



# SLOVENSKI STANDARD

## SIST EN 13039:2012

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Nadomešča:  
SIST EN 13039:2001

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**Izboljševalci tal in rastni substrati - Določevanje organske snovi in pepela**

Soil improvers and growing media - Determination of organic content and ash

Bodenverbesserungsmittel und Kultursubstrate - Bestimmung des Gehaltes an organischer Substanz und Asche

Amendements du sol et supports de culture - Détermination de la matière organique et des cendres

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**Ta slovenski standard je istoveten z: EN 13039:2011**

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**ICS:**

65.080

Gnojila

Fertilizers

**SIST EN 13039:2012**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 13039**

November 2011

ICS 65.080

Supersedes EN 13039:1999

English Version

**Soil improvers and growing media - Determination of organic matter content and ash**

Amendements du sol et supports de culture -  
Détermination de la matière organique et des cendres

Bodenverbesserungsmittel und Kultursubstrate -  
Bestimmung des Gehaltes an organischer Substanz und  
Asche

This European Standard was approved by CEN on 17 September 2011.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (EN 13039:2011) 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 May 2012, and conflicting national standards shall be withdrawn at the latest by May 2012.

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 13039:1999.

The main change to the previous edition is in the scope.

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

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## 1 Scope

This European Standard specifies a routine method for determining the organic matter and the ash content of soil improvers and growing media.

This method is not applicable to liming materials and preformed materials such as mineral wool slabs and foam slabs.

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

## 2 Normative references

The following referenced documents are indispensable for the application 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 12579:1999, *Soil improvers and growing media – Sampling*

EN 13040:2007, *Soil improvers and growing media – Sample preparation for chemical and physical tests, determination of dry matter content, moisture content and laboratory compacted bulk density*

ISO 5725 (all parts), *Accuracy (trueness and precision) of measurement methods and results*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12579:1999 and the following apply.

### 3.1

#### **organic matter**

carbon fraction of a sample which is free from water and inorganic substances

The organic matter for the purposes of this standard is taken as equal to loss on dry incineration at  $(450 \pm 25) ^\circ\text{C}$ .

### 3.2

#### **ash**

residual mineral matter remaining after the destruction of organic matter/material by controlled burning

## 4 Principle

The test portion is dried at  $(103 \pm 2) ^\circ\text{C}$ , then ashed at  $(450 \pm 25) ^\circ\text{C}$ . The ash is determined as the residue on ignition. The organic matter is taken to be the loss of mass on ignition. Both are expressed as a percentage by mass of the dried sample.

## 5 Apparatus

**5.1 Drying oven**, capable of maintaining a temperature of  $(103 \pm 2) ^\circ\text{C}$ .

**5.2 Electric muffle furnace**, capable of maintaining temperatures of  $(450 \pm 25) ^\circ\text{C}$  and  $(550 \pm 25) ^\circ\text{C}$ .

**5.3 Basin**, made from fused silica or quartz, of shallow form with a flat bottom, capable of holding a sample of 5 g. Typical dimensions are 70 mm width and 20 mm height.

**5.4 Desiccator** containing an active drying agent.

**5.5 Analytical balance** with a scale interval 0,001 g.

## 6 Procedure

### 6.1 Test sample

Prepare the test sample in accordance with Clause 9 of EN 13040:2007.

### 6.2 Preparation of the basin

Heat the basin (see 5.3) for 16 h in the muffle furnace (see 5.2) at  $(550 \pm 25) ^\circ\text{C}$ . Cool in the desiccator (see 5.4). After cooling, weigh to the nearest 0,001 g. Note the mass of the basin  $m_0$ .

NOTE The basin is heated to  $(550 \pm 25) ^\circ\text{C}$  to ensure that all volatile material is removed prior to the test.

### 6.3 Determination

Spread evenly over the surface of the basin (see 5.3) approximately 5 g of the test sample (see 6.1) and dry in the oven (see 5.1) at a temperature of  $(103 \pm 2) ^\circ\text{C}$  for 4 h.

Allow the basin and contents to cool to room temperature in the desiccator (see 5.4) and weigh to the nearest 0,001 g. Place the basin and contents in the oven (see 5.1) maintained at  $(103 \pm 2) ^\circ\text{C}$  for a further 1 h.

Allow the basin and contents to cool to room temperature in the desiccator (see 5.4) and weigh to the nearest 0,001 g. Repeat the operations of heating, cooling and weighing until the difference between two successive weightings is less than 0,01 g. Note the mass of the basin and dried sample  $m_1$ .

Place the basin and contents in the cool muffle furnace (see 5.2) and raise the temperature over approximately 1 h to  $(450 \pm 25) ^\circ\text{C}$ . Maintain this temperature for 6 h. Allow the basin and contents to cool to room temperature in the desiccator (see 5.4) and weigh to the nearest 0,001 g. Place the basin and contents into the muffle furnace (see 5.2) maintained at  $(450 \pm 25) ^\circ\text{C}$  for a further 1 h.

Allow the basin and contents to cool to room temperature in the desiccator (see 5.4) and weigh to the nearest 0,001 g. Repeat the operations of heating, cooling and weighing until the difference between two successive weightings is less than 0,01 g. Note the mass of the basin and sample after ignition  $m_2$ .

## 7 Calculation and expression of results

The organic matter content, expressed as a percentage by mass of the dried sample, is given by the following equation:

$$W_{\text{om}} = \frac{m_1 - m_2}{m_1 - m_0} \times 100 \quad (1)$$

The ash content, expressed as a percentage by mass of the dried sample, is given by the following equation:

**EN 13039:2011 (E)**

$$W_{\text{ash}} = \frac{m_2 - m_0}{m_1 - m_0} \times 100 \quad (2)$$

where

$W_{\text{om}}$  is the organic matter content, in % m/m;

$W_{\text{ash}}$  is the ash content, in % m/m;

$m_0$  is the mass of the basin, in g;

$m_1$  is the mass of the basin and the sample after drying in grams;

$m_2$  is the mass of the basin and the sample after ignition in grams.

## 8 Precision

The repeatability and reproducibility of the organic matter (*ash*) of the sample measured in 2 separately prepared samples should be in accordance with Table A.1.

A summary of the results of an interlaboratory trial to determine the precision of the method in accordance with ISO 5725 is given in Annex A.

The values derived from the interlaboratory trial may not be applicable to concentrations and matrices other than those given.

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## 9 Test report

The test report shall include the following: [SIST EN 13039:2012  
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- a) a complete identification of the sample;
- b) a reference to this European Standard;
- c) the results expressed in accordance with Clause 7;
- d) any unusual features noticed during the determination;
- e) details of any operation not specified in the European Standard or regarded as optional, as well as any factor which may have affected the results.