SLOVENSKI STANDARD
kSIST-TS FprCEN/TS 17779:2021

01-december-2021

Organsko-mineralna gnojila - Ekstrakcija fosforja, topnega v nevtralnem amonijevem citratu, za določevanje fosforja z atomsko emisijsko spektrometrijo z induktivno sklopljeno plazmo (ICP/AES)

Organo-mineral fertilizers - Extraction of phosphorus, which is soluble in neutral ammonium citrate (NAC) for subsequent determination of P by ICP-AES

Organisch-mineralische Düngemittel - Extraktion von Phosphor, der in neutralem Ammoniumcitrat (NAC) löslich ist, zur anschließenden Bestimmung von P durch ICP-AES

Ta slovenski standard je istoveten z: **FprCEN/TS 17779**

ICS:

65.080	Gnojila	Fertilizers

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TECHNICAL SPECIFICATION

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English Version

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This draft Technical Specification is submitted to CEN members for Vote. It has been drawn up by the Technical Committee CEN/TC 260.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European Foreword

This document (FprCEN/TS 17779:2021) has been prepared by the Technical Committee CEN/TC 260 “Fertilizers and liming materials”, the secretariat of which is held by DIN

This document is currently submitted to the Vote on TS.

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

1 Scope

This document specifies a method for the extraction of phosphorus soluble in neutral ammonium citrate.

The method is applicable to organo-mineral fertilizers.

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.

FprCEN/TS 17774, *Organic and organo-mineral fertilizers - Determination of the content of specific elements by ICP-AES after extraction by water*

3 Terms and definitions

No terms and definitions are listed in this document.

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

Extraction of phosphorus at a temperature of 65 °C using a neutral ammonium citrate solution of pH = 7 under the specified conditions.

5 Sampling

Sampling should be performed carefully, following the principle described in EN 1482 (all parts) with appropriate adaptations, required to account for specificities of organo-mineral fertilizers.

6 Reagents

6.1 Water

6.2 Neutral ammonium citrate solution,

6.3 pH = 7, containing 185 g crystallized citric acid per litre, specific gravity 1,09 at 20 °C.

Prepare the reagent as follows:

Dissolve 370 g of crystalline citric acid ($C_6H_8O_7 \cdot H_2O$) in about 1,5 l of water and make an approximately neutral solution by adding 345 ml of ammonium hydroxide solution (28 % to 29 % of NH_3). If the NH_3 concentration is lower than 28 % add a correspondingly larger quantity of ammonium hydroxide solution and dilute the citric acid in correspondingly smaller quantities of water.

Cool and make exactly neutral by keeping the electrodes of a pH-meter immersed in the solution. Add the ammonia, at 28 % to 29 % of NH_3, drop by drop, stirring continuously (with a mechanical stirrer) until

obtaining exactly a pH of 7 at a temperature of 20 °C. At this point make up the volume to 2 l and check the pH again. Keep the reagent in a closed container and check the pH at regular intervals.

7 Apparatus

7.1 Beaker, capacity 2 l.

7.2 pH-meter

7.3 Erlenmeyer flask, capacity 200 ml or 250 ml.

7.4 Graduated flasks, capacity 500 ml and 2 000 ml.

7.5 Water bath, to be set thermostatically at (65 ± 2) °C, equipped with a suitable stirrer.

7.6 Dry pleated filter, medium speed, phosphate free**.**

8 Procedure

8.1 Test portion

Transfer 1 g or 3 g (for fertilizers with pure or partially digested rock phosphate) with an accuracy of 0,01 g of the laboratory sample to be analysed into a 200 ml or 250 ml Erlenmeyer flask (7.3) containing 100 ml of ammonium citrate solution (6.2) previously heated to (65 ± 2) °C.

8.2 Extraction

Stopper the Erlenmeyer flask (7.3) and shake in order to suspend the test portion without forming lumps. Remove the stopper for an instant in order to balance the pressure and close the Erlenmeyer flask again. Place the flask in a water bath (7.5) set to maintain the contents of the flask at exactly 65 °C and connect it to the stirrer. During stirring, the level of the suspension in the flask shall stay constantly below the level of the water in the water bath. If a mechanical stirrer is not available, the flask may be shaken by hand every 5 min.

Regulate mechanical stirring to ensure complete suspension.

After stirring for exactly 1 h, remove the Erlenmeyer flask from the water bath.

Cool immediately under running water to ambient temperature and, immediately, quantitatively transfer the contents from the Erlenmeyer flask into a graduated 500 ml flask (7.4) with a jet of water (wash bottle). Make up the volume with water. Mix thoroughly. Filter through a dry pleated filter (7.6) into a dry container, discarding the first part of the filtrate (about 50 ml).

Collect about 100 ml of clear filtrate.

The determination of phosphorus after extraction shall be done according to FprCEN/TS 17774.