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Standards

Irish Standard Recommendation
S.R. CEN/TS 17790:2022

Organo-mineral fertilizers - Determination of the chelated micronutrient content and the chelated fraction of micronutrients by treatment with a cation exchange resin

S.R. CEN/TS 17790:2022

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National Foreword

S.R. CEN/TS 17790:2022 is the adopted Irish version of the European Document CEN/TS 17790:2022, Organo-mineral fertilizers - Determination of the chelated micronutrient content and the chelated fraction of micronutrients by treatment with a cation exchange resin

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TECHNICAL SPECIFICATION

CEN/TS 17790

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English Version

Organo-mineral fertilizers - Determination of the chelated micronutrient content and the chelated fraction of micronutrients by treatment with a cation exchange resin

Engrais organo-minéraux - Détermination de la teneur en oligo-éléments chélatés et de la fraction chélatée d'oligo-éléments par traitement avec une résine échangeuse de cations

Organisch-mineralische Düngemittel - Bestimmung des Gehalts an chelatisierten Spurennährstoffen und des chelatisierten Anteils an Spurennährstoffen durch Behandlung mit einem Kationenaustauscherharz

This Technical Specification (CEN/TS) was approved by CEN on 21 February 2022 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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European foreword

This document (CEN/TS 17790:2022) has been prepared by Technical Committee CEN/TC 260 “Fertilizers and liming materials”, the secretariat of which is held by DIN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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

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CEN/TS 17790:2022 (E)**Introduction**

Micronutrients are considered to be, in plant nutrition, a number of elements known to be needed in small amounts for proper plant growth and development. The most common are Iron (Fe), Manganese (Mn), Molybdenum (Mo), Copper (Cu), Zinc (Zn) and Boron (B).

If an organo-mineral fertilizer contains a substance, or one of the substances in the mixture, which is intended to enhance the long-term availability to plants of micronutrients in the EU fertilizing product, that substance is either a chelating agent or a complexing agent.

The chelating agents are divided into two groups¹:

- Group 1: EDTA, DTPA, HEEDTA, IDHA and [S,S]-EDDS;
- Group 2: Chelating agents present in UVCB (unknown or variable composition, complex reaction products and biological materials) chelates including [o,o] EDDHA, [o,p] EDDHA, [o,o] EDDHMA, HBED and EDDHSA.

This document defines the test method to be used in order to measure the compliance with the chelated fraction of a micronutrient in product function category (PFC) 1(B) (classified according to Regulation (EU) 2019/1009 [9]) for organo-mineral fertilizers containing one or more chelating agents of Group 2.

¹ Abbreviated terms are described in Annex A.

1 Scope

This document specifies a method for the determination of the chelated micronutrient content and the chelated fraction of a micronutrient, in organo-mineral fertilizers, having an organic matrix based on vegetal residues (cocoa shells, grape residue, soybean residue, etc), algae extract, and animal meal (feather, bones, blood, etc) and containing UVCB, EDDHA, EDDHMA, HBED, EDDHSA micronutrients by the treatment with a cation exchange resin.

The limit of determination of the chelated micronutrient content highly depends on the specific electrical conductivity of the sample, on the amount of nutrient present, and varies between 0,005 % in simple matrices with high amounts of micronutrient, and 0,5 % in more complex cases (see 9.1).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 12944-1, *Fertilizers and liming materials — Vocabulary — Part 1: General terms*

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

EN 16962, *Fertilizers — Extraction of water soluble micro-nutrients in fertilizers and removal of organic compounds from fertilizer extracts*

EN 16963, *Fertilizers — Determination of boron, cobalt, copper, iron, manganese, molybdenum and zinc using ICP-AES*

EN 16965, *Fertilizers — Determination of cobalt, copper, iron, manganese and zinc using flame atomic absorption spectrometry (FAAS)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12944-1 and EN 12944-2 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

chelated fraction of a micronutrient

ratio of chelated micronutrient content compared to the total water-soluble micronutrient content

Note 1 to entry: The chelated fraction is expressed as a percentage.

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