

**Väetised ja lubiväetised. Süsinikdioksiidi määramine.  
Osa 1: Meetod tahketele väetistele**

Fertilizers and liming materials - Determination of carbon dioxide - Part 1: Method for solid fertilizers

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 14397-1:2010 sisaldab Euroopa standardi EN 15705:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 31.05.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 24.03.2010.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 14397-1:2010 consists of the English text of the European standard EN 15705:2010.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.05.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 24.03.2010.

The standard is available from Estonian standardisation organisation.

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English Version

## Fertilizers and liming materials - Determination of carbon dioxide - Part 1: Method for solid fertilizers

Engrais et amendements minéraux basiques -  
Détermination de la teneur en dioxyde de carbone - Partie  
1: Méthode applicable aux engrais solides

Düngemittel und Calcium-/Magnesium-  
Bodenverbesserungsmittel - Bestimmung von  
Kohlenstoffdioxid - Teil 1: Verfahren für feste Düngemittel

This European Standard was approved by CEN on 14 February 2010.

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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 Management Centre has the same status as the official versions.

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## Foreword

This document (EN 14397-1:2010) 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of an identical text or by endorsement, at the latest by September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

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 CEN/TS 14397-1:2004.

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

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

- a) Clause 9 "Precision";
- b) Annex A "Results of the inter-laboratory tests".

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, 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 the United Kingdom.

## 1 Scope

This document specifies a method for the determination of carbon dioxide in solid fertilizers.

The method applies to all fertilizers that contain carbonates and/or bicarbonates.

NOTE If the fertilizer contains any other substances that release carbon dioxide on treatment with phosphoric acid, this will also be determined and expressed as carbon dioxide.

## 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 ISO 3696:1995, *Water for analytical laboratory use — Specification and test methods (ISO 3696:1987)*

## 3 Principle

The carbon dioxide is liberated by treatment with phosphoric acid and absorbed in a solution of barium hydroxide. Barium carbonate precipitates and the excess barium hydroxide is back-titrated with hydrochloric acid.

## 4 Reagents

Use only reagents of recognized analytical grade.

**4.1 Water**, conforming to EN ISO 3696:1995, grade 3.

Boil the water immediately before use, to drive off any dissolved carbon dioxide.

**4.2 Nitrogen**, with a low content of carbon dioxide and organic impurities.

**4.3 Hydrochloric acid**, standard volumetric solution,  $c(\text{HCl}) = 0,1 \text{ mol/l}$ .

**4.4 Barium hydroxide**, standard volumetric solution,  $c(\text{Ba}(\text{OH})_2) = 0,05 \text{ mol/l}$  approximately.

Standardize the barium hydroxide solution by titrating against the hydrochloric acid solution (4.3), using the phenolphthalein solution (4.6) as indicator.

NOTE The barium hydroxide solution should be stored so that absorption of carbon dioxide from the atmosphere is not possible (see Figure 1).

**4.5 Phosphoric acid**, with a volume concentration of  $\varphi = 500 \text{ ml/l}$ .

**4.6 Phenolphthalein solution**.