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BSI Standards Publication

Fertilizers and liming materials — Determination of the chloride content by potentiometric titration

bsi.

National foreword

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Fertilizers and liming materials - Determination of the chloride content by potentiometric titration

Engrais et amendements minéraux basiques - Détermination de la teneur en chlorures par titrage potentiométrique

Düngemittel und Kalkdünger - Bestimmung des Chloridgehaltes mittels potentiometrischer Titration

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European foreword

This document (CEN/TS 17758:2022) 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 chloride content in organic fertilizers, organo-mineral fertilizers, inorganic fertilizers and liming materials by potentiometric titration.

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*

EN 12944-3, *Fertilizers and liming materials — Vocabulary — Part 3: Terms relating to liming materials*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12944-1, EN 12944-2 and EN 12944-3 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 chlorides, dissolved in water, are precipitated in an acidified medium by an excess of standard solution of silver nitrate. The chloride concentration in the samples is quantified by potentiometric determination. To detect the end point, the voltage between a reference electrode on the one hand and the silver electrode or an ion selective electrode on the other hand, is tracked. This voltage depends on the logarithm of the chloride ion activity. If it is plotted, in mV, on the ordinate and the silver nitrate solution, in ml, on the abscissa, the point of inflection of the curve obtained in this manner is the equivalence point. Equivalent methods of evaluation are permitted [4, 6].

5 Reagents

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

5.1 Nitric acid, substance concentration c = 16 mol/l.

5.2 Nitric acid solution, c = 10 mol/l.

Mix 630 ml of nitric acid (5.1) with 370 ml of water.

5.3 Silver nitrate standard solution, c = 0,1 mol/l.

Stock solution or preparation from $AgNO_3$ salt; since this salt is hygroscopic and cannot be dried without risk of decomposition, it is advisable to weigh out approximately 17 g, dissolve in water and fill up the volume to 1 l.