SLOVENSKI STANDARD
SIST EN 17724:2025

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SIST-TS CEN/TS 17724:2023

Rastlinski biostimulanti - Terminologija

Plant biostimulants - Terminology

Pflanzen-Biostimulanzien - Terminologie

Biostimulants des végétaux - Terminologie

Ta slovenski standard je istoveten z: **EN 17724:2024**

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EUROPEAN STANDARD
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English Version

Plant biostimulants - Terminology

Biostimulants des végétaux - Terminologie

Pflanzen-Biostimulanzien - Terminologie

This European Standard was approved by CEN on 23 August 2024.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 17724:2024) 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of an identical text or by endorsement, at the latest by May 2025, and conflicting national standards shall be withdrawn at the latest by May 2025.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 17724:2022.

EN 17724:2024 includes the following significant technical changes with respect to CEN/TS 17724:2022:

— addition of new terms and definitions and revision of others;

— the European foreword and the Introduction have been updated.

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 [1] laying down rules on the making available on the market of EU fertilising products ("FPR" or "Fertilising Products Regulation").

This standardization request, presented as SR 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.

1 Scope

This document defines terms and definitions referred to in the plant biostimulant field and consists of six subclauses:

3.1 Claims

3.2 Terms relating to components

3.3 Terms relating to the application method

3.4 Terms relating to sampling

3.5 Terms relating to the physical form

3.6 Others terms relating to plant biostimulants

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

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

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

3.1 Claims

3.1.1 General principles

3.1.1.1
applicant R&D activities
data derived from R&D activities performed by the applicant

Note 1 to entry: R&D can be related to the research and development of the plant biostimulant product development, testing and validation, irrespective of the environment in which the data has been generated (e.g. under controlled conditions, protected crop or field conditions).

Note 2 to entry: If the applicant has performed the R&D activities with its own technical resources or if the applicant has subcontracted the R&D activities, as long as the owner of the outcome data from the R&D activities is and can be proven to be the applicant.

3.1.1.2
bioavailability
degree to which substances can be absorbed/adsorbed by a plant or microbe and made available at a site of physiological activity and which is thus able to have a biological effect

3.1.1.3
claim
effect(s) of the product that could be asserted on the product label of a plant biostimulant after the conformity assessment procedure

3.1.1.4
crop
cultivated plant(s) including all components of the plant (above ground parts and below ground parts), mushrooms, microalgae and macroalgae

3.1.1.5
field trial
trial performed under open field conditions (outdoors) or protected crop conditions according to common farming practices for a specific crop

Note 1 to entry: Field trial refers to conditions, without full control of climate conditions, according to common farming practices like plastic tunnels for strawberries, etc.

3.1.1.6
general principle
rule establishing the parameters, requirements and quality criteria applicable to all plant biostimulants for carrying out the tests necessary to justify the claim

3.1.1.7
plant
live plant and live parts of plants, including fresh fruit, vegetables and seeds

Note 1 to entry: It also includes microalgae, macroalgae and mushrooms.

3.1.1.8
plant biostimulant
product stimulating plant nutrition processes independently of the product's nutrient content with the sole aim of improving one or more of the following characteristics of the plant or the plant rhizosphere:

— nutrient use efficiency,

— tolerance to abiotic stress,

— quality traits,

— availability of confined nutrient in soil or rhizosphere

3.1.1.9
controlled conditions trial
trial carried out in a specific place like a glasshouse, a climatic chamber, etc., where all or some parts of the environmental parameters can be controlled or can be measured (like soil, temperature, light, humidity, etc.)

3.1.1.10
protected crop condition
crop cultivation in greenhouses or plastic tunnels with or without specific control of climate conditions according to the farming practice

EXAMPLE Cucumber or tomato cultivation.

3.1.1.11
plant nutrient
chemical element used by the plant for growth and development, classified as a primary macronutrient, secondary macronutrient or micronutrient per the quantity required by the plant

Note 1 to entry:

Primary macronutrients – nitrogen (N), phosphorus (P), potassium (K),

secondary macronutrients – calcium (Ca), magnesium (Mg), sodium (Na), sulphur (S),

micronutrients – boron (B), cobalt (Co), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), zinc (Zn).

3.1.1.12
trial series
grouping of a number of independent field trials, carried out with plants, which have the same objectives, experimental design, protocol and parameters to prove the consistency of a result

Note 1 to entry: Trials done in controlled conditions are excluded.

