

SCHEDULE 2

METHODS OF ANALYSIS

PART II

8.2

DETERMINATION OF MAGNESIUM BY ATOMIC ABSORPTION SPECTROPHOTOMETRY

1 SCOPE AND FIELD OF APPLICATION

1. This method applies to all fertiliser extracts obtained by method 8.1

2 PRINCIPLE

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2.1 Determination of magnesium by atomic absorption spectrophotometry after appropriate dilution of the extract.

3 REAGENTS

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3.1 Hydrochloric acid, 1 M solution.

3.2 Hydrochloric acid, 0.5 M solution.

3.3 Standard solution of magnesium, 1.00 mg/ml.

(3.3.1) Dissolve 1.013 grams of magnesium sulphate ($\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$) in the 0.5 M hydrochloric acid solution (4.2).

(3.3.2) Weigh out 1.658 grams of magnesium oxide (MgO), previously calcined to remove all traces of carbonation. Place in a beaker with 100 ml of water and 120 ml of 1 M hydrochloric acid (3.1). When it has dissolved, decant quantitatively into a 1,000 ml graduated flask. Make up the volume by adding and mix.

or

Commercial standard solution

(3.3.3) The laboratory is responsible for testing such solutions.

Strontium chloride solution

3.4 Dissolve 75 grams of strontium chloride ($\text{SrCl}_2 \cdot 6\text{H}_2\text{O}$) in a hydrochloric acid solution (3.2) and make up to 500 ml with the same acid solution.

4 APPARATUS

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4.1 Spectrophotometer fitted for atomic absorption, with a magnesium lamp, set at 285.2 nm.

4.2 Air-acetylene flame.

Status: This is the original version (as it was originally made). This item of legislation is currently only available in its original format.

5 PREPARATION OF THE SAMPLE

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5.1 See Method 8.1

6 PROCEDURE

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Test sample

6.1 Magnesium is extracted from a test sample of five grams weighed to within one milligram.

Preparation of the solution

6.2 Add approximately 400 millilitres of water and, taking care when the sample contains a significant quantity of carbonates, 50 millilitres of dilute hydrochloric acid (4.1) a small amount at a time. Bring to the boil and maintain for 30 minutes. Allow to cool, stirring occasionally. Decant quantitatively into a 500 millilitre graduated flask. Make up to volume with water, and mix. Pass through a dry filter into a dry container, discarding the initial portion. The extract must be completely transparent. Stopper if the filtrate is not used immediately.