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Fertilizers, soil conditioners and beneficial substances — Vocabulary

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National foreword

This British Standard is the UK implementation of ISO 8157:2022. It supersedes BS ISO 8157:2015, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee CII/37, Fertilisers and related chemicals.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 134, *Fertilizers, soil conditioners and beneficial substances*.

This third edition cancels and replaces the second edition (ISO 8157:2015) which has been technically revised.

The main changes are as follows:

— the scope has been modified in accordance with the name and scope of ISO/TC 134;

— terms related to beneficial substances like plant biostimulants have been added.

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Fertilizers, soil conditioners and beneficial substances — Vocabulary

1 Scope

This document defines terms relating to fertilizers, soil improvers, growing media, inhibitors and plant bio-stimulants.

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 General terms

3.1.1
fertilizer
substance containing one or more recognized plant nutrient(s), designed for use or claimed to have value in promoting plant growth

3.1.2
plant nutrient
substance that is essential or beneficial for plant growth

3.1.3
fertilizer nutrient
plant nutrient applied in the course of fertilization

Note 1 to entry: Some countries or regions declare nutrients in their oxide forms (e.g. CaO) but also in their elementary forms.

3.1.3.1
primary nutrient element
elements nitrogen, phosphorus and potassium only

Note 1 to entry: A macronutrient is also used. These include the following plant food: nitrogen (N), available phosphate (P_2O_5) and soluble potash (K_2O).

3.1.3.2
secondary nutrient element
elements calcium, magnesium and sulfur

Note 1 to entry: Sodium (Na) and Silicon (Si) have been supported as beneficial for certain plants.

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3.1.3.3
micronutrient
element such as boron, manganese, iron, zinc, copper, molybdenum, cobalt, nickel and chloride, which are essential, in relatively small quantities, for plant growth

Note 1 to entry: Cobalt is essential in relatively small quantities, for some species.

3.1.4
beneficial substance
beneficial element
substance, element or microorganism other than *primary nutrient element* (3.1.3.1), *secondary nutrient element* (3.1.3.2) or *micronutrients* (3.1.3.3) that can be demonstrated by scientific research to be beneficial to one or more species of plants or biological components of the soil ecosystem, when applied exogenously

3.1.4.1
plant biostimulant
product that contains substance(s), microorganism(s), or mixtures thereof, that, when applied to seeds, plants, the rhizosphere, soil or other growth media, act to support a plant's natural nutrition processes independently of the biostimulant's nutrient content

Note 1 to entry: The plant biostimulant thereby improves nutrient availability, uptake or use efficiency, tolerance to abiotic stress, availability of confined nutrients in the soil or rhizosphere, and consequent growth, development, quality or yield.

3.1.4.2
beneficial plant nutrient
elements, other than those defined as *primary nutrient element* (3.1.3.1), *secondary nutrient element* (3.1.3.2) or *micronutrients* (3.1.3.3), that are known to be needed for plant growth and development or for the quality attributes of the plant product, of a given plant species, grown in its natural or cultivated environment

Note 1 to entry: These beneficial plant nutrients are not known to be generally essential and their beneficial functions can be limited to particular taxa, plant growth stage or product end use.

Note 2 to entry: Known beneficial nutrient elements include Si, Se, I, Co, Na, Al, and others as demonstrated.

3.1.5
inorganic fertilizer
fertilizer without organic material other than those defined as additives

Note 1 to entry: Calcium cyanamide, urea and its condensation products and chelated and complex micronutrients are, by convention, recognized as inorganic fertilizers.

3.1.6
organic fertilizer
material containing carbon or one or more elements other than hydrogen and oxygen mainly of plant and/or animal origin added either directly to the plant or to the soil

3.1.7
organic nitrogenous fertilizer
materials of biological origin in which the declarable nitrogen content is bonded directly to carbon and which can contain other elements, but which do not have declarable phosphorus or potassium contents

3.1.8
synthetic nitrogenous fertilizer
nitrogenous fertilizers in which the nitrogen is combined with carbon by organic synthesis

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3.1.9
organo-mineral fertilizer
semi-organic fertilizer
product in which declared nutrients are of both organic and inorganic origin obtained by either mixing or chemical combination, or both, of organic and inorganic fertilizers

