SLOVENSKI STANDARD
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Izboljševalci tal in rastni substrati - Vzorčenje

Soil improvers and growing media - Sampling

Bodenverbesserungsmittel und Kultursubstrate - Probenahme

Amendements organiques et supports de culture - Echantillonnage

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65.080 Gnojila Fertilizers

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English Version

Soil improvers and growing media - Sampling

Amendements organiques et supports de culture - Echantillonnage

Bodenverbesserungsmittel und Kultursubstrate - Probenahme

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 223.

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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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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 12579:2022) has been prepared by Technical Committee CEN/TC 223 “Soil improvers and growing media”, the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12579:2013.

In comparison with the previous edition EN 12579:2013, the following technical modifications have been made:

— requirements for liquid materials are added to the scope and the sampling procedure;

— requirements for sampling for microbiological testing have been added;

— addition of the following annexes: Annex B (informative) with examples of apparatus for sampling liquid materials, Annex C (informative) with methods of mixing for liquid materials, Annex D (informative) with a schematic overview from the sampling procedure, Annex E (informative) about the procedure for sampling bulk material, and Annex F (informative) about the procedure for sampling packaged material.

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

Introduction

Soil improvers and growing media are very difficult to sample because of the variety of materials used and the inhomogeneous materials involved. When packed some of them are also by their nature and the packaging and palletisation process subject to pressure which results in various degrees of compression which need to be counteracted prior to sampling.

The task is further complicated by the variety of sampling equipment that can be used, the quantity to be represented by the sample and the degree of precision required bearing in mind the cost of testing.

This document gives a sampling method to overcome these difficulties. A suitably competent person should undertake this sampling.

1 Scope

This document specifies methods for sampling of soil improvers and growing media for subsequent determination of quality and quantity. It outlines the principles to be taken into consideration when taking the sample and ensuring an adequate quantity is available for testing.

This document applies to material in solid form (including pre-shaped growing media) and liquid form.

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

The requirements of this document can differ from the national legal requirements for the declaration of the material concerned.

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 13040:—[1], *Soil improvers and growing media — Sample preparation for chemical and physical tests, determination of dry matter content, moisture content and laboratory compacted bulk density*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TS 17732:2022 and the following apply.

3.1
batch
lot
quantity of goods manufactured by the same process under the same conditions, at the same time, and labelled in the same manner and assumed to have the same characteristics to be sampled using a particular sampling plan

3.2
consignment
quantity of goods dispatched or received at one time and covered by a particular contract or shipping document

Note 1 to entry: A consignment may be composed of a part of a batch (lot) or one or more batches (lots) of the same material or different materials.

3.3
sampled portion
maximum quantity of material from the same batch from which one representative combined sample or segment samples (for microbiological testing) are taken

3.4
sampling point
defined place from which the incremental sample is taken

3.5
incremental sample
quantity of material taken from one sampling point

3.6
combined sample
combination of all incremental samples taken from one sampled portion

Note 1 to entry: Combined sample is referred to as aggregate sample in EN 1482-1:2007.

3.7
final sample
<chemical and physical testing>
representative part of the combined sample taken from the sampled portion obtained, where necessary, by a process of reduction

3.8
laboratory sample
representative part of the final sample prepared for testing or for microbiological testing the segment samples

3.9
segment
part of the sampled portion from which a segment sample is taken for microbiological testing

3.10
segment sample
combination of all incremental samples taken from one segment for microbiological testing and is to be used as a laboratory sample

Note 1 to entry: There will be five segment samples taken from each sampled portion for Fertilising Product Regulation (FPR) purposes.

3.11
bulk material
material that is not packaged

3.12
package
container and materials contained therein which are delivered and where the packaging remains with the material after delivery

Note 1 to entry: A package may be a container of loose-filled sack typically up to 100 l, a compressed block or bale and even a 'big bale', typically of 4 m^3. Also plugs in trays are considered to be a package.

3.13
solid form
form characterised by structural rigidity and resistance to changes of shape or volume and in which the 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: Either in a regular geometric lattice (crystalline solids) or in an irregular manner (an amorphous solid).

3.14
liquid form
suspension or solution

4 Requirements

4.1 General

Any final sample collected shall be considered to be representative of the whole of the material of the sampled portion.

Special care shall be taken to ensure that all sampling apparatus is clean, dry, and made from material which will not contaminate the sample. It shall be adapted to the batch size, the aggregate state and the particle size and nature of the substances. Sampling shall be in such a manner as to preserve the quantity and quality aspects for which the sample will be tested.

4.2 General requirements for sample taken for microbiological testing

Sampling equipment shall be either unused or have been subject to a sterilization process before use. To avoid cross contamination, a fresh set of unused or sterilized equipment or other appropriate steps shall be used to obtain each individual segment sample.

When using new, unopened plastic bags, the bags do not need sterilization.

Contact with human skin or liquids shall be prevented in case of sampling for human pathogens.

Take segment samples of at least 1 l or 200 g (the material will have the moisture content as received) and deliver them to the laboratory as quickly as possible. The number of samples to be tested depends on the relevant regulation or quality assurance standard to be followed.

In order to prevent propagation or inactivation of contained microbes during transport to the laboratory and subsequent storage, keep the sample at 5 °C ± 3 °C but never permitted to freeze.

Samples (i.e. composts and digestates) are liable to ferment and can contain pathogenic microorganisms. It is essential to keep them away from any food or drink.