Note 2 to entry: It can be conducted in different locations and/or over a number of consecutive years, as long as it satisfies the quality criteria described in EN 17700-1:2024 [7] (same protocol, same crop, control, timing).

EXAMPLE Strip trials, replicated trials.

3.1.1.13
strip trial
specific trial carried out using minimum two treatments, next to each other, in the same field, to compare a control with a plant biostimulant treatment without replicates

3.1.1.14
replicate
identical and independent repetition of each treatment in the same trial and under the same agronomic management practices like plant variety choice and fertilizers and plant protection products application

3.1.1.15
agronomic marker
measurable plant trait used to validate the claim

Note 1 to entry: EN 17700-3:2024, Clause 6 [8] provides different agronomic markers.

3.1.1.16
stress marker
physiological, biochemical and/or molecular traits associated with a plant response to a specific stress

EXAMPLE Antioxidants, reactive oxygen species (ROS), gene expression or, metabolites related to abiotic stress, relative water content, heat shock proteins, electrolyte leakage, chlorophyll fluorescence, lipid peroxides.

Note 1 to entry: A subdivision of the three traits is seen below:

— biochemical traits (antioxidants, lipid peroxidation, reduction in reactive oxygen species (ROS), reduction in free radicals),

— molecular traits (genes, transcription factors, metabolic pathways related to abiotic stress),

— physiological traits: electrolyte leakage, relative water content, reduced stress symptoms.

3.1.2
nutrient use efficiency
measure of a plant's ability to acquire and utilize nutrients from the environment for a desired outcome based on (a) nutrient availability (b) uptake efficiency and/or (c) utilization efficiency

Note 1 to entry: Nutrient use efficiency is a complex trait: it depends on the ability of the plant to take up the nutrients from the soil or growing media and the fertilizer applied, but also on nutrient transport, storage, mobilization, and use within the plant, among other factors.

3.1.2.1
chelated plant nutrient
complexed plant nutrient
composition based on an inorganic form of the plant nutrient and a chelating or complexing agent, resulting in a product that enhances the nutrient availability to plants

EXAMPLE A composition of chelated or complexed plant nutrient is a salt or oxide.

3.1.2.2
nutrient assimilation
uptake of nutrients into cells and tissues and consequent building up into more complex substances

EXAMPLE Converting available nitrogen into biomass.

3.1.2.3
nutrient availability
measure of the capacity of an available nutrient to be acquired by the plant

3.1.2.4
available nutrient
element either present in the soil solution or exchangeable on soil colloids

3.1.2.5
nutrient uptake
acquisition of nutrients by the plant

3.1.2.6
plant development
complex process by which the size, composition and organization of a plant changes during its life, encompassing seed germination, vegetative growth, formation of flowers, bloom, fruit set and maturation (embryo development)

3.1.2.7
plant metabolism
various biochemical reactions occurring in a living plant cell in order to maintain life and growth

3.1.2.8
plant nutrition
supply and absorption of chemical compounds needed for plant growth and metabolism

3.1.2.9
plant nutrition process
mechanism by which nutrients are utilized or converted to cellular constituents and used for energetic or metabolic purposes

3.1.2.10
quality
desired attributes of cultivated organisms in terms of human or animal nutrition, marketing, aesthetics, composition, agronomical trait, or technical property

3.1.2.11
substance
chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additives necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which can be separated without affecting the stability of the substance or changing its composition

3.1.2.12
uptake efficiency
measure of the plant's capacity to acquire nutrients from the environment

3.1.2.13
utilization efficiency
measure of the plant's capacity to transform and valorise acquired nutrients into more complex substances

EXAMPLE Organic compounds, plant biomass.

3.1.3
tolerance to abiotic stress
ability to endure abiotic stress

3.1.3.1
abiotic stress
negative impact of non-living factors on the plant in a specific crop environment

Note 1 to entry: Crop tolerance to abiotic stress can apply to one or more (multiple or combined) of the following stress categories:

1) thermal stress,
2) light stress,
3) mechanical stress,
4) water stress,
5) chemical stress.

3.1.3.1.1
chemical stress
negative impact of chemicals (supra-optimal or sub-optimal chemical compounds or presence) on the plant in a specific crop environment

EXAMPLE Salt stress, mineral toxicity induced by heavy metals or excessive application of mineral nutrients, adverse pH conditions, ozone stress, phytotoxic effects of xenobiotics.

3.1.3.1.2
light stress
negative impact of light intensity and/or spectrum on the plant in a specific crop environment

EXAMPLE High irradiance or low irradiance, UV radiation.