



SLOVENSKI STANDARD
oSIST prEN 17817:2022

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Sredstva za gnojenje - Določanje količine (mase ali prostornine)

Fertilizing products - Determination of the quantity (indicated by mass or volume)

Düngemittel und Kalkdünger - Bestimmung der Menge (durch Angabe der Masse oder des Volumens)

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Fertilizers

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English Version

Fertilizing products - Determination of the quantity (indicated by mass or volume)

Düngemittel und Kalkdünger - Bestimmung der Menge
(durch Angabe der Masse oder des Volumens)

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

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

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European foreword

This document (prEN 17817:2022) has been prepared by Technical Committee CEN/TC 260 “Fertilizers and liming materials”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

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prEN 17817:2022 (E)

Introduction

In order to measure compliance with the related requirements of the Regulation (EU) 2019/1009 [6] relevant test methods have to be defined in harmonized standards. In this document the determination of the quantity of organic, organo-mineral and inorganic fertilizers, liming materials, inhibitors and blends of these fertilizing products are defined.

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1 Scope

This document specifies methods for the determination of quantity of solid and liquid forms of organic fertilizers, organo-mineral fertilizers, inorganic fertilizers, liming materials, inhibitors and blends of these products or blends where one or more of these products are the major ingredient in packages, containers or in bulk.

This document is not applicable to the quantity determination of: growing media, soil improvers and plant biostimulants.

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 12580:2013, *Soil improvers and growing media - Determination of a quantity*

EN 12944-1:1999, *Fertilizers and liming materials and soil improvers - Vocabulary - Part 1: General terms*

EN 15238:2006, *Soil improvers and growing media - Determination of quantity for materials with particle size greater than 60 mm*

EN 15761:2009, *Pre-shaped growing media - Determination of length, width, height, volume and bulk density*

EN 45501:2015, *Metrological aspects of non-automatic weighing instruments*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

fertilizing product

substance, mixture, micro-organism or any other material, applied or intended to be applied on plants or their rhizosphere or on mushrooms or their mycosphere, or intended to constitute the rhizosphere or mycosphere, either on its own or mixed with other material, for the purpose of providing the plants or mushrooms with nutrient or improving their nutrition efficiency

Note 1 to entry: Based on Regulation (EU) 2019/1009 [6], Chapter 1, Article 2, (1).

prEN 17817:2022 (E)**3.2****soil improver**

fertilizing product, which maintains, improves or protects the physical or chemical properties, the structure or the biological activity of the soil to which it is added

Note 1 to entry: Based on Regulation (EU) 2019/1009 [6], Annex I, Part II, PFC 3.

3.3**growing medium**

fertilizing product, other than soil in situ, for plants or mushrooms to grow in

Note 1 to entry: Based on Regulation (EU) 2019/1009 [6], Annex I, Part II, PFC 4, 1.

3.4**plant biostimulant**

fertilizing product, which stimulates plant nutrition processes independently of the product's nutrient content with the sole aim of improving nutrient use efficiency, and/or tolerance to abiotic stress, and/or quality traits, and/or availability of confined nutrients in the soil or rhizosphere

Note 1 to entry: Based on Regulation (EU) 2019/1009 [6], Annex I, Part II, PFC 6.

3.5**fertilizing product blend**

fertilizing product composed of two or more EU fertilizing products of PFC 1 to PFC 6 for which the compliance with the requirements of Regulation (EU) 2019/1009 of each component EU fertilizing product in the blend has been demonstrated in accordance with the conformity assessment procedure applicable to that component EU fertilizing product

Note 1 to entry: Based on Regulation (EU) 2019/1009 [6], Annex I, Part II, PFC 7, 1.

3.6**liquid form**

suspension or solution

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Note 1 to entry: Based on Regulation (EU) 2019/1009 [6], Chapter 1, Article 2, (6).

3.7**suspension**

two-phase dispersion in which solid particles are maintained in suspension in the liquid phase

Note 1 to entry: Based on Regulation (EU) 2019/1009 [6], Chapter 1, Article 2, (6).

3.8**solution**

liquid or gel or paste that is free of solid particles

Note 1 to entry: Based on Regulation (EU) 2019/1009 [6], Chapter 1, Article 2, (6).

3.9**solid form**

form characterised by structural rigidity and resistance to changes of shape or volume and in which atoms are tightly bound to each other, either in a regular geometric lattice (crystalline solids) or in an irregular manner (an amorphous solid)

Note 1 to entry: Based on Regulation (EU) 2019/1009 [6], Chapter 1, Article 2, (7).

3.10**destructive testing**

testing which involves opening or destroying of the package

Note 1 to entry: Based on Council Directive 76/211/EEC [1], Annex II, 2.

3.11**non-destructive testing**

testing which does not involve the opening or destroying of the package

Note 1 to entry: Based on Council Directive 76/211/EEC [1], Annex II, 2.

