



**SLOVENSKI STANDARD**  
**oSIST prEN 1482-4:2022**

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**Gnojila, sredstva za apnjenje in inhibitorji - Vzorčenje in priprava vzorcev - 4. del:  
Vzorčenje za ugotavljanje prisotnosti mikroorganizmov**

Fertilizers, liming materials and inhibitors - Sampling and sample preparation - Part 4:  
Sampling for microbial presence

Düngemittel, Kalkdünger und Inhibitoren - Probenahme und Probenvorbereitung - Teil 4:  
Probenahme für das Vorkommen von Mikroorganismen

Engrais, amendements minéraux basiques et inhibiteurs - Échantillonnage et préparation  
de l'échantillon - Partie 4 : Échantillonnage pour déterminer la présence microbienne

**Ta slovenski standard je istoveten z: prEN 1482-4**

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65.080                      Gnojila    Fertilizers

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EUROPEAN STANDARD  
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**prEN 1482-4**

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## Fertilizers, liming materials and inhibitors - Sampling and sample preparation - Part 4: Sampling for microbial presence

Engrais, amendements minéraux basiques et inhibiteurs - Échantillonnage et préparation de l'échantillon - Partie 4 : Échantillonnage pour déterminer la présence microbienne

Düngemittel, Kalkdünger und Inhibitoren - Probenahme und Probenvorbereitung - Teil 4: Probenahme für das Vorkommen von Mikroorganismen

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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 1482-4:2022) 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 CEN Enquiry.

This document has been prepared under a standardization request given to CEN by the European Commission and the European Free Trade Association.

EN 1482, *Fertilizers, liming materials and inhibitors — Sampling and Sample preparation* consists of four parts:

- *Part 1: General sampling provisions;*
- *Part 2: General sample preparation provisions;*
- *Part 3: Sampling of static heaps;*
- *Part 4: Sampling for microbial presence.*

A fifth part on sampling for organic and organo-mineral fertilizers is under preparation.

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## Introduction

In order to check compliance with the related requirements of Regulation (EU) 2019/1009 [1] methods have to be defined in standards. In this document the method for obtaining a sample from organic fertilizers, organo-mineral fertilizers and inorganic fertilizers containing more than 1 % by mass of organic carbon to test for levels of controlled microbial presence is defined. Any final sample collected by following the procedures described in this standard is considered to be representative for the sampled portion.

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## 1 Scope

This document specifies the method for taking a sample from both solid and liquid forms of organic fertilizers, organo-mineral fertilizers and inorganic fertilizers containing more than 1 % by mass of organic carbon, when in packages, containers or in bulk, to test for levels of controlled microbial presence.

This document is not applicable to sampling for microbial presence in growing media and soil improvers (see EN 12579 [4]) or plant biostimulants (see CEN/TS 17702-1 [2]).

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

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

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

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

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12944-1 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

#### **batch**

#### **lot**

total quantity of material present assumed to have the same characteristics

Note 1 to entry: A batch is produced by the same process at the same time, under the same conditions and labelled in the same manner.

### 3.2

#### **sampled portion**

in relation to sampling for chemical and physical testing, the quantity of material from the same batch from which one representative combined sample is taken and, in relation to sampling for microbiological testing, the quantity of material from the same batch from which segment samples are taken

Note 1 to entry: For purposes of sampling for compliance with Regulation (EU) 2019/1009, the number of segment samples is five.

### 3.3

#### **segment**

(virtual) part of the sampled portion from which a segment sample is taken for microbiological testing

**prEN 1482-4:2022 (E)****3.4****segment sample**

combination of all incremental samples taken from one segment for microbiological testing to be used as a laboratory sample

**3.5****sampling point**

point from which the incremental sample is taken

**3.6****incremental sample**

quantity of material taken from one sampling point

**3.7****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 [1], Chapter 1, Article 2, (7).

**3.8****liquid form**

suspension or solution

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

**3.9****competent person**

person who has acquired through training, qualifications or experience, or a combination of these, the knowledge and skills enabling that person to perform a specified task

[SOURCE: ISO 17842-1:2015, 3.6 [5]]

**4 Sampling****4.1 General requirements**

**4.1.1** All sampling equipment shall be clean, dry and made from materials which will not contaminate the sample. Sampling equipment shall be appropriate to the physical characteristics of the product in order to ensure a representative sample of the product is obtained, i.e. size of individual units of the product, width and depth of flow of material being sampled in motion. Examples for sampling equipment for various sampling methods are prescribed in EN 1482-1.

