

## **Liming materials - Determination of product impact on soil pH - Soil incubation method**

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

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 14984:2006 sisaldab Euroopa standardi EN 14984:2006 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 29.05.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 14984:2006 consists of the English text of the European standard EN 14984:2006.</p> <p>This document is endorsed on 29.05.2006 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>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.</p>	<p><b>Scope:</b></p> <p>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.</p>
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ICS 65.080

Võtmesõnad:

English Version

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

Calcium-/Magnesium-Bodenverbesserungsmittel -  
Bestimmung des Produkteinflusses auf den Boden-pH-  
Wert - Bodeninkubationsverfahren

This European Standard was approved by CEN on 2 March 2006.

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## Contents

Page

Foreword .....	3
Introduction .....	4
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions .....	6
4 Principle .....	7
5 Method A .....	8
6 Method B .....	15
7 Test report .....	24
Annex A (informative) Variations to the test methods .....	25
Annex B (normative) Determination of moisture at full soil water holding capacity .....	27
Bibliography .....	28

## Foreword

This document (EN 14984:2006) 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 October 2006, and conflicting national standards shall be withdrawn at the latest by October 2006.

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

## Introduction

The chemical methods for determining the neutralizing value (NV) (see EN 12945) and the reactivity (see EN 13971) 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.

**Method A** characterizes products through their effect on the pH of a soil under controlled, standard conditions, which are close to those in the field.

**Method B** establishes the efficiency of products when applied to a standard soil.

However, attention is drawn to the limitations of these methods. They are laboratory methods carried out in 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.

**NOTE** These methods allow comparison of products under controlled climatic conditions but do not replace field experiments. The methods are not applicable to mineral products coarser than 6,3 mm for method A or 20 mm for method B.

## 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.

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

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 3696:1987)*

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*

ISO 11465, *Soil quality — Determination of dry matter and water content on a mass basis — Gravimetric method*

ISO 14235, *Soil quality — Determination of organic carbon by sulfochromic oxidation*

NF X31-130, *Soil quality — Chemical methods — Determination of the cationic exchange capacity (CEC) and extractable cations (buffered at pH = 7, Metson method)*<sup>1)</sup>

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1 efficiency

ability of a liming material to react in soil or solution within a specified time

NOTE In this document, efficiency is calculated as mentioned in 6.5.2.

#### 3.2 internal peak values approach

crediting fine fractions of a product or other highly reactive materials for 100 % efficiency in soil when reaching maximum pH value

NOTE 1 This efficiency is maintained even if pH later drops due to soil microbial counteraction (acidification).

NOTE 2 For further clarification see Figure 1 and Figure 2.

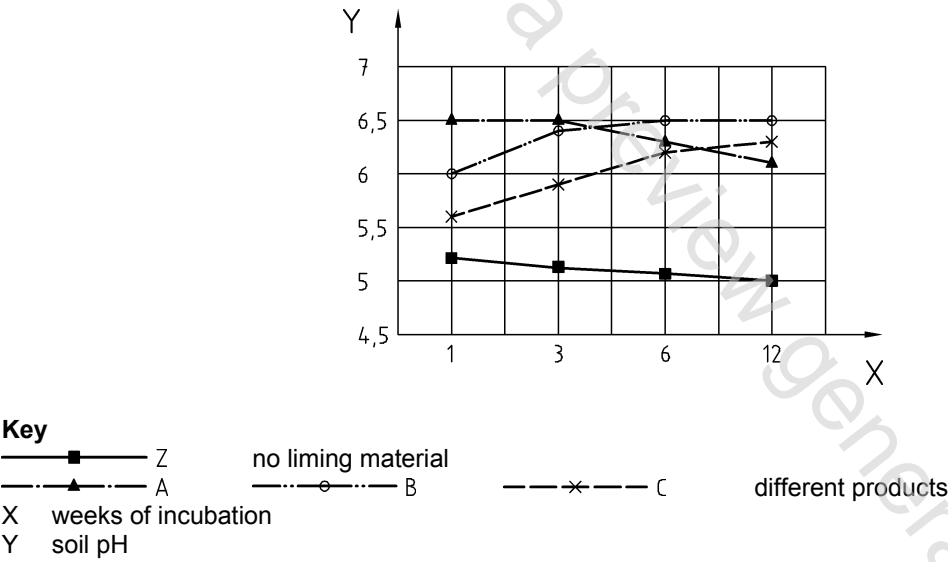


Figure 1 — Soil pH versus weeks of soil incubation

1) No international buffered method is available at pH = 7. As soon as an International Standard is available for cation exchange capacity buffered at pH = 7, it will replace the NF X 31-130.