BS EN 14984:2016

BSI Standards Publication

Liming materials — Determination of product effect on soil pH — Soil incubation method

bsi.

National foreword

This British Standard is the UK implementation of EN 14984:2016. It supersedes BS EN 14984:2006 which is withdrawn.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.

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Liming materials - Determination of product effect on soil pH - Soil incubation method

Amendements minéraux basiques - Détermination de l'effet d'un produit sur le pH d'un sol - Méthode par incubation du sol

Kalkdünger - Bestimmung des Produkteinflusses auf des Boden-pH-Wert - Bodeninkubationsverfahren

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European Foreword

This document (EN 14984:2016) 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of an identical text or by endorsement, at the latest by January 2017, and conflicting national standards shall be withdrawn at the latest by January 2017.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 14984:2006.

The following changes have been made to the former edition:

a) effective neutralizing value by incubation (*ENVI*) added as alternative way for the expression of results;

b) Formula for calculation of *ENVI* for method A added;

c) Formula for calculation of *ENVI* for method B added;

d) editorially revised.

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Introduction

The chemical methods for determining the neutralizing value (*NV*) (see EN 12945) and the reactivity (see EN 13971 and EN 16357) of liming materials are not always appropriate indicators for any material claimed to have a liming effect in the soil, particularly materials with a high organic matter content.

The biological mineralization of organic matter contained in some products can, in the field, have an effect on pH, which cannot be quantified by the chemical methods.

The two methods described in this document overcome these problems.

Both methods characterize products through their effect on the pH of a soil under controlled, standard conditions, and establish the efficiency of products when applied to a standard soil.

Method A specifies a reference soil with tight characteristics with respect to pH range before incubation, cation exchange capacity (CEC), mass fraction of organic carbon, and mass fraction of particles finer than 0,002 mm (clay).

Method B can apply the same reference soil as Method A, but also allows alternative standard soils with a wider content of particles finer than 0,002 mm (clay), and a wider range of mass fraction of organic matter. Clay and organic matter are the decisive reactants to a liming material

However, attention is drawn to the limitations of these methods. They are laboratory methods carried out under controlled conditions and care should be taken when applying the results to field conditions. The quality of incorporation of the liming material into the soil and the eventual need to break down the product agglomerates, together with the soil and climate conditions, can affect the results. Nevertheless, these methods allow a comparison of the potential neutralizing effect of liming products under optimum and reproducible conditions.

1 Scope

This document specifies two methods (method A and method B) of measuring the effect of the addition of any material claimed to have a liming effect on the soil, using the same basic principles.

Method A measures the changes to the soil pH resulting from the addition of any material claimed to have a liming effect on a standard soil, measured over a period of one month.

Method B assesses the efficiency of any material claimed to have a liming effect, using a range of defined soils and measured over a period of up to 2,5 years.

The methods are not applicable to mineral products coarser than 6,3 mm for method A or 20 mm for method B, determined according to EN 12948.

NOTE These methods allow comparison of products under controlled climatic conditions but do not replace field experiments.

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 1482-1, *Fertilizers and liming materials - Sampling and sample preparation - Part 1: Sampling*

EN 1482-3, *Fertilizers and liming materials — Sampling and sample preparation — Part 3: Sampling of static heaps*

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

EN 12049, *Solid fertilizers and liming materials - Determination of moisture content - Gravimetric method by drying under reduced pressure (ISO 8189:1992 modified)*

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

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

EN 13040, *Soil improvers and growing media - Sample preparation for chemical and physical tests, determination of dry matter content, moisture content and laboratory compacted bulk density*

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods (ISO 3696)*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 3310-2, *Test sieves — Technical requirements and testing — Part 2: Test sieves of perforated metal plate*

ISO 10390:2005, *Soil quality — Determination of pH*

ISO 11272, *Soil quality — Determination of dry bulk density*

ISO 11277, *Soil quality — Determination of particle size distribution in mineral soil material — Method by sieving and sedimentation*