3.1.10
organo-mineral compound fertilizer
organic-inorganic compound fertilizer
compound fertilizer containing an amount of organic fertilizer

3.1.11
slow release fertilizer
fertilizer whose nutrient availability is spread over a period of time, by hydrolysis and/or by biodegradation and/or by limited solubility, or any other recognized mechanism, when compared to a ''reference soluble'' product such as ammonium sulfate, ammonium nitrate and urea

3.1.12
controlled-release fertilizer
fertilizer in which nutrient release is controlled, meeting the stated release rate of nutrient and the stated release time at a specified temperature

Note 1 to entry: Typical examples are coated fertilizers, such as polymer coated fertilizer, PSCU.

3.1.13
partly slow release fertilizer
fertilizer obtained by blending a slow release fertilizer with a rapidly available fertilizer

3.1.14
partly controlled release fertilizer
fertilizer obtained by blending a controlled release fertilizer with a rapidly available fertilizer

3.1.15
coated fertilizer
fertilizer, of which the granules are covered with a thin layer of a different material (polymer, sulfur, or other material) in order to improve the behaviour or modify the characteristics of the fertilizer

3.1.16
stabilized fertilizer
fertilizer product that has been amended with an additive that reduces, in comparison with its un-amended form, the rate of transformation of the nutrient(s), extending the time of nutrient(s) availability to the plant by a variety of mechanisms

Note 1 to entry: Usually referred to as nitrogen-stabilized fertilizer.

3.1.16.1
inhibitor
substance that improves the nutrient release patterns of a product providing plants with nutrients, by delaying or stopping the activity of specific group of microorganisms or enzymes

3.1.16.2
urease inhibitor
substance that inhibits hydrolytic action on urea by the urease enzyme

Note 1 to entry: Primarily targeted to reduce ammonia volatilization.

3.1.16.3
nitrification inhibitor
substance that inhibits the biological oxidation of ammoniacal nitrogen to nitrite nitrogen, thus slowing the formation of nitrate nitrogen

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3.1.17
enhanced efficiency reference product
soluble fertilizer product (prior to treatment by chemical reaction, coating, encapsulation, addition of inhibitors, compaction, occlusion, or by other means) or the corresponding product used for comparison to substantiate enhanced efficiency claims

3.1.18
soil conditioner
organic/inorganic material added to soils to improve the physical and/or chemical properties, and/or the biological activity of soils with or without a declarable content of nutrients

3.1.19
synthetic soil conditioner
product made by organic synthesis added to the soil to improve the physical and/or chemical properties, and/or the biological activity of soils without a declarable content of nutrients

3.1.20
inorganic soil conditioner
soil conditioner without organic matter, which improves the physical and/or chemical properties, and/or the biological activity of soils.

3.1.20.1
phosphogypsum
product produced as a by-product from the wet phosphoric acid process

Note 1 to entry: It is primarily composed of calcium sulfate and containing phosphate some of which is available. It is used as an ameliorant for chemical soil reclamation, calcium-containing fertilizer and raw material for composting.

Note 2 to entry: In this process, phosphate rock powder is reacted with concentrated sulfuric acid.

3.1.21
soil improver
organic/inorganic material that maintains, improves, or protects the physical or chemical properties, the structure or the biological activity of the soil to which it is added with the exception of liming materials

Note 1 to entry: The term “soil amendment” is synonymous with “soil conditioner” under some circumstances.

3.1.22
liming material
mineral substances and mixtures whose main function is to correct soil acidity and modify and/or improve soil physical, chemical or biological properties and contain either oxides, hydroxides, carbonates or silicates of the nutrients calcium and/or magnesium

Note 1 to entry: The terms “lime” and “liming soil amendment” are also used, but "liming material" or “agricultural lime” are preferred.

3.1.23
organic soil improver
natural organic material applied principally to improve the physical properties and biological activity of soil

3.1.24
semi-organic soil improver
soil improver containing substances and elements of both organic and inorganic origin

3.1.25
water-soluble fertilizer
fertilizers, virtually completely soluble in water and suitable for, for example, fertigation and sprinkling irrigation

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