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Rastlinski biostimulanti - Vzorčenje in priprava vzorcev - 1. del: Vzorčenje

Plant biostimulants - Sampling and sample preparation - Part 1: Sampling

Pflanzen-Biostimulanzien - Probenahme und Probenvorbereitung - Teil 1: Probenahme

Biostimulants des végétaux - Échantillonnage et préparation des échantillons - Partie 1 : Échantillonnage

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65.080 Gnojila Fertilizers

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Plant biostimulants - Sampling and sample preparation - Part 1: Sampling

Biostimulants des végétaux - Échantillonnage et préparation des échantillons - Partie 1 : Échantillonnage

Pflanzen-Biostimulanzien - Probenahme und Probenvorbereitung - Teil 1: Probenahme

This European Standard was approved by CEN on 26 August 2024.

This European Standard was corrected and reissued by the CEN-CENELEC Management Centre on 18 December 2024.

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

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European foreword

This document (EN 17702-1:2024) has been prepared by Technical Committee CEN/TC 455 “Plant biostimulants”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by May 2025, and conflicting national standards shall be withdrawn at the latest by May 2025.

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

This document supersedes CEN/TS 17702-1:2022.

EN 17702-1:2024 includes the following significant technical changes with respect to CEN/TS 17702-1:2022:

— Introduction, Scope, Terms and definitions, Figures, and Bibliography have been updated.

The EN 17702 series, *Plant biostimulants — Sampling and sample preparation*, consists of the following parts:

— *Part 1: Sampling*;

— *Part 2: Sample preparation*.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

The European Committee for Standardization (CEN) was requested by the European Commission (EC) to draft European Standards or European Standardization deliverables to support the implementation of Regulation (EU) 2019/1009 of 5 June 2019 laying down rules on the making available on the market of EU fertilising products ("FPR" or "Fertilising Products Regulation").

This standardization request, presented as M/564 and relevant amendments, also contributes to the Communication on "Innovating for Sustainable Growth: A Bio economy for Europe". The interest in plant biostimulants has increased significantly in Europe as a valuable tool to use in agriculture. Standardization was identified as having an important role in order to promote the use of biostimulants. The work of CEN/TC 455 seeks to improve the reliability of the supply chain, thereby improving the confidence of farmers, industry, and consumers in biostimulants, and will promote and support commercialisation of the European biostimulant industry.

This document covers the following aspects of sampling, derived from EN 1482-1:2024 and documents indicated. This document is presented in a form adapted to the specificity of plant biostimulants. The titles of the standards are given in the Bibliography.

From a technical point of view, sampling is generally specified as the withdrawal operation, of the part of a "mass", of such dimensions that the properties found in the sample taken, are, within the limits of statistical acceptability, the same as those of the mass of origin (representativeness of the sample). In other words, the ultimate purpose of sampling is to allow the collection of representative portions of plant biostimulants to be subject to analysis. Therefore, it fundamentally affects the significance and reliability of the analytical results themselves.

Figure 1 gives a schematic diagram of the sampling and sample preparation process.

