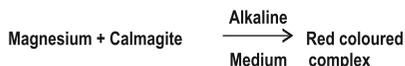
QUADRAPED™ Magnesium kit is used for the determination of Magnesium in serum.

SUMMARY

Magnesium, along with potassium, is a major intracellular cation. It is an activator of various enzymes. It is also involved in amino acid activation and protein synthesis. Increased levels are found in dehydration, Addison's disease and uremia. Decreased levels are found in malabsorption, during treatment of diabetic coma, chronic renal disease, chronic alcoholism, pancreatitis and hyperthyroidism.

PRINCIPLE

Magnesium combines with Calmagite in an alkaline medium to form a red coloured complex. Interference of calcium and proteins is eliminated by the addition of specific chelating agents and detergents. Intensity of the colour formed is directly proportional to the amount of magnesium present in the sample.



EXPECTED VALUES

Species	Magnesium (mEq/L)
Dog	1.3 - 2.0
Cat	1.4 - 2.1
Cow	1.2 - 2.4
Horse	0.5 - 0.7
Pig	2.2 - 3.0
Sheep	1.8 - 2.3
Goat	2.3 - 3.0
Rabbit	1.6 - 2.5
Buffalo	1.5 - 2.5

Note: 2 mEq/L=1 mmol/L= 2.44 mg/dl

It is recommended that each laboratory establish its own range as reference ranges may vary between laboratories.

PRESENTATION

REF	1126160025
Pack Size	25 ml
L1 Buffer Reagent	12.5 ml
L2 Colour Reagent	12.5 ml
S Magnesium Standard (2.0 mEq/L)	2 ml

COMPOSITION

AMP Buffer 500mM; pH 11.2; Calmagite 0.15mM; EGTA 0.35mM; Detergent.

STORAGE / STABILITY

Contents are stable at 2-8°C till the expiry mentioned on the labels.

REAGENT PREPARATION

Reagents are ready to use. Protect from bright light.

Working reagent: For larger assay series a working reagent may be prepared by mixing equal volumes of L1 (Buffer Reagent) and L2 (Colour Reagent). The Working reagent is stable at 2-8°C for at least one month. Keep tightly closed.

SAMPLE MATERIAL

Serum.

Magnesium is reported to be stable in serum for 7 days at 2-8°C.

SAMPLE WASTE AND DISPOSAL

Do not reuse the reagent containers, bottles, caps or plugs due to the risks of contamination and the potential to compromise reagent performance.

Appropriate biosafety practices should be used for materials that contain or are suspected of containing infectious agents.

Handle specimens, solid and liquid waste and test components in accordance with local regulations and NCCLS guidelines M29, or other published biohazard safety guidelines

MATERIALS REQUIRED BUT NOT PROVIDED

Photometer analyzer with standard thermostatic cuvette holder, micropipette and appropriate laboratory equipment.

PROCEDURE

Wavelength / filter : 510 nm (Hg 546 nm) / Green
 Temperature : R. T.
 Light path : 1 cm

Pipette into clean dry test tubes labelled as Blank (B), Standard (S), and Test (T):

Addition Sequence	B (ml)	S (ml)	T (ml)
Buffer Reagent (L1)	0.5	0.5	0.5
Colour Reagent (L2)	0.5	0.5	0.5
Distilled Water	0.01	-	-
Magnesium Standard (S)	-	0.01	-
Sample	-	-	0.01

Mix well and incubate at R.T. (25° C) for 5 mins. Measure the absorbance of the Standard (Abs. S), and Test Sample (Abs.T) against Blank, within 30 mins.

CALCULATIONS

$$\text{Magnesium in mEq/L} = \frac{\text{Abs.T}}{\text{Abs.S}} \times 2$$

QUALITY CONTROL

The following process is recommended for QC during the assay of Magnesium. *Define and establish acceptable range for your laboratory.

- Two levels of control (Normal and Abnormal) are to be run on a daily basis.
- If QC results fall outside acceptance criteria, recalibration may be necessary.
- Review QC results and run acceptance criteria following a change of reagent lot.

SPECIFIC PERFORMANCE CHARACTERISTICS

LOD: 0.05 mEq/L

LOQ: 0.55 mEq/L

Lower Limit: 0.05 mEq/L

Higher Limit: 6.0 mEq/L

If values exceed this limit, dilute the sample with distilled water and repeat the assay. Calculate the value using the proper dilution factor.

Interferences:

Sample when spiked with interferent such as upto 200 mg/dl haemoglobin and 1000 mg/dl intralipid does not affect the ability of the kit to determine the Magnesium concentration.

Precision:

Within run

Within run	n	Mean	SD	% CV
Sample 1	10	1.89	0.05	2.54
Sample 2	10	3.42	0.05	1.47
Sample 3	10	4.64	0.11	2.34

Between run

Between run	n	Mean	SD	% CV
Sample 1	10	1.90	0.05	2.50
Sample 2	10	3.41	0.05	1.54
Sample 3	10	4.60	0.12	2.52

Method comparison:

Comparative studies were done to compare our reagent with another commercial Magnesium Assay. No significant differences were observed. Details of the comparative studies are available on request.

NOTE

In vitro diagnostic reagent for laboratory and professional use only Not for medicinal use. The reagent contain sodium azide 0.1% as preservative. Avoid contact with skin and mucosa. On disposal flush with large quantities of water. Only clean and dry glassware must be used. All glassware being used for the test should first be rinsed with 1 % or 0.1 N HCl and then with good quality deionised water before use. Chelating agents such as EDTA, Oxalate and Citrate, present even in traces, prevent the formation of the colour complex, hence necessary care should be taken during the assay.

RBC's have double the magnesium content compared to serum, and hence haemolysed samples should not be used. Do not use turbid, deteriorated or leaking reagents.

REFERENCES

- Gindler, E., et. al. (1971), Clin. Chem. 17: 662.
- Clinical Chemistry, Principles, Procedures, Correlations, Michael L. Bishop, et.al., 5th Edition.
- Duncan and Prasse's Veterinary Laboratory Medicine: Clinical Pathology, Kenneth S. Latimer, ISBN Jane Wardrop , 6th Edition - 2010.
- Clinical Biochemistry of Domestic Animals, Sixth Edition, 2008 by Kaneko J.J., Harvey J.W. & Bruss M.L.
- Data on file: Coral Clinical Systems.

System Parameters

Reaction	: End Point	Interval	: —
Wavelength	: 510 nm	Sample Vol.	: 0.01 ml
Zero Setting	: Reagent Blank	Reagent Vol.	: 1.00 ml
Incub. Temp.	: R. T.	Standard	: 2 mEq/L
Incub. Time	: 5 min.	Factor	: —
Delay Time	: —	React. Slope	: Increasing
Read Time	: —	Linearity	: 6 mEq/L
No. of read.	: —	Units	: mEq/L

SYMBOL KEYS

Store at 2-8°C	Manufacturer	IVD In vitro Diagnostic Medical Device	L1 Buffer Reagent	Calmagite Calmagite Method
Use by (Last day of stated month)	Consult Instructions for use	LOT Batch Number	L2 Colour Reagent	S Magnesium Standard (2.0 mEq/L)
Date of Manufacture	REF Catalogue Number			This way up



Manufactured by:

Coral Clinical Systems

A Division of Tulip Diagnostics (P) Ltd.

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