

Atomic Absorption Method Guide

Mg in blood serum

Key Words

- Blood Serum
- Magnesium
- Flame
- Atomic Absorption

Principle

The sample is diluted 1:100 with deionised water, and magnesium is determined by flame atomic absorption spectrometry using an air-acetylene flame. Lanthanum is added to standard and sample solutions to overcome potential interference from phosphate

Reagents

Magnesium master standard (7.5mM/L)

Dissolve 0.182g of oxide-free magnesium ribbon in the minimum necessary quantity of hydrochloric acid, and make up to 1.0 litre with deionised water in a volumetric flask. This solution must be stored in a plastic bottle.

Magnesium sub-stock standard (75.0µM/L, dilute 1.0mL of the master standard to 100mL with deionised water)

Lanthanum chloride solution (10% m/v La³⁺, Spectrosol or equivalent)

Working standards

Prepare working standards containing 0, 7.5 and 15.0µM/L of magnesium by adding 0, 10.0 and 20.0mL of the magnesium sub-stock standard into a series of 100mL volumetric flasks. Add 2mL of the lanthanum chloride solution to each flask and dilute to volume with deionised water.

Sample Preparation

Using a micro-pipette, transfer 1.00mL of the serum sample into a clean, dry 100mL volumetric flask, add 2.0mL of the lanthanum chloride solution and make up to volume with deionised water. Ensure that the solution is thoroughly mixed before analysis. 15µM/L of magnesium in this solution is equivalent to 1.5mM/L in the original sample.

Instrument Parameters

Figure 1 Instrument parameters

Results

Sample	Reference serum (1)	Reference serum (2)	Reference serum (3)	Reference serum (4)	Reference serum (5)
Magnesium found (mM/L)	0.82	0.90	0.98	0.30	0.54
Reference value (mM/L)	0.86	0.95	0.96	0.25	0.54

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