

STN P	Anorganické hnojivá s obsahom mikroživín Stanovenie obsahu chelátovaných mikroživín a chelátovaného podielu mikroživín Časť 1: Úprava katexovou živickou	STN P CEN/TS 17786-1 65 5021
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Inorganic micronutrient fertilizers - Determination of the chelated micronutrient content and the chelated fraction of micronutrients - Part 1: Treatment with a cation exchange resin

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. 07/22

Táto predbežná slovenská technická norma je určená na overenie. Prípadné pripomienky pošlite do apríla 2024 Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

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TECHNICAL SPECIFICATION
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CEN/TS 17786-1

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ICS 65.080

English Version

**Inorganic micronutrient fertilizers - Determination of the
chelated micronutrient content and the chelated fraction
of micronutrients - Part 1: Treatment with a cation
exchange resin**

Engrais inorganiques à base d'oligo-éléments -
Détermination de la teneur en oligo-éléments chélatés
et de la fraction chélatée des oligo-éléments - Partie 1 :
Traitement avec une résine échangeuse de cations

Anorganische Spurennährstoffdüngemittel -
Bestimmung des Gehaltes an chelatisierten
Spurennährstoffen und des chelatisierten Anteils an
Spurennährstoffen - Teil 1: 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 COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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CEN/TS 17786-1:2022 (E)

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European foreword

This document (CEN/TS 17786-1:2022) has been prepared by Technical Committee CEN/TC 260 “Fertilizers and liming materials”, the secretariat of which is held by DIN.

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

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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CEN/TS 17786-1:2022 (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 inorganic micronutrient 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; and
- Group 2: Chelating agents present in UVCB (unknown or variable composition, complex reaction products or biological materials) chelates including [o,o] EDDHA, [o,p] EDDHA, [o,o] EDDHMA, HBED and [o,o] EDDHSA.

This document defines the test method to be used in order to measure the compliance with the chelated fraction of iron in product function category (PFC) 1(C) (II)(a) (classified according to Regulation (EU) 2019/1009 [9]) for 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 iron content and the chelated fraction of iron, in UVCB chelates, EDDHA, EDDHMA, HBED, EDDHSA, in inorganic micronutrient fertilizers by the treatment with a cation exchange resin.

The limit of determination of the chelated iron 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 and soil improvers — Vocabulary — Part 1: General terms*

EN 12944-2, *Fertilizers and liming materials and soil improvers — 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)*

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