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SIST EN 12580:2013

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EUROPEAN STANDARD

EN 12580

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2013

ICS 65.080

Supersedes EN 12580:1999

English Version

## Soil improvers and growing media - Determination of a quantity

Amendements organiques et supports de culture -  
Détermination de la quantité

Bodenverbesserungsmittel und Kultursubstrate -  
Bestimmung der Menge

This European Standard was approved by CEN on 31 August 2013.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (EN 12580:2013) has been prepared by Technical Committee CEN/TC 223 “Soil improvers and growing media”, the secretariat of which is held by ASI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2014, and conflicting national standards shall be withdrawn at the latest by April 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12580:1999.

The main changes are listed below:

- it reflects the provisions of EN 15238 and EN 15761;
- more detail is provided on how to carry out the density determination of the product;
- it includes a method to calibrate the measure.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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## Introduction

Soil improvers and growing media are generally traded by volume as the weight of the product can be greatly affected by the moisture content. It is important for both consumers and traders to know the volume of product being traded. Furthermore, for the cultivation of plants, it is the volume of the product, and not the weight, that is generally important. The volume is calculated from knowing the weight and bulk density of the product, the latter being determined from weighing a known reference volume of product. For those materials traded by reference to its mass, this document recognises the effects the moisture content can have on the quantity declared. Therefore the principle is that for such transactions any weight should be accompanied by the moisture content so that the solid matter content can be calculated.

As some soil improvers and growing media are compressible (and some may be presented in compressed blocks or bales), it is important that this aspect be addressed in the method of determining the bulk density. A suitably competent person should undertake this testing.

Even for materials traded by volume, the moisture content can have an effect as high moisture levels increase agglomerations, can reduce the ability to decompress or reconstitute materials, reduce their flow characteristics and give higher apparent bulk densities and lower volumes.

The preparation and sampling of all materials prior to quantity determination is covered in EN 12579.

Quantity determination will be performed as soon as possible after preparation and sampling.

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## 1 Scope

This European Standard specifies methods for the determination of a quantity of soil improvers and growing media in bulk and in packages. This is a reference method, which is designed with an appropriate precision level so that it can be used to validate any quantity declaration made.

This standard is applicable to material that is in solid form, reconstituted if necessary, but not to blocks sold as such by dimension; for these, see EN 15761. This method is not applicable for material with more than 10 % (V/V) of particles greater than 60 mm in size; for these, see EN 15238.

The requirements of this standard may differ from the national legal requirements for the declaration of the products concerned.

Where there is no legal requirement to use this method, for example in quantity control of packaged product, then it is permissible for any other methods to be used so long as these other methods can be demonstrated to be comparable with this standard method in giving the same quantity with the same precision.

Material which has become excessively wet and which cannot be easily broken down into a flowable material will not be suitable for the determination of quantity and may not give a representative result. However, because of the diverse nature and bulk density of these materials, it is not possible to quantify what is 'excessive'.

This standard is intended to be used by manufacturers, buyers and enforcement agencies in verifying claims made for these products. It is not intended that it should necessarily be used for the purpose of manufacturing control.

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## 2 Normative references (standards.iteh.ai)

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12579:2013, *Soil improvers and growing media — Sampling*

EN 13040, *Soil improvers and growing media — Sample preparation for chemical and physical tests, determination of dry matter content, moisture content and laboratory compacted bulk density*

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

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply:

### 3.1

#### **batch**

lot

quantity of goods manufactured by the same process under the same conditions and labelled in the same manner and assumed to have the same characteristics

### 3.2

#### **bulk material**

material that is not packaged

**EN 12580:2013 (E)****3.3****container**

container in which material is delivered, including a lorry, ship, boat and package

**3.4****bulk density**

apparent density of material as received or reconstituted

Note 1 to entry: The reconstitution is in accordance with the manufacturer's instructions or as required by EN 12579:2013, 6.4.4, as determined by the method specified in this standard.

Note 2 to entry: 'Bulk density' in this standard refers to the apparent density in air (based on conventional mass) and not the density in vacuum.

**3.5****package**

container in which the goods are delivered and which remains with them after delivery

Note 1 to entry: A package may be a loose-filled sack typically up to 100 l, a compressed block or bale and even a 'big bale', typically of 4 m<sup>3</sup> or more.

**3.6****strike**

transparent sheet of flat material, normally glass, which is easily large enough to cover the top of the measure

**4 Symbols and abbreviated terms**

$D$  bulk density of material, as determined by the method specified in this standard

$V$  volume of material, in litres

$m_x$  mass of an item, in grams

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**5 Principle**

**5.1** For each batch of material, whether for delivery in bulk or in packages, the quantity of material is determined and reported either by volume or by weight.

The unit of measurement (weight or volume) used for the quantity declaration needs to comply with national regulations where they exist.

**5.2** Where the quantity declared is by volume then the material is weighed and then sampled and its bulk density is determined. From this information, the volume is then calculated. Clauses 6 to 11 of the standard apply.

**5.3** Where the quantity declared is by weight then the moisture content is also determined so that the dry matter weight can be determined and declared. Clauses 12 and 13 of the standard apply.

NOTE The structure of the material can change with time and handling and this can affect the volume of the material.

**6 Apparatus**

**6.1 Measure**, rigid, 20 l ± 0,4 l with a height to diameter ratio between 0,9:1 and 1:1.

The volume  $V_1$  shall be known to the nearest 10 ml at 20 °C, with an uncertainty of measurement ( $k = 2$ ) of no more than 50 ml.

A standard 300 mm internal diameter pipe of height 283 mm with an end cap can be suitable.



The apparent weight of 1 l of water at 20 °C is 997,15 g. Therefore no air buoyancy correction needs to be made.

NOTE Information about the measurement and expression of uncertainty is given in the OIML Guide (G1) to the expression of uncertainty in measurement (sometimes referred to as GUM).

**6.2 Collar**, rigid, of the same diameter as the measuring cylinder (6.1) and with a height of 75 mm ± 2 mm.

**6.3 Fall controller**, of either 20 mm ± 0,6 mm or 40 mm ± 1,3 mm or 60 mm ± 2 mm mesh size as required (see 9.5), held not more than 50 mm above the collar, equipped with locating lugs to enable it to sit on the collar correctly without friction.

NOTE Wires crossing each other at right angles form the mesh with the appropriately sized square holes.

Ideally the fall controller should be separated from the measure to avoid jogging or vibrating material in the measure during the filling process.



#### Key

- a is the Fall controller (6.3)
- b is the Collar (6.2)
- c is the Measuring cylinder (6.1)

NOTE 1 For convenience and ease of use it is advisable to have 3 handles on the cylinder and 2 on the filling collar and the fall controllers.

NOTE 2 For stability it is useful to have three short legs/feet on the base of the measuring cylinder.

**Figure 1 — Diagrammatic representation of the way the apparatus as described in 6.1 to 6.3, the fall controller, filling collar and measuring cylinder, are assembled**