SLOVENSKI STANDARD
SIST EN 12944-3:2019

01-julij-2019

Nadomešča:
SIST EN 12944-3:2002

Gnojila in sredstva za apnjenje - Slovar - 3. del: Izrazi v zvezi s sredstvi za apnjenje

Fertilizers and liming materials - Vocabulary - Part 3: Terms relating to liming materials

Düngemittel und Kalkdünger - Vokabular - Teil 3: Begriffe für Kalkdünger

Engrais et amendements calciques et/ou magnésiens - Vocabulaire - Partie 3 : Termes relatifs aux amendements calciques et/ou magnésiens

Ta slovenski standard je istoveten z: **EN 12944-3:2019**

ICS:

01.040.65	Kmetijstvo (Slovarji)	Agriculture (Vocabularies)
65.080	Gnojila	Fertilizers

SIST EN 12944-3:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12944-3

May 2019

ICS 01.040.65; 65.080

Supersedes EN 12944-3:2001

English Version

Fertilizers and liming materials - Vocabulary - Part 3: Terms relating to liming materials

Engrais et amendements minéraux basiques - Vocabulaire - Partie 3 : Termes relatifs aux amendements minéraux basiques

Düngemittel und Kalkdünger - Vokabular - Teil 3: Begriffe für Kalkdünger

This European Standard was approved by CEN on 14 December 2018.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Ref. No. EN 12944-3:2019 E

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European foreword

This document (EN 12944-3:2019) has been prepared by Technical Committee CEN/TC 260 “Fertilizers and liming materials”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by August 2019, and conflicting national standards shall be withdrawn at the latest by August 2019.

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 EN 12944-3:2001.

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The following changes have been made to the former edition:

a) terminological entry 3.1.20 “liming material” revised;

b) definition of 3.2.5 “acidification” revised;

c) terminological entry 3.2.13 “neutralizing value” revised;

d) definition of 3.2.14 “reactivity” harmonized with ISO 8157:2015;

e) former terminological entry 2.2.15 “specific area” deleted;

f) new terminological entry 3.2.15 “base saturation rate” added;

g) definition of 3.4.2 “liming effect” harmonized with ISO 8157:2015;

EN 12944, *Fertilizers and liming materials — Vocabulary*, is currently composed of the following parts:

— *Part 1: General terms.*

— *Part 2: Terms relating to fertilizers.*

— *Part 3: Terms relating to liming materials.*

These definitions may not necessarily correspond with those used in national legislation.

NOTE A classification scheme for fertilizers and liming materials is given in EN 13535 [1].

1 Scope

This document defines terms relating to liming materials.

An index of all terms defined in this part of EN 12944, with their French and German equivalents, is given in Annex A.

A general index of all terms defined in all three parts of EN 12944, with their French and German equivalents, is given in Annex B.

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 terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1 Terms relating to products of production

3.1.1
calcination
burning or heating of a material, usually in order to remove volatile components or in order to change the crystal structure

3.1.2
carbonation
conversion of slaked lime to carbonate by uptake of carbon dioxide

3.1.3
chalk
form of calcium carbonate derived from the skeletons of microscopic marine organisms

3.1.4
wet grinding
grinding of material in the presence of water

3.1.5
degree of burning
degree to which carbon dioxide has been removed during the production of quicklime or burnt dolomite

3.1.6
lime-burnt dolomite
dolomitic limestone calcined to the same carbon dioxide level as normally burnt limestone

3.1.7
burnt dolomite
liming material mainly consisting of calcium oxide and magnesium oxide obtained by calcination of dolomitic limestone

3.1.8
burnt magnesium lime
liming material mainly consisting of calcium oxide and magnesium oxide obtained by calcination of magnesian limestone

3.1.9
free lime
< products and production > the calcium oxides and/or hydroxides which have not reacted with the liming material they are included in

Note 1 to entry: A definition of free lime relating to soils is given in 3.4.4.

3.1.10
kiln
general term for the equipment used for lime burning

3.1.11
rotary kiln
rotary tubular counter-current kiln

3.1.12
shaft kiln
kiln constructed as a vertical combustion shaft

3.1.13
lime
general term for burnt lime and hydrated lime

3.1.14
burnt lime
quick lime
liming material consisting mainly of calcium oxide, or a mixture of calcium oxide and possibly magnesium oxide, produced by the calcination of limestone, magnesian limestone or dolomitic limestone

3.1.15
filter lime
liming material in the form of dust, obtained from flue gases during lime burning

3.1.16
slaked lime
hydrated lime
liming material consisting mainly of calcium hydroxide, or a mixture of calcium hydroxide and possibly magnesium hydroxide, produced by a controlled reaction between burnt lime and water

Note 1 to entry: The reaction between burnt lime and water is referred to as “slaking”.

3.1.17
limestone
natural rock consisting mainly of varying amounts of calcium carbonate and magnesium carbonate, containing less than a mass fraction of 2 % of magnesium expressed as Mg

3.1.18
magnesian limestone
natural rock consisting mainly of varying amounts of calcium carbonate and magnesium carbonate, containing a mass fraction of at least 2 % and less than 10 % of magnesium expressed as Mg

3.1.19
dolomitic limestone
natural rock consisting mainly of varying amounts of calcium carbonate and magnesium carbonate, containing a mass fraction of at least 10 % of magnesium expressed as Mg

3.1.20
liming material
agricultural lime
mineral substances and mixtures whose main function is to correct soil acidity improving physical, chemical and biological soil properties and which contains 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.

