PD CEN/TS 17718:2022

BSI Standards Publication

Plant biostimulants — Determination of *Rhizobium* spp.

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee EH/4/-/7, Plant Biostimulants.

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Published by BSI Standards Limited 2022

ISBN 978 0 539 17307 9

ICS 65.080

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 July 2022.

Amendments/corrigenda issued since publication

Date	Text affected

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN/TS 17718

March 2022

ICS 65.080

English Version

Plant biostimulants - Determination of Rhizobium spp.

Biostimulants des végétaux - Détermination de Rhizobium spp.

Biostimulanzien für die pflanzliche Anwendung - Bestimmung von Rhizobium spp.

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

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Ref. No. CEN/TS 17718:2022: E

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European foreword

This document (CEN/TS 17718:2022) has been prepared by Technical Committee CEN/TC 455 “Plant Biostimulants”, the secretariat of which is held by AFNOR.

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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 the European Parliament and of the Council 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, also contributes to the Communication on "Innovating for Sustainable Growth: A Bio economy for Europe". Working Group 5 "Labelling and denominations" was created to develop a work program as part of this standardization request.

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 biostimulants in agriculture based on live microorganisms belonging to the group Rhizobia.

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

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

Increase biodiversity
By improving soil microorganism quality, quantity
Reinforce biological regulation and interactions
By reinforcing plant-microorganism interactions
— symbiotic exchanges i.e. *Mycorrhizae*
— symbiotic exchanges i.e. *Rhizobiaceae/Fava*
— secretions mimicking plant hormones (i.e. *Trichoderma*)
By regulating plant physiological processes
— 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

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.

1 Scope

This document provides the methodology for the enumeration and determination of *Rhizobium* sp., *Mesorhizobium* sp., *Ensifer* sp., or *Bradyrhizobium* sp. in plant biostimulant products in accordance with the Regulation (EU) 2019/1009 of the European Parliament and of the Council [1].

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.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
rhizobium
beneficial bacteria belonging to the group named rhizobia, where the most relevant genera are *Rhizobium*, *Mesorhizobium*, *Ensifer* and *Bradyrhizobium*

Note 1 to entry: Rhizobium belonging to this group are *Rhizobium* sp., *Mesorhizobium* sp., *Ensifer* sp., *Bradyrhizobium* sp.