When transporting and handling samples, it is essential that national and international regulations relating to bio-hazardous samples are followed.

4.3 General requirements for liquid materials

For safety reasons manual sampling is not recommended for liquid materials containing free ammonia. Solutions, slurries and suspensions may be sampled manually provided the material is homogenized (see Annex B for methods of mixing and associated precautions).

There is a risk that portions of multiphase liquids, sampled through narrow tubes or apertures, might not be truly representative. Consequently, it is important to ensure that the internal dimensions of the sampling devices are sufficiently large, i.e. in the region of 50 mm, to avoid this problem.

4.4 Moisture content

The moisture content shall subsequently be determined for solid material using the method specified in EN 13040:—[1].

NOTE 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 cannot give a representative analytical result. However, because of the diverse nature and bulk density of these materials, it is not possible to quantify what is excessive. Examples are mushroom casing or blocking media that have become excessively moist, or material that has become excessively wet in storage.

[1] Under preparation. Stage at the time of publication: EN 10340:20xx.

5 Apparatus

The sampling apparatus shall be clean, dry and made from materials which will not affect the characteristics of the material to be sampled.

The special properties of liquid materials, including vapour pressure and stratification shall be taken into account when choosing sampling apparatus.

5.1 Shovel, scoop or other sampling device so long as it preserves the characteristic of the material, and is sterilizable for microbiological samples. Drills with a diameter of at least 3 times of the maximum particle size may be used.

The release of material in a large batch of bulk material may be done by a wheel loader.

5.2 Apparatus for sample division, comprising any suitable equipment for combining and reducing the samples which preserve the characteristic of the material.

5.3 Manual sampling devices for liquids, a weighted bottle or other vessel, capable of being lowered into the material, sealed with a device to enable it to be opened at any specific depth.

A variant of this provides for gradual filling of the sample bottle as it is lowered from the surface of the liquid to the base of its container. Typical devices are illustrated in Annex B within Figures B.1, B.2, B.3, B.4 and B.5.

5.4 Sample valve on the storage vessel (illustrated in Annex B, Figure B.6).

5.5 Sample valve on a loading line out of the storage vessel (illustrated in Annex B, Figure B.7).

5.6 Sample valve on an external line through which material in storage is circulated (illustrated in Annex B, Figure B.8).

5.7 Sample containers for the samples to be collected.

EXAMPLE Plastic bucket, plastic tub or plastic barrels in sufficient size.

5.8 Packing containers, air- and water-tight and with sufficient capacity.

5.9 Sterilizing device, to sterilize sampling devices where necessary.

6 Procedure for solid materials

6.1 General

In Annex D, Figure D.1, a schematic overview is given where the testing is carried out in one location from the sampling procedure and the related handling of the sample at the laboratory. The individual steps are explained in more detail in Clause 6 and Clause 7. The general scheme is applicable to liquid and solid materials, either in bulk or in packed form. This scheme is not appropriate when a portion of a sample is left at the sampling location. The sampling procedure depends on the laboratory determination to be performed on the final sample.

Equal representative samples of one sampled portion can only be obtained by sample division of the combined sample. This may be the case if different transportation and packaging requirements are necessary for the analysis of different characteristics, or when chemical determinations on the sample are carried out by multiple laboratories. Sample division cannot be performed on samples that are collected for microbiological testing or bulk density. The minimal required volume of the final sample is

given in Annex A. The stepwise process for sampling from bulk material and from packaged material is illustrated in Annex E and Annex F respectively.

6.2 Location and time of sampling

From the sampled portion, calculate the number of incremental samples to be taken (see 6.4.1). The sampling points shall be designated at random, this will ensure that they are taken throughout the sampled portion.

Sampling of a sampled portion may be undertaken during loading and discharge.

Whenever possible, sampling from the bulk material shall be carried out from a moving stream of material, the whole width of the stream being sampled.

6.3 Sampling constraints

6.3.1 Limitations on the sampled portion

If the consignment does not appear, either visually or from labelling, to be from the same batch (lot) or consists of different materials then the materials shall be sampled separately.

NOTE Production coding can help in identifying the batch.

A sampled portion shall not be more than 5 000 m^3 (bulk) or 10 000 packages (packaged material) of the same material from the same consignment. If at all possible, packages which are damaged or adversely affected by the environment shall not be selected as these may not give representative results (see also NOTE to 4.4).

When sampling packages for quantity determination, each incremental sample shall be treated as a final sample which shall be:

— either the individual package if it exceeds 30 l for material with particle size no greater than 60 mm;

— or the individual package if it exceeds 70 l for material with particle size greater than 60 mm;

— or sufficient packages to give a content of at least 30 l for material no greater than 60 mm, or 70 l for material greater than 60 mm.

6.3.2 Number of final samples

Except for quantity determination and microbiological testing, and unless otherwise agreed with the parties concerned, at least three representative final samples shall be taken and distributed as follows:

a) one portion each for the supplier and buyer (receiver or enforcement officer);

b) one portion for the testing laboratory

c) one portion for an independent tester if a dispute on analysis arises.

6.4 Sampling

6.4.1 Number of sampling points

Take an incremental sample from each sampling point. The number of sampling points (n_{sp}) is calculated using the following formula rounded up to the nearest whole number:

$$n_{sp} = 0{,}5\ (V^{0{,}5}) \quad (1)$$