Irish Standard
I.S. EN 15452:2008

Fertilizers - Determination of chelating agents - Determination of iron chelated by o,p-EDDHA by reversed phase HPLC

I.S. EN 15452:2008

Incorporating amendments/corrigenda issued since publication:

This standard replaces:	*This standard is based on:*	*Published:*
S.R. CEN/TS 15452:2006	EN 15452:2008 CEN/TS 15452:2006	9 July, 2008 12 December, 2006

This Irish Standard was published under the authority of the NSAI and comes into effect on:
18 August, 2008

ICS number:
65.080

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Price Code:
F

Údarás um Chaighdeáin Náisiúnta na hÉireann

I.S. EN 15452:2008

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15452

July 2008

ICS 65.080

Supersedes CEN/TS 15452:2006

English Version

Fertilizers - Determination of chelating agents - Determination of iron chelated by o,p-EDDHA by reversed phase HPLC

Engrais - Dosage des agents chélatants - Dosage du fer chélaté par o,p-EDDHA par chromatographie liquide à haute performance à polarité de phase inversée

Düngemittel - Bestimmung von Chelatbildnern - Bestimmung von Eisen-chelatisiertem o,p-EDDHA mit Umkehrphasen HPLC

This European Standard was approved by CEN on 30 May 2008.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 15452:2008: E

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Foreword

This document (EN 15452:2008) 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of an identical text or by endorsement, at the latest by January 2009, and conflicting national standards shall be withdrawn at the latest by January 2009.

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 15452:2006.

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1 Scope

This European Standard specifies a method for the chromatographic determination of the amount of iron chelated by each of the individual isomers of the chelating agent ortho-para EDDHA (o,p-EDDHA) in fertilizers. The method allows the identification of this chelating agent and the determination of the water soluble fraction of iron chelated by this chelating agent. The method is not applicable for the determination of the amount of free chelating agent.

NOTE 1 This method has been shown to be also suitable for the determination of the amount of iron chelated by each of the individual isomers of the chelating agent ortho-ortho EDDHA (o,o-EDDHA) in fertilizers.

NOTE 2 o,o-EDDHA and o,p-EDDHA are abbreviations used in this European Standard for the sake of simplicity. For complete names see Annex C.

NOTE 3 The substances o,o-EDDHA and o,p-EDDHA both exist as different stereoisomers. For o,o-EDDHA a meso form and a d/l pair (the racemic isomers) exist, for o,p-EDDHA two different d/l pairs exist. All four stereoisomers are observed separately in this method.

NOTE 4 Currently, an analytically pure standard only exists for o,o-EDDHA. The method for o,p-EDDHA has been developed with an o,p-EDDHA standard containing an uncertain concentration of o,p-EDDHA.

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*

3 Principle

The technique used is reversed phase HPLC with UV detection at 277 nm. The sample is separated on a silica-based reversed phase column using sodium formate, c = 0,015 mol/l, pH = 3,0, and acetonitrile as mobile phase.

For both o,p-EDDHA and o,o-EDDHA, two stereoisomer peaks are observed.

The concentration of iron chelated by o,p-EDDHA (o,p-Fe) is determined according to the external standard method.

4 Interferences

No interferences have been detected. Iron chelates with EDTA, HEDTA, DTPA and EDDHMA do not interfere.

5 Reagents

5.1 General

a) All reagents shall be of recognized analytical grade.