

<b>STN</b>	<b>Priemyselné hnojivá. Stanovenie chelátovacích činidiel v priemyselných hnojivách iónovou chromatografiou. Časť 1: Stanovenie EDTA, HEDTA a DTPA iónovou chromatografiou.</b>	<b>STN EN 13368-1</b>
		65 4847

Fertilizers - Determination of chelating agents in fertilizers by chromatography - Part 1: Determination of EDTA, HEEDTA and DTPA by ion chromatography

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

Obsahuje: EN 13368-1:2014

Oznámením tejto normy sa ruší  
STN EN 13368-1 (65 4847) z novembra 2001

**118983**

---

Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, odbor SÚTN, 2014  
Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy rozmnožovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

English Version

## Fertilizers - Determination of chelating agents in fertilizers by chromatography - Part 1: Determination of EDTA, HEEDTA and DTPA by ion chromatography

Engrais - Détermination des agents chélatants dans les engrais par chromatographie - Partie 1: Détermination du EDTA, HEEDTA et DTPA par chromatographie ionique

Düngemittel - Bestimmung von Chelatbildnern in Düngemitteln mit Chromatographie - Teil 1: Bestimmung von EDTA, HEEDTA und DTPA mit Ionenchromatographie

This European Standard was approved by CEN on 16 November 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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Contents

Page

Foreword.....	3
1 Scope .....	4
2 Normative references .....	4
3 Terms and definitions .....	4
4 Principle .....	4
5 Interferences .....	4
6 Reagents .....	5
7 Apparatus .....	6
8 Sampling and sample preparation .....	7
9 Procedure .....	7
9.1 Preparation of the test solution.....	7
9.2 Preparation of the standard solutions.....	7
9.3 Chromatographic analysis.....	7
10 Expression of results .....	8
11 Precision .....	8
12 Test report .....	9
Annex A (informative) Complete names of chelating agents .....	10
Annex B (informative) Chromatogram .....	11
Bibliography .....	12

## Foreword

This document (EN 13368-1:2014) 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 July 2014, and conflicting national standards shall be withdrawn at the latest by July 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.

This document supersedes EN 13368-1:2001.

The following modifications have been made:

- a) the title of the European Standard revised;
- b) referenced European Standards on vocabulary added to Clause 2;
- c) Clause 3 Terms and definitions added;
- d) the sampling method is not part of the standard, informative reference to EN 1482-1 added;
- e) Annex A: complete names of chelating agents technical revised;
- f) Bibliography revised;
- g) editorially revised.

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.

## 1 Scope

This European Standard specifies a method for the chromatographic determination of the total amount of each of the individual chelating agents EDTA, HEEDTA, and DTPA in fertilizers containing one or more of these substances. The method allows the identification and the determination of the total water soluble fraction of each of these chelating agents. It does not allow to distinguish between the free form and the metal bound form of the chelating agents.

NOTE EDTA, HEEDTA and DTPA are abbreviations used in this European Standard for the sake of simplicity. For complete names see Annex A.

This method applies to fertilizers containing chelates of one or more of the following micro-nutrients: cobalt, copper, iron, manganese, zinc and with a mass fraction of at least 0,1 %.

## 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 12944-1:1999, *Fertilizers and liming materials and soil improvers - Vocabulary - Part 1: General terms*

EN 12944-2:1999, *Fertilizers and liming materials and soil improvers - Vocabulary - Part 2: Terms relating to fertilizers*

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

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**