**4.1.2** Sampling equipment, including sample containers, shall be either unused or have been subject to a sterilization process before use. To avoid cross-contamination, a set of unused or sterilized equipment shall be used to obtain each individual segment sample. When using new, unopened plastic bags, the bags do not need sterilization.

**4.1.3** Steps shall be taken when sampling, sample handling and sample transport to avoid any sort of contamination of the sample. Sampling shall be undertaken by a competent person acceptable to the parties involved.



## 4.2 Sampling types of materials

**4.2.1** Where a product is described as a fertilizer and consists totally or mainly of one or more of the following products:

- a) organic material, substances or mixtures of these, or
- b) plants, plant parts or plant extracts or
- c) compost or
- d) fresh crop digestates or
- e) digestates other than fresh crop digestate.

Sampling shall follow the same sampling plan for microbial sampling for the above type of product as detailed in EN 12579.

**4.2.2** For organic and organo-mineral fertilizers other than those covered by 4.2.1 sampling shall be carried out as described in 4.3.

**4.2.3** Sampling of inorganic fertilizers.

Inorganic macronutrient or micronutrient fertilizer containing more than 1 % organic carbon, with the exception of organic carbon from certain sources detailed in Regulation (EU) 2019/1009 [1] shall be sampled in the same manner as products in 4.2.2.

NOTE These are the only classes of inorganic fertilizer where maximum microorganism levels are prescribed by Regulation (EU) 2019/1009 [1].

**4.2.4** Sampling of fertilizing product blends.

Where a product consists of a mixture of different categories of fertilizing products, whereas the tolerances for all controlled ingredients are the same it is possible for the fertilizing product blend to be sampled for microbial testing using these tolerances.

## 4.3 Sampling procedure

### 4.3.1 Requirements

#### 4.3.1.1 Maximum quantity of the sampled portion

If the product present under the same description does not appear, either visually or from labelling, to be entirely from the same batch separate samples shall be taken from each identifiable batch present.

NOTE Product codes can help distinguish different batches.

Furthermore, a sampled portion shall not be more than 5 000 m<sup>3</sup> or 5 000 kg (bulk) or 10 000 packages (packaged material) of the same material from the same batch. If the quantity of the total batch is larger, then it shall be divided into two or more sampled portions.

**prEN 1482-4:2022 (E)****4.3.1.2 Calculation of the minimum number of sample points**

The required number of sampling points ( $n_{sp}$ ) that should be taken depends on the quantity of the sampled portion. The number is calculated using the following formula rounded up to the nearest whole number:

$$n_{sp} \geq 0,5(\sqrt{V}) \quad (1)$$

where

$V$  is the nominal quantity of the sampled portion in m<sup>3</sup>, or equivalents of 1 000 kg or litres;

$n_{sp}$  is the minimum number of sampling points.

Upper limit for  $n_{sp}$  is 30 and lower limit is 12.

**4.3.1.3 Calculation of the minimum number of sampling points per segment**

Divide the number of sampling points by the number of segments to give the number of sampling points per segment:

$$n_{segment} = n_{sp} / \text{number of segments} \quad (2)$$

where

$n_{segment}$  is the number of sampling points per segment with a value rounded up to the nearest whole number.

The number of segments follows from the specific microbiological test after the sampling. When testing for E.coli and Salmonella as required for FPR this number is 5.

**4.3.1.4 Minimal quantity of a segment sample**

Each segment sample shall be at least 200 g net mass or 500 ml net volume. In case of combined sampling the minimal quantity is given in Annex A, A.3.

**4.3.2 Collecting the samples**

Visually divide the sampled portion into segments of the same approximate quantity equal to the number of segment samples to be taken for testing.

From each sampling point one incremental sample is taken.

Take the required number of incremental samples from randomly selected sampling points in each of these segments. Combine the incremental samples for the individual segment to form the segment sample for submission for testing. Each segment will have its own unique sample.

For fertilizers in liquid form there shall be an air head space in the sample container of approximately a quarter of its volume.