

ICS 65.080

English Version

Plant biostimulants - Preparation of sample for microbial analysis

Biostimulants des végétaux - Préparation de l'échantillon pour l'analyse microbienne

Biostimulanzien für die pflanzliche Anwendung - Probenvorbereitung für die mikrobielle Analyse

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

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European foreword

This document (CEN/TS 17708:2022) 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.

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.

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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 5 “Labelling and denominations”, 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.

Biostimulants used in agriculture can be applied in multiple ways: on soil, on plant, as seed treatment, etc. A microbial plant biostimulant consists of a microorganism or a consortium of microorganisms, as referred to in Component Material Category 7 of Annex II of the EU Fertilising Products Regulation.

This document is applicable to all microbial biostimulants in agriculture.

The Table 1 below summarizes many of the agro-ecological principles and the role played by biostimulants.

Table 1 — Agro-ecological principles and the role played by biostimulants [1]

Increase biodiversity
By improving soil microorganism quality/quantity
Reinforce biological regulation and interactions
By reinforcing plant-microorganism interactions
- symbiotic exchanges i.e. <i>Mycorrhizae</i>
- symbiotic exchanges i.e. <i>Rhizobiaceae/Faba</i>
- secretions mimicking plant hormones (i.e. <i>Trichoderma</i>)
By regulating plant physiological processes
- for e.g. growth, metabolism, plant development...
Improve biogeochemical cycles
- improve absorption of nutritional elements
- improve bioavailability of nutritional elements in the soil
- stimulate degradation of organic matter

This document defines the general rules for the preparation of samples, initial suspensions and subsequent dilutions for microbiological examination of plant biostimulants.

Any special diluents or practices required in specific standard methods take priority over the general rules listed in this document.

WARNING — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

IMPORTANT — It is absolutely essential that tests conducted in accordance with this document be carried out by suitably trained staff.

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1 Scope

This document defines general rules for the aerobic preparation of the initial suspension and of dilutions for microbiological examinations of microbial plant biostimulants.

This horizontal method might not be appropriate in very detail for certain products. In this case, different methods which are specific to these products can be used if necessary, for justified technical reasons.

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.

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

CEN/TS 17724, *Plant biostimulants — Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TS 17724 and the following apply.

3.1

laboratory sample

sample sent to the laboratory and intended for inspection or testing

3.2

test sample

sample prepared from the laboratory sample (3.1) according to the procedure specified in the method of test and from which test portions (3.3) are taken

3.3

test portion

measured (volume or mass) representative sample taken from the laboratory sample (3.1) for use in the preparation of the initial suspension (3.4)

3.4

initial suspension

suspension, solution or emulsion obtained after a weighed or measured quantity of the product under examination has been mixed with, normally, a nine-fold quantity of diluent, or other ratios if required for specific purposes, allowing large particles, if present, to settle

3.5

further dilution

suspension or solution obtained by mixing a measured volume of the initial suspension (3.4) with an x -fold volume of diluent and by repeating this operation with further dilutions until a dilution series, suitable for the inoculation of culture media, is obtained

Note 1 to entry: Ten-fold dilutions are normally used to produce a decimal dilution series, but other ratios can be required for specific purposes.