



SLOVENSKI STANDARD
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Rastlinski biostimulanti - Vzorčenje in priprava vzorcev - 2. del: Priprava vzorcev

Plant biostimulants - Sampling and sample preparation - Part 2: Sample preparation

Pflanzen-Biostimulanzien - Probenahme und Probenvorbereitung - Teil 2:
Probenvorbereitung

Biostimulants des végétaux - Échantillonnage et préparation des échantillons - Partie 2 :
Préparation des échantillons

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English Version

**Plant biostimulants - Sampling and sample preparation -
Part 2: Sample preparation**

Biostimulants des végétaux - Échantillonnage et
préparation des échantillons - Partie 2 : Préparation
des échantillons

Biostimulanzien für die pflanzliche Anwendung -
Probenahme und Probenvorbereitung - Teil 2:
Probenvorbereitung

This Technical Specification (CEN/TS) was approved by CEN on 3 January 2022 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (CEN/TS 17702-2:2022) has been prepared by Technical Committee CEN/TC 455 “Plant Biostimulants”, the secretariat of which is held by AFNOR.

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

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

- *Part 1: Sampling;*
- *Part 2: Sample preparation.*

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 announce this Technical Specification: 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, Turkey and the United Kingdom.

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CEN/TS 17702-2:2022 (E)**Introduction**

This document was prepared by the experts of CEN/TC 455 “Plant Biostimulants”. 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 fertilizing products (“FPR” or “Fertilising Products Regulation”).

This standardization request, presented as M/564, also contributes to the Communication on “Innovating for Sustainable Growth: A Bio economy for Europe”. The Working Group 1 “Sampling”, was created to develop a work program as part of this request. The technical committee CEN/TC 455 “Plant Biostimulants” was established to carry out the work program that will prepare a series of standards. The interest in 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 sample preparation, derived from EN 1482-2:2007, *Fertilizers and liming materials — Sampling and sample preparation — Part 2: Sample preparation*. This document is presented in a form adapted to the specificity of plant biostimulants. The title of the standard is given in the Bibliography.

This document is addressed mainly to official laboratories which intend to perform analysis for quality and safety control of non-microbial plant biostimulants. The laboratories will have a reference document on how to properly prepare sample for analysis.

