TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CEN/TS 17753

April 2022

ICS 65.080

English Version

Inorganic fertilizers - Determination of specific contaminants

Engrais inorganiques - Détermination des contaminants spécifiques

Anorganische Düngemittel - Bestimmung spezifischer Kontaminanten

This Technical Specification (CEN/TS) was approved by CEN on 13 March 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.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, 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: Rue de la Science 23, B-1040 Brussels

Ref. No. CEN/TS 17753:2022 E

Contents

Page

European foreword

This document (CEN/TS 17753:2022) 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.

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.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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). Inorganic fertilizers have been classified into PFC 1(C).

The specific safety and quality requirements in relation to specific contaminants (i.e. the mercury, cadmium, nickel, copper, zinc, arsenic, lead, chromium VI, biuret, perchlorate and total chromium content) are defined in this document as well as normative references of the test methods to be used in order to measure the compliance with the related requirement in the Regulation (EU) 2019/1009 [3].

1 Scope

This document specifies references to methods for the determination of the following contaminants: mercury, cadmium, nickel, copper, zinc, arsenic, lead, chromium(VI), biuret, perchlorate and total chromium content in inorganic fertilizers.

This document is applicable to EU fertilizing products classified as PFC 1(C) and PFC 7 as long as the blend only consists of EU fertilizing products classified as PFC 1(C), PFC 2 and PFC 5 as specified in the Regulation (EU) 2019/1009 [3].

An overview of the references to methods for the determination of the specific contaminants is given in Table 1.

NOTE 1 The determination of copper and zinc in inorganic fertilizers as micronutrients is covered by CEN/TS 17754:2022.

NOTE 2 The determination of copper in ammonium nitrate fertilizers of high nitrogen content is covered by CEN/TS 17751:2022.

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 1482-1:2007, *Fertilizers and liming materials — Sampling and sample preparation — Part 1: Sampling*

EN 1482-2:2007, *Fertilizers and liming materials — Sampling and sample preparation — Part 2: Sample preparation*

EN 1482-3:2016, *Fertilizers and liming materials — Sampling and sample preparation — Part 3: Sampling of static heaps*

EN 12944-1:1999,[1] *Fertilizers and liming materials — Vocabulary — Part 1: General terms*

EN 12944-2:1999,[2] *Fertilizers and liming materials — Vocabulary — Part 2: Terms relating to fertilizers*

EN 15479:2009, *Fertilizers — Spectrophotometric determination of biuret in urea*

EN 16317:2013+A1:2017, *Fertilizers and liming materials — Determination of arsenic by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after aqua regia dissolution*

EN 16318:2013+A1:2016, *Fertilizers and liming materials — Determination of chromium(VI) by photometry (method A) and by ion chromatography with spectrophotometric detection (method B)*

EN 16319:2013+A1:2015, *Fertilizers and liming materials — Determination of cadmium, chromium, lead and nickel by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after aqua regia dissolution*

EN 16320:2013+A1:2017, *Fertilizers and liming materials — Determination of mercury by vapour generation (VG) after aqua regia dissolution*

[1] As impacted by EN 12944-1:1999/AC:2000.
[2] As impacted by EN 12944-2:1999/AC:2000.

EN 16962:2018, *Fertilizers — Extraction of water soluble micro-nutrients in fertilizers and removal of organic compounds from fertilizer extracts*

EN 16963:2018, *Fertilizers — Determination of boron, cobalt, copper, iron, manganese, molybdenum and zinc using ICP-AES*

EN 16964:2018, *Fertilizers — Extraction of total micro-nutrients in fertilizers using aqua regia*

EN 16965:2018, *Fertilizers — Determination of cobalt, copper, iron, manganese and zinc using flame atomic absorption spectrometry (FAAS)*

EN 17246:2019, *Fertilizers — Determination of perchlorate in mineral fertilizers by ion chromatography and conductivity detection (IC-CD)*

ISO 18643:2016, *Fertilizers and soil conditioners — Determination of biuret content of urea-based fertilizers — HPLC method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12944-1:1999 and EN 12944-2:1999 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

4 Sampling and sample preparation

4.1 Sampling

Samples taken for quality control purposes shall be representative, as described in EN 1482-1:2007. Sampling of static heaps shall be performed according to EN 1482-3:2016.

4.2 Sample preparation

The sample preparation for quality control purposes shall be performed according to EN 1482-2:2007.

5 Determination of specific contaminants

5.1 Mercury (Hg)

For the determination of the content of mercury in inorganic fertilizers the method as described in EN 16320:2013+A1:2017 shall be used. EN 16320:2013+A1:2017 specifies a method for the determination of the content of mercury after extraction with aqua regia and the detection of mercury by vapour generation (VG) coupled to an atomic absorption spectrometer or an inductively coupled plasma-atomic emission spectrometer.

5.2 Cadmium (Cd), nickel (Ni), arsenic (As) and lead (Pb)

For the determination of the content of cadmium, nickel and lead in inorganic fertilizers the method as described in EN 16319:2013+A1:2015 shall be used. EN 16319:2013+A1:2015 specifies a method for the determination of the content of cadmium, nickel and lead using inductively coupled plasma-atomic emission spectrometry (ICP-AES) after aqua regia dissolution.