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**Organic and organo-mineral fertilizers —  
Extraction by water for subsequent determination of elements**

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## **European foreword**

This document has been prepared by Technical Committee CEN/TC 260 “Fertilizers and liming materials”, the secretariat of which is held by DIN.

This is a working document

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.

## 1 Scope

This document specifies a method for the extraction by water for the subsequent determination of elements.

The extracts are suitable for analysis using CEN/TS 17774.

NOTE Alternatively, inductively coupled plasma mass spectrometry (ICP-MS) can be used for the measurement if the user proves that the method gives the same results.

This method is applicable to organo-mineral fertilizers and to the fertilizing product blends where the EU fertilising product organic and organo-mineral fertilizer contained in the blend represents the highest % by mass in the blend. In case of equal shares, the user may apply either this or the standard(s) applicable to the other component product(s).

## 2 Normative references

There are no normative references in this document.

## 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

The principle is to perform the extraction in water by shaking under the specified conditions.

## 5 Sampling and sample preparation

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

## 6 Reagents

**6.1 Water**, with a specific conductivity not higher than 0,2 mS/m at 25 °C, free from the elements to be determined.

## 7 Apparatus

- 7.1 500 ml graduated flask**, e.g. Stohmann.
- 7.2 Rotary shaker**, 35 turns per minute to 40 turns per minute.
- 7.3 Dry pleated filter**, Phosphate free.

## **8 Procedure**

### **8.1 Test portion**

Weigh, to the nearest 0,001 g, 5 g of the laboratory sample and place it in a graduated flask (7.1).

### **8.2 Extraction**

Add to the test portion in the flask 450 ml of water (6.1), the temperature of which shall be between 20 °C and 25 °C.

Shake in the rotary shaker (7.2) for  $30 \pm 1$  min.

Then make up to the mark with water, mix thoroughly by shaking and filter through a dry pleated filter (7.3).

The extracts can be kept at  $(4 \pm 3)$  °C for two days before determination.

## **9 Test Report**

In the test report of the determination method (e.g. CEN/EN 17774), a reference to this standard shall be included as well as the date of extraction and potential deviation while applying this method.

## Bibliography

- [1] EN 1482 (all parts), *Fertilizers and liming materials — Sampling and sample preparation*
- [2] CEN/TS 17774, *Organic and organo-mineral fertilizers — Determination of the content of specific elements by ICP-AES after extraction by water*