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

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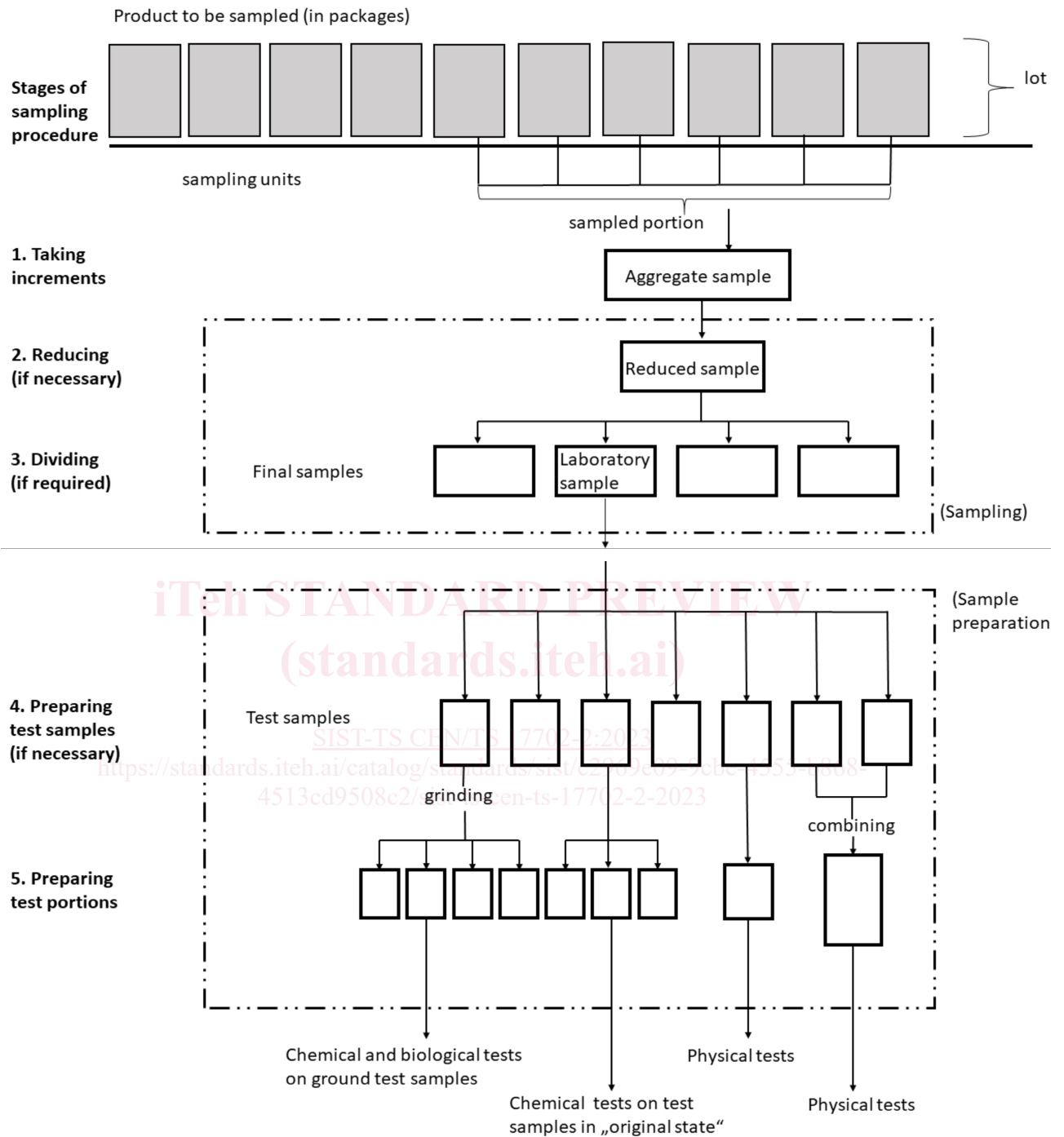


Figure 1 — Schematic diagram of sampling and sample preparation process for solid plant biostimulants

CEN/TS 17702-2:2022 (E)**1 Scope**

This document specifies methods for the reduction and preparation of samples of non-microbial plant biostimulants including those intended for determination of microbial pathogens and sets out the requirements for sample preparation reports. It specifies methods for the preparation of test samples and test portions from laboratory samples of plant biostimulants for subsequent chemical, biological or physical analysis.

It is also applicable to the sample preparation of blends of fertilizing products where plant biostimulants are main part of the blend. Otherwise, deliverables of sample preparation relevant for the main part of the blend apply.

This document does not include methods for the reduction and preparation of samples of microbial plant biostimulants, which will be covered by a different Technical Specification.

NOTE This document is applicable to the category of EU fertilizing product (plant biostimulants) in the meaning of the Regulation (EU) 2019/1009.

2 Normative references

The following document is 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.

CEN/TS 17702-1:2022, *Plant biostimulants — Sampling and sample preparation — Part 1: Sampling*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

3 Terms and definitions

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

3.1 <https://standards.iteh.ai/catalog/standards/sist/c2969e09-9cbe-4555-b868-4513cd9508c2/sist-ts-cen-ts-17702-2-2023>

division

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

3.2**final sample**

representative part of the reduced sample or, where no intermediate reduction is required, of the aggregate sample

Note 1 to entry: Often, more than one sample is prepared, at the same time, from the reduced sample (or from the aggregate 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.

3.3**laboratory sample**

final sample intended for laboratory inspection or testing

3.4**reduction**

process of producing a representative smaller mass of product from a larger mass, with the remainder being discarded

3.5

test portion

quantity of material taken from the test sample (or if both are the same, from the laboratory sample) and on which the test or observation is carried out

3.6

test sample

sample prepared from the laboratory sample and from which test portions will be taken

4 Principle

Reduction and division of the laboratory sample, as necessary, to produce test samples. Preparation of test portions from the test samples by division, with or without previous grinding, or by combination, as appropriate.

