



BSI Standards Publication

# Fertilizers — Extraction of water-soluble calcium, magnesium, sodium and sulfur in the form of sulfates

**National foreword**

This British Standard is the UK implementation of EN 15961:2017. It supersedes BS EN 15961:2011 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee CII/37, Fertilisers and related chemicals.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Published by BSI Standards Limited 2017

ISBN 978 0 580 92807 9

ICS 65.080

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 January 2017.

**Amendments/corrigenda issued since publication**

Date	Text affected
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EUROPEAN STANDARD

**EN 15961**

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2017

ICS 65.080

Supersedes EN 15961:2011

English Version

## Fertilizers - Extraction of water-soluble calcium, magnesium, sodium and sulfur in the form of sulfates

Engrais - Extraction des formes solubles dans l'eau du  
calcium, du magnésium, du sodium et du soufre sous  
forme de sulfate

Düngemittel - Extraktion von wasserlöslichem Calcium,  
Magnesium und Natrium sowie von Schwefel in Form  
von Sulfat

This European Standard was approved by CEN on 9 November 2016.

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## European foreword

This document (EN 15961:2017) has been prepared by Technical Committee CEN/TC 260 “Fertilizers and liming materials”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2017 and conflicting national standards shall be withdrawn at the latest by July 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15961:2011.

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

The following changes have been made to the former edition:

- a) procedure for the preparation of the solution (8.2) technically revised;
- b) editorially revised.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This European Standard specifies a method for the extraction of water-soluble calcium, magnesium, sodium and sulfur (in the form of sulfates), so that the same extract can be used for the determination of each nutrient required.

The method is solely applicable to fertilizers listed in Regulation (EC) 2003/2003, Annex I [2]), for which a declaration of the water-soluble calcium, magnesium, sodium, and sulfur (in the form of sulfates) is provided for in this Regulation.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 calcium, magnesium, sodium, and sulfur (present in the form of sulfates) in the fertilizer by boiling in water 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 [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.

## 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

Where fertilizers contain no sulfur or where they contain, at the same time, no more than 3 % of sulfur (S) i.e. 7,5 %  $\text{SO}_3$ , and no more than 4 % of calcium (Ca) i.e. 5,6 % CaO, weigh 5 g of the test sample to the nearest 1 mg. Place it in the beaker (7.3).

Where fertilizers contain more than 3 % of sulfur (S) and more than 4 % of calcium (Ca), weigh 1 g of the test sample to the nearest 1 mg. Place it in the beaker (7.3).

### 8.2 Preparation of the solution

Add approximately 400 ml of water (6.1) to the test portion (8.1) and boil for 30 min. Cover the beaker with a lid to avoid losses during boiling. Allow to cool and let stand for 24 h at room temperature. 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. Discard the initial portions of the filtrate.

The filtrate 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) test method used with reference to this document;
- c) 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] EN 1482-1, *Fertilizers and liming materials - Sampling and sample preparation - Part 1: Sampling*
- [2] 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. 1-194, Annex I and Annex IV, Method 8.3





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