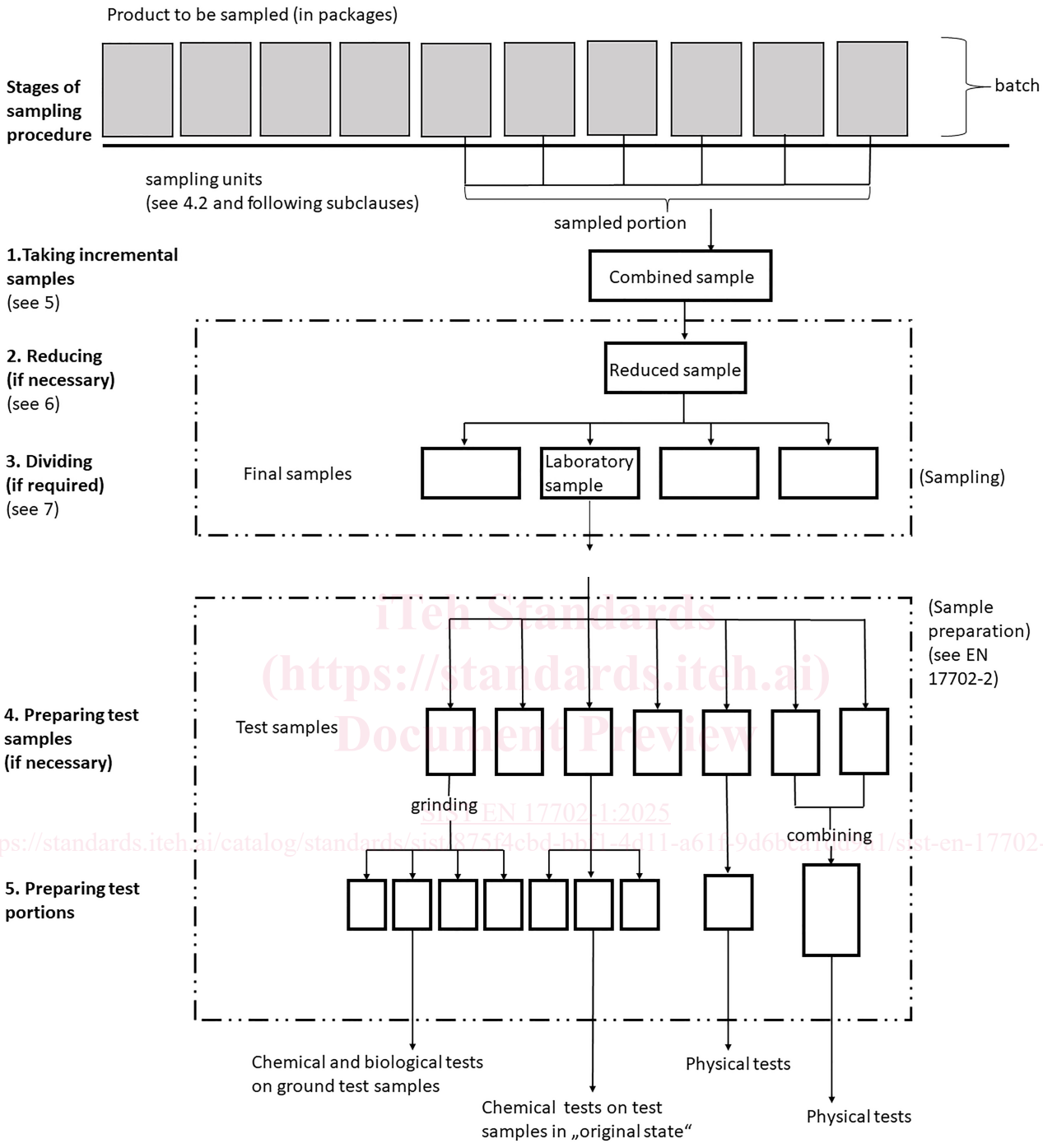

Figure 1 — Schematic diagram of sampling process for solid plant biostimulants

1 Scope

This document specifies sampling plans and methods of representative sampling of plant biostimulants to obtain samples for physical, chemical and biological analysis.

It is applicable to the sampling of batches of plant biostimulants supplied or ready for supply to third parties, as such, or in smaller batches.

This document is applicable to the blends of fertilizing products where a blend is a mix of at least two of the following component EU fertilising products: Fertilizers/Liming Materials/Soil Improvers/Growing Media/Inhibitors/Plant Biostimulants, and where the following category Plant Biostimulants is the highest percentage in the blend by mass or volume, or in the case of liquid form by dry mass. If Plant Biostimulants is not the highest percentage in the blend, the European Standard for the highest percentage of the blend applies. In case a blend of fertilizing products is composed of components in equal quantity or in case the component EU fertilising products used for the blend have identical formulations[1], the user decides which standard to apply.

