

Carbonate and silicate liming materials - Determination of reactivity - Potentiometric titration method with hydrochloric acid

EESTI STANDARDI EESSÕNA

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English Version

Carbonate and silicate liming materials - Determination of
reactivity - Potentiometric titration method with hydrochloric acid

Amendements minéraux basiques carbonatés et silicatés -
Détermination de la réactivité - Méthode par titrage
potentiométrique à l'acide chlorhydrique

Carbonatische und silikatische Kalke - Bestimmung der
Reaktivität - Potentiometrisches Titrationsverfahren mit
Salzsäure

This European Standard was approved by CEN on 3 November 2012.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Foreword

This document (EN 13971:2012) 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of an identical text or by endorsement, at the latest by June 2013, and conflicting national standards shall be withdrawn at the latest by June 2013.

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

This document supersedes EN 13971:2008.

The following has been added to the former edition of the European Standard:

- a) silicate liming materials added to the scope and to the title;
- b) EN 12947 and EN 13475 added to the normative references;
- c) Clause 3 reaction formula for silicates added;
- d) subclauses 7.1.2 and 7.2.2 enlarged concerning determination of silicate liming materials;
- e) subclause 8.2 and formulas (2), (3) and (4) on expression of results for silicate liming materials added;
- f) subclause 9.2 and Table 2 on the precision data for silicate liming materials added;
- g) Bibliography 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The results obtained by this method can be used to estimate the behaviour of the liming material in the soil. The results show a good correlation with the results obtained by a soil incubation method (see [1] to [5]). Regarding the precision of the method, the results are not used to declare a value, but to classify the different product groups.

1 Scope

This European Standard specifies a method for the determination of the speed and effectiveness of the neutralising potential of calcium carbonate, calcium magnesium carbonate and calcium magnesium silicate liming materials by potentiometric titration with hydrochloric acid.

This method is applicable only to liming materials with a maximum particle size of 6,3 mm.

The type of liming material should be identified according to EN 14069 and the particle size should be determined according to EN 12948.

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 12048, *Solid fertilizers and liming materials — Determination of moisture content — Gravimetric method by drying at (105 ± 2) °C (ISO 8190:1992 modified)*

EN 12945, *Liming materials — Determination of neutralizing value — Titrimetric methods*

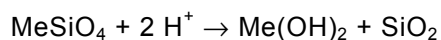
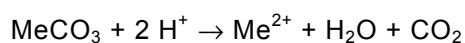
EN 12947, *Liming materials — Determination of magnesium content — Atomic absorption spectrometric method*

EN 12948, *Liming materials — Determination of size distribution by dry and wet sieving*

EN 13475, *Liming materials — Determination of calcium content — Oxalate method*

3 Principle

Decomposition of carbonates and silicates with acids according to the following reactions:



Titration under stable pH conditions either with an automatic titration apparatus or a manual method. The acid consumption during a given time is a direct measure of the reaction rate of the liming materials being tested.

4 Apparatus

Usual laboratory apparatus and, in particular, the following:

4.1 pH meter, with electrode.