5 Apparatus

5.1 General

Apparatus used in the preparation and storage of samples shall be clean and dry and made from materials which will not affect the characteristics of the plant biostimulants.

5.2 Rotary sample divider, conforming to the requirements specified in CEN/TS 17702-1:2022, 5.2, or riffle divider, conforming to the requirements specified in CEN/TS 17702-1:2022, 5.3.

5.3 Sample grinder, capable of taking the whole sample at one pass and, preferably, totally enclosed. It shall have a screen, or other mechanism without a screen, which allows the ground material to pass through the machine into a collecting vessel and away from the cutters or grinding discs, to avoid overgrinding. In the case of a grinder with screens, the fineness of grind can be adjusted by the fitting of different mesh screens. Grinding shall continue until as much as possible of the plant biostimulants has passed through the machine. [13cd9508c2/sist-ts-cen-ts-17702-2-2023](https://standards.globalspec.com/stds/iso/13cd9508c2/sist-ts-cen-ts-17702-2-2023)

NOTE If the grinder is of the open type, the moisture content of the plant biostimulants can change significantly during grinding.

Any machine used for grinding samples as required by this document shall be checked for satisfactory performance. Points to be checked are:

- a) the fineness of grinding achieved;
- b) the temperature rise of the material being ground (see 6.4);
- c) non-contamination of the sample.

5.4 Mortar and pestle, of suitable material and size.

5.5 Test sieves, conforming to ISO 3310-1, of nominal aperture sizes 1,0 mm, 500 µm and 180 µm.

In cases where national regulations or the nature of the material require sieves of different aperture sizes, these may be used but the fact should be noted in the sample preparation report.

5.6 Sample containers, made of plastics material and/or glass, or any other material of adequate resistance and fitted with air-tight closures.

CEN/TS 17702-2:2022 (E)**6 Procedure****6.1 General**

All operations connected with this procedure shall be carried out as quickly as possible to minimize the absorption or loss of water.

6.2 Preparation of test samples in their original condition

Thoroughly mix the whole of the laboratory sample and follow one of the procedures described in CEN/TS 17702-1:2022, Clause 6 to reduce (if necessary) and divide the total mass to obtain the appropriate number of representative test samples, each of about 0,5 kg in mass.

Reject, by random selection, any test samples in excess of those required and place the remaining N test samples in some of the air-tight containers (5.6).

NOTE The maximum number of test samples which can be produced by this method depends on the mass of the original laboratory sample. The minimum number of 0,5 kg test samples which is required depends on the nature of the analyses to be carried out and the number of replicates required. In some instances, when only chemical analyses are to be carried out and only a small laboratory sample is available, the whole of this sample is used as the test sample.

6.3 Further preparation of test samples which are to remain in their original condition**6.3.1 General**

Test samples in this category include all those for physical testing, those for certain chemical and biological analyses and those which, by their nature, should not be ground.

6.3.2 Preparation of test portions for physical testing

If the mass of the test portion required is greater than 0,5 kg, select at random two or more of the N test samples (6.2). Mix these together and, if the mass required is not an exact multiple of 0,5 kg, reduce it to the required size by following one of the procedures described in CEN/TS 17702-1:2022, Clause 6.

If the mass of test portion required is less than 0,5 kg, select at random one of the N test samples (6.2) and continue the reduction and division following one of the procedures described in CEN/TS 17702-1:2022, Clause 6 until test portions of the required mass for the test are obtained. During the division process, replicate test portions are obtained, and these are suitable for replicate tests without further treatment.

Discard any unwanted material.

The representativity of the sample might be lost during this further subdivision.

6.3.3 Preparation of test portions for moisture analysis

Do not grind test portions for moisture analysis if grinding is likely to alter the moisture content of the plant biostimulants.

NOTE Some types of grinding mill can alter the moisture content during processing. For example: single pass hammer mills with interchangeable screens do not alter the moisture content; static sample mills of the coffee grinder type tend to reduce the sample moisture content unless the processing time is kept to an absolute minimum.

Cyclone type mills shall not be used as the rapid airflow in the cyclone causes a reduction in moisture content.

If necessary, the size of the larger particles can be reduced by crushing.