TECHNICAL SPECIFICATION

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CEN/TS 17762

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English Version

Inorganic fertilizers - Determination of the copper content in ammonium nitrate fertilizers of high nitrogen content

Engrais inorganiques - Détermination de la teneur en cuivre dans les engrais à base de nitrate d'ammonium et à forte teneur en azote

Anorganische Düngemittel - Bestimmung des Kupfergehaltes in Ammoniumnitratdüngemitteln mit hohem Stickstoffgehalt

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European foreword

This document (CEN/TS 17762:2022) 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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1 Scope

This document specifies a method for the determination of the copper content in ammonium nitrate fertilizers of high nitrogen content.

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

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*

3 Terms and definitions

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

The sample is dissolved in dilute hydrochloric acid and the copper is determined by atomic absorption spectrophotometry (AAS) or by inductive coupled plasma - optical emission spectroscopy (ICP-OES).

5 Reagents

Use only reagents of recognized analytical grade and distilled or demineralized water (grade 3 according to EN ISO 3696:1995).

5.1 Hydrochloric acid, density ρ = 1,18 g/ml, at 20 °C.

5.2 Hydrochloric acid, substance concentration c = 6 mol/l.

5.3 Hydrochloric acid, c = 0,5 mol/l.

5.4 Ammonium nitrate.

5.5 Hydrogen peroxide, 30 % m/V.

5.6 Copper stock solution.

Weigh, to the nearest 0,001 g, 1 g of pure copper (Cu), dissolve in 25 ml of hydrochloric acid (5.2), add 5 ml of hydrogen peroxide (5.5) in portions and dilute to 1 l with water. One ml of this solution contains 1 000 µg of copper.

A commercially available stock copper solution may be used.

5.7 Copper standard solution.