3.12**weighing instrument**

measuring instrument serving to determine the mass of a body by using the action of gravity on that body

Note 1 to entry: Based on Directive 2014/31/EU [2], Chapter 1, Article 2, (1).

3.13**non-automatic weighing instrument**

weighing instrument requiring the intervention of an operator during the weighing process to decide that the weighing result is acceptable

Note 1 to entry: Based on Directive 2014/31/EU [2], Chapter 1, Article 2, (2).

3.14**nominal quantity**

declared mass or volume of the contents of a package or container indicated on or with the package or in documentation associated with the contents

3.15**net quantity**

actual mass or volume of the contents of a package

3.16**gross quantity**

mass or volume of package

3.17**package**

container or wrapping plus contents

3.18**container**

object in which a product is delivered

EXAMPLE Bottle, box, bag, intermediate bulk container, road tanker, lorry.

4 Methods of quantity determination

4.1 Destructive and non-destructive testing

For economic and practical reasons destructive testing should be used only when non-destructive testing is impractical.

4.2 Determination of quantity of solid or liquid fertilizing product when sold by mass

4.2.1 Apparatus

4.2.1.1 Weighing instrument, shall be of a suitable type and sufficiently accurate to determine the gross quantity and mass of the container used so that a net quantity of the contents can be determined.

“Suitable type” means a non-automatic weighing instrument that complies with the requirements of EN 45501:2015.

“Sufficiently accurate” means that the scale intervals or sensitivity of the non-automatic weighing instrument shall be no more than one fifth of the tolerable error permitted by the Regulation (EU) 2019/1009 [6] in relation to nominal quantity being weighed.

NOTE Since half a graduation can be read on an analogue indicator non-automatic weighing instrument weight display, digital instruments will need to indicate 50 % of those required for an analogue graduation.

4.2.2 Equipment check

Before using the non-automatic weighing instrument to establish the quantity of a fertilizing product it shall be checked with weights, which comply with OIML R111-1 [5] and have a measurement error of no more than one third of the maximum error for the non-automatic weighing instrument under test. The tests are laid down in EN 45501:2015.

A record should be kept of the results of the tests.

4.2.3 Method

4.2.3.1 Packages 5 g to 25 kg

Place each package to be checked separately on the weighing plate of the non-automatic weighing instrument and record the gross quantity for each (x).

Weigh 10 randomly selected empty containers (non-destructive testing) or if empty containers are not available empty weigh 10 containers randomly selected from those already weighed, after ensuring no fertilizing product remains in or on the containers (destructive testing).

Record the masses and obtain a mean mass of the containers (y). Record the calculation and result.

Subtract the mean mass of the container from the gross quantity of each packed fertilizing product and calculate and record each net quantity (z) using Formula (1).

$$z = x - y \quad (1)$$

where

- z is the net quantity by mass of the contents of an individual package in g;
- x is the gross quantity by mass of an individual package in g;
- y is the mean mass of the empty containers in g.

4.2.3.2 Packages more than 25 kg to 1 t

These are packages which cannot be manually handled and require larger capacity non-automatic weighing instruments to ascertain their gross weight.

The non-automatic weighing instrument used shall be of a suitable type and sufficiently accurate for the net quantity of fertilizing product in the package. See 4.2.1.1.

The procedure detailed in 4.2.3.1 shall be followed except that the number of empty containers to be weighed should be reduced to 5.

4.2.3.3 Fertilizing product sold loose and in bulk

This fertilizing product will need to be loaded into some type of transport container (vehicle, large container or other suitable method of containing the fertilizing product). Using a non-automatic weighing instrument suitable for the quantity of fertilizing product in the container/consignment (see 4.2.1.1). The transport container shall be weighed empty and the mass (m_t) recorded. The fertilizing product shall then be placed in the transport container and the gross quantity (m_g) recorded. The net quantity (m_n) of the fertilizing product can then be calculated using the Formula (2).

$$m_n = m_g - m_t \quad (2)$$

where

m_n is the net quantity of the fertilizing product in kg;

m_g is the gross quantity of the fertilizing product and transport container in kg;

m_t is the mass of the transport container empty in kg.

NOTE It is equally acceptable to weigh the gross quantity first and then empty the transport container and determine the mass empty.

4.3 Determination of quantity of liquid fertilizing product when sold by volume

4.3.1 Apparatus

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4.3.1.1 Weighing instrument capable of weighing to the nearest 0,1 g.

4.3.1.2 Sampling equipment as per EN 1482-1:2007.

4.3.1.3 Density determination equipment,

a density bottle, or

a graduated measuring cylinder with maximum 2 ml graduations, or

a density meter reading to three decimal places.

4.3.1.4 Water bath at (20 ± 1) °C.

4.3.2 Equipment check

Check weighing equipment as detailed in 4.2.2.