3.1.21
silicate liming material
basic slag from metallurgical processes such as blast furnaces or converters

3.1.22
blast furnace lime
blast furnace slag
product from ironmaking consisting mainly of calcium silicates and magnesium silicates

3.1.23
converter lime
converter slag
product from steelmaking consisting mainly of calcium silicates

3.1.24
sludge liming material
product from industry consisting of calcium carbonate and/or calcium hydroxide and a substantial amount of water

3.1.25
sugar factory lime
product from the sugar industry obtained by carbonation and containing calcium carbonate

3.1.26
marl
soft, natural deposit containing varying amounts of calcium carbonate mixed with clay

3.1.27
carbonate rock
natural rock with a carbonate mineral as its main constituent

Note 1 to entry: Limestone, chalk, dolomitic limestone and magnesite are examples of carbonate rocks.

3.1.28
calcite
trigonal crystalline form of calcium carbonate

3.1.29
aragonite
orthorhombic crystalline form of calcium carbonate

3.1.30
magnesite
crystalline mineral with the chemical composition magnesium carbonate isomorphic with calcite

3.1.31
slag
general term for a liming material from metallurgical processes consisting mainly of calcium silicates and magnesium silicates

3.1.32
dry slaking
slaking of burnt lime with least possible amount of water resulting in a powdery slaked lime

3.1.33
wet slaking
slaking of burnt lime with surplus water resulting in slaked lime in the form of milk-of-lime, slurry or paste

3.1.34
liming material of natural origin
calcium or calcium and magnesium carbonates, oxides and hydroxides produced from naturally occurring geological deposits

3.2 Terms relating to physical or physico-chemical properties

3.2.1
acid insoluble residue
matter remaining after the liming material has been dissolved in hydrochloric acid (HCl)

Note 1 to entry: For the English term “acid insoluble residue” AIR is commonly used as an abbreviation.

3.2.2
alkaline solution
basic solution
solution with a pH higher than 7

3.2.3
alkalinity
capacity to neutralize acids, i.e. absorbing hydrogen ions (H+)

3.2.4
acid solution
solution with a pH lower than 7

3.2.5
acidification
natural or imposed process due to accumulation of H^+ or other acid compounds resulting in lowering pH values in soils, watercourses and lakes

3.2.6
buffer capacity
capacity to resist a change in pH value when acid or alkali is added

3.2.7
basicity
ratio between alkaline oxides and acidic oxides

3.2.8
neutralization
reaction when a surplus of H^+ or OH^- is eliminated through addition of alkali or acid respectively

Note 1 to entry: Liming materials are used to eliminate surplus of H^+.

3.2.9
carbon dioxide residue
residual carbonate content measured as carbon dioxide (CO_2) in burnt lime

3.2.10
loss on ignition
mass loss by heating a dried sample to constant mass at a specified temperature

Note 1 to entry: For the English term “loss on ignition”, "LOI" is commonly used as an abbreviation.

3.2.11
neutralizing effect
ability of a liming material to neutralize soil acidity or water acidity

3.2.12
pH value
10-logarithm for the inverted value of the hydrogen ion activity in a solution

3.2.13
neutralizing value
NV
number which represents the amount in kilograms of calcium oxide (CaO) or corresponding unit which has the same neutralizing effect as 100 kg of the product under consideration

Note 1 to entry: Several units can be used (CaO equivalent, $CaCO_3$ equivalent, or HO^- equivalent).

3.2.14
reactivity
rate of reaction of a liming material with acid under specified conditions measured with a specific standard

[SOURCE: ISO 8157:2015, 2.4.16]

3.2.15
"base" saturation rate
proportion of exchangeable calcium, magnesium, potassium and sodium of the total cation exchange capacity (CEC) of the soil

Note 1 to entry: All expressed as equivalents.

Note 2 to entry: The ratio is expressed as percentage. The saturation rate is calculated by $\frac{\left[Ca + Mg + K + Na\right] x\, 100}{CEC}$.

Note 3 to entry: These elements are not bases, but act in an acid base soil colloid system.

3.3 Terms relating to agricultural and environment liming purposes and use

3.3.1
liming for preservation purposes
periodic liming of soils or water to correct and maintain the pH value appropriate for the habitat in question

3.3.2
liming for rehabilitation purposes
liming of soils or water in one or several steps to increase the pH value to a level appropriate for the habitat in question

3.3.3
liming for soil protection purposes

liming of arable grass land or forest soils to limit erosion and maintain the soil pH at a level which inhibits the availability of harmful minor elements

3.4 Terms relating to liming effect

3.4.1
lime requirement
amount of liming material required to replace the loss of lime in the soil or in the water occurring in the habitat, or needed to reach a defined level

3.4.2
liming effect
effect of a liming material on pH increase and soil physical, chemical, or biological properties

[SOURCE: ISO 8157:2015, 2.4.17]

3.4.3
total liming effect
theoretical maximum acid neutralizing capacity when a liming material has stopped reacting in the soil or in the water

3.4.4
free lime
soil excess liming material
< soil > calcium or magnesium carbonates and/or hydroxides which have not reacted with any soil particles

Note 1 to entry: A definition of free lime relating to products or production is given in 3.1.9.