

STN	Vápenatouhličitanové hnojivá. Stanovenie reaktivity. Automatická titračná metóda s kyselinou citrónovou.	STN EN 16357 65 4875
------------	---	--

Carbonate liming materials - Determination of reactivity - Automatic titration method with citric acid

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 12/13

Obsahuje: EN 16357:2013

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 16357

August 2013

ICS 65.080

English Version

**Carbonate liming materials - Determination of reactivity -
Automatic titration method with citric acid**

Amendements minéraux basiques carbonatés -
Détermination de la réactivité - Méthode par titration
automatique à l'acide citrique

Carbonatische Kalke - Bestimmung der Reaktivität -
Automatisches Titrationsverfahren mit Citronensäure

This European Standard was approved by CEN on 29 June 2013.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
Introduction	4
1 Scope.....	5
2 Normative references.....	5
3 Principle.....	5
4 Apparatus	5
5 Reagents.....	6
6 Sampling and sample preparation	7
6.1 General	7
6.2 Preparation of the test sample	8
6.3 Preparation of the test portion	8
7 Procedure	8
7.1 General	8
7.2 Calibrations	8
7.3 Measurement.....	10
7.4 Determination of neutralising value	11
7.5 Determination of MgO content	11
8 Calculation and expression of the results	11
9 Precision.....	12
9.1 Inter-laboratory tests	12
9.2 Repeatability.....	12
9.3 Reproducibility.....	12
10 Test report	13
Annex A (normative) Preparation of the test portion of liming materials coarser than 1 mm	14
A.1 General	14
A.2 Calculation of mass fractions retained on the test sieves	14
A.3 Calculation of the test portion to be weighed.....	14
Annex B (normative) Arrangement of the test apparatus	15
Bibliography.....	16

Foreword

This document (EN 16357:2013) 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 February 2014, and conflicting national standards shall be withdrawn at the latest by February 2014.

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.

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, 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

This method has been prepared to improve existing agricultural reactivity methods (see [1], [2], [3], [4] and [5]) for carbonate liming materials: duration, accuracy, representativeness, closer from soil conditions, automation.

Attention is drawn to the following critical steps:

- identification of the liming material type (influence on precision data);
- size distribution (influence on test portion preparation and amount);
- calibration of pH electrode (influence on titrator's pH adjustments);
- pH stat programme setting (influence on accuracy of added amounts of citric acid solution);
- suitability of PCC used to check calibration;
- stirring device (provides homogeneousness without grinding);
- additional uncertainty with neutralising value and MgO content determination.

1 Scope

This European Standard specifies a method for the determination of the reactivity of calcium carbonate and calcium magnesium carbonate liming materials. It assesses the speed and effectiveness of their neutralising potential by automatic titration with citric acid.

This method is applicable only to liming materials with a maximum particle size of 6,3 mm determined according to EN 12948.

NOTE For marble dolomite (BET procedure according to ISO 9277 below 500 m²/kg), see EN 14984.

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

koniec náhľadu – text ďalej pokračuje v platenej verzii STN