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English Version

Fertilizers - Extraction of total calcium, total magnesium, total sodium and total sulfur in the forms of sulfates (Method 8.1)

Engrais - Extraction du calcium total, du magnésium total,
du sodium total et du soufre total présent sous forme de
sulfate

Düngemittel - Extraktion von Gesamtcalcium,
Gesamtmagnesium und Gesamtnatrium sowie von
Gesamtschwefel in Form von Sulfat

This draft Technical Specification is submitted to CEN members for formal vote. It has been drawn up by the Technical Committee CEN/TC 260.

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Foreword

This document (FprCEN/TS 15960:2009) has been prepared by Technical Committee CEN/TC 260 "Fertilizers and liming materials", the secretariat of which is held by DIN.

This document is currently submitted to the Formal Vote.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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1 Scope

This document specifies a method for the extraction of total calcium, total magnesium and total sodium and for the extraction of total sulfur present in the form of sulfates, so that the same extract may be used for the determination of each nutrient required.

The method is applicable to fertilizers listed in Regulation (EC) 2003/2003, Annex I (see [1]), for which a declaration of total calcium, total magnesium, total sodium, and total sulfur in the form of sulfates is provided for in this Regulation.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1482-2, *Fertilizers and liming materials — Sampling and sample preparation — Part 2: Sample preparation*

EN 12944-1:1999, *Fertilizers and liming materials and soil improvers — Vocabulary— Part 1: General terms*

EN 12944-2:1999, *Fertilizers and liming materials and soil improvers — Vocabulary— Part 2: Terms relating to fertilizers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12944-1:1999 and EN 12944-2:1999 apply.

4 Principle

Extraction of the magnesium, sodium and sulfur present in the form of sulfates in the fertilizer by boiling in diluted hydrochloric acid under the specified conditions.

5 Sampling

Sampling is not part of the method specified in this document. A recommended sampling method is given in EN 1482-1.

Sample preparation shall be carried out in accordance with EN 1482-2. Grinding of the laboratory sample is recommended for homogeneity reasons.

6 Reagents

6.1 Water, distilled or demineralized.

6.2 Diluted hydrochloric acid, mix one volume of hydrochloric acid, $\rho = 1,18$ g/ml, with one volume of water.

7 Apparatus

7.1 Standard laboratory equipment

7.2 **Electric hot plate**, with adjustable temperature.

7.3 **Beaker**, capacity 600 ml.

7.4 **Graduated flask**, capacity 500 ml.

7.5 **Dry filter**.

8 Procedure

8.1 Test portion

Weigh, to the nearest 1 mg, 5 g of the laboratory sample and place it in the beaker (7.3).

When the fertilizer contains more than 15 % of sulfur (S) i. e. 37,5 % SO_3 , and more than 18,8 % of calcium (Ca) i. e. 26,3 % CaO, carry out the extraction of calcium and sulfur using a test portion of 1 g, weighed to the nearest 1 mg. Place it in the beaker (7.3).

8.2 Extraction

Add approximately 400 ml of water (6.1) to the test portion (8.1) and, taking care when the sample contains a significant quantity of carbonates, 50 ml of diluted hydrochloric acid (6.2) a small amount at a time. Bring to the boil and maintain for 30 min. Allow to cool, stirring occasionally. Decant quantitatively into a graduated flask (7.4). Make up to volume with water (6.1), and mix. Pass through a filter (7.5) into a dry container, discarding the initial portion.

The extract shall be completely transparent. Stopper if the filtrate is not used immediately.

9 Test report

The test report shall contain at least the following information:

- a) all information necessary for the complete identification of the sample;
- b) the test method used with reference to this document;
- c) the test results obtained;
- d) date of sampling and sampling procedure (if known);
- e) date when the analysis was finished;
- f) whether the requirement of the repeatability limit has been fulfilled;
- g) all operating details not specified in this document, or regarded as optional, together with details of any incidents occurred when performing the method, which might have influenced the test result(s).

Bibliography

- [1] Regulation (EC) No 2003/2003 of the European Parliament and of the Council of 13 October 2003 relating to fertilisers, Official Journal L 304, 21/11/2003, P. 0001-0194, Annex I and Annex IV, method 8.1
- [2] EN 1482-1, *Fertilizers and liming materials — Sampling and sample preparation — Part 1: Sampling*