

English Version

Organic and organo-mineral fertilizers - Determination of the chromium (VI) content by chromatography

Engrais organiques et organo-minéraux -
Détermination de la teneur en chrome(VI)

Organische und organisch-mineralische Düngemittel -
Bestimmung des Gehalts an Chrom (VI)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Principle	5
5 Reagents	6
6 Apparatus	6
7 Procedure	7
7.1 Sampling and sample preparation	7
7.2 Preparation of analytical solution	7
7.3 Chromatographic conditions	8
7.4 Calibration	8
7.5 Determination of the recovery rate	9
8 Calculation and expression of results	10
8.1 Calculation of chromium (VI) content	10
8.2 Recovery rate (according to 7.5)	10
8.3 Expression of results	11
9 Test report	11
Annex A (informative) Chromatographic conditions for direct detection method	12
Annex B (informative) Chromatographic conditions for method with post-column reaction	15
Bibliography	19

European foreword

This document (CEN/TS 17778:2022) 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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Introduction

Regulation (EU) 2019/1009 [3] lays down the rules on the making available on the market of EU fertilizing products and the specific safety and quality requirements for the defined product function categories (PFCs). Organic and organo-mineral fertilizers have been classified as PFC 1(A) and PFC 1(B).

This document defines test methods for the determination of the chromium (VI) content to be used for organic and organo-mineral fertilizers in order to measure the compliance with the related requirement in the Regulation (EU) 2019/1009 [3].

1 Scope

This document is applicable to fertilizing products, which are classified as PFC 1(A) and PFC 1(B) or the PFC 1(A) and PFC 1(B) component in PFC 7 of Regulation (EU) 2019/1009 [3]. However, the present method was not validated on blends.

This document specifies a method for the determination of hexavalent chromium (chromium (VI)) in organic and organo-mineral fertilizers.

The method described is suitable to quantify the chromium (VI) content in organic and organo-mineral fertilizers down to 2 mg/kg dry matter.

The results obtained from this method are strictly dependent on the extraction conditions. Results obtained by using other extraction procedures (extraction solution, pH of the extraction solution, extraction time, extraction temperature, etc.) are not comparable with the results produced by the procedure described in this document.

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 ISO 3696:1995, *Water for analytical laboratory use — Specification and test methods (ISO 3696:1987)*

CEN/TS 17773:2022, *Organic and organo-mineral fertilizers — Determination of the dry matter content*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

3.1

Chromium (VI) content

amount of chromium (VI) in organic and organo-mineral fertilizers determined after extraction with an aqueous salt solution at pH 7,0 to pH 8,0.

Note 1 to entry: The chromium (VI) content is reported as chromium (VI) in milligrams per kilogram (mg/kg), expressed as the dry mass of the sample.

[SOURCE: EN ISO 17075-2:2017, 3.1, modified: “leather” is replaced by “organic and organo-mineral fertilizers” and “pH 7,0 to 8,0” is replaced by “pH 7,0 to pH 8,0”]

4 Principle

Extractable chromium (VI) is leached from the sample in phosphate buffer at pH 7,0 to pH 8,0. An aliquot of the filtered extract is analysed for chromium (VI) using ion-exchange chromatography with UV-VIS detection.