This document is intended to be used by manufacturers, buyers and competent authorities to obtain samples prior to transport and supply it to a laboratory for testing.

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 1482-1:2024, *Fertilizers, liming materials and inhibitors — Sampling and sample preparation — Part 1: General sampling provisions*

3 Terms and definitions

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

3.1
batch
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, and assumed to have the same characteristics to be sampled using a particular sampling plan.

3.2
sampled portion
quantity of material from the same batch from which one representative combined sample is taken

3.3
sampling unit
defined quantity of material having a boundary

Note 1 to entry: An example of a physical boundary is a container. An example of a hypothetical boundary is a time interval for a flow of material.

[1] An example of such a blend is a product with two claimed functions consisting of a non-microbial plant biostimulant and an organic fertilizer composed of 1 kg/kg of plant biostimulant from seaweed.

3.4
sampling point
point 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

3.7
reduction
process of producing a representative smaller mass of material from a larger mass, with the remainder being discarded

3.8
reduced sample
representative part of the combined sample obtained by a process of reduction in such a manner that the mass is at least the mass of any required final samples

3.9
division
process of producing a number of representative smaller portions, approximately equal in mass to each other, from a larger mass

3.10
final sample
in relation to chemical and physical testing only, representative part of the combined sample taken from the sampled portion obtained, where necessary, by a process of reduction

Note 1 to entry: Often, more than one sample is prepared, at the same time, from the reduced sample (or from the combined sample). One or more of these final samples will be used as a laboratory sample or as laboratory samples, while others may be stored for reference purposes.

3.11
laboratory sample
in relation to chemical and physical testing, a final sample intended for laboratory testing and in relation to microbiological testing, each separate segment sample intended for laboratory testing

3.12
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 can be composed of a part of a batch or one or more batches of the same material or different materials.

3.13
delivery
quantity of material transferred at one time

3.14
package
container and material contained therein which is ready for delivery or delivered and where the packaging remains with the material after delivery

4 Sampling plans and quantitative data

4.1 Principle

The sampling plans given in this document are not based on strict statistical principles, but samples obtained by following the procedures described in this clause shall be considered to be representative of the original batch or the sampled portion.

This clause specifies sampling plans for the evaluation of deliveries of plant biostimulants as well as statutory control plans which shall be followed in certain circumstances.

According to available sources, the plant biostimulants are not supplied in other than packaged form (up to 1 000 kg or 1 000 l). Therefore, this document specifies principles for those cases. Nevertheless, if plant biostimulants were delivered in larger packages and containers or in bulk, the principles of EN 1482-1:2024 shall be applied accordingly.

The size of batch is unlimited (see Table 2).

For statutory control and the commercial evaluation of plant biostimulants, one final sample is sufficient, but this may subsequently be divided into a number of identical samples.

No incremental samples are taken at microbial plant biostimulants – in order to preserve the sensitive content and maintain its properties intact avoiding possible contamination. Thus, the original package or container itself shall be considered a final sample.

4.2 Sampling plans

4.2.1 Determination of the number of sampling units which form the sampled portion

4.2.1.1 General

The number of sampling units from which incremental samples are to be taken depends on the size of the batch.

4.2.1.2 Plant biostimulant in packages or containers up to 50 kg or 50 l

The sampling unit is a package or container and the number of individual packages (containers) from which incremental samples shall be taken should be in accordance with Table 1. For packages smaller than 1 kg (1 l) each, it might be necessary to increase the number taken to ensure a sufficiently large combined sample.

Table 1 — Number of individual packages (containers) from which incremental samples are to be taken

Batch size	Minimum number of sampling units
4 or fewer packages	All packages
More than 4 up to 10 packages	4 packages
More than 10 up to 400 packages	The nearest whole number above the square root of the number of packages
More than 400 packages	20