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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

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Will supersede EN 12944-3:2001

English Version

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

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

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

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 260.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (prEN 12944-3:2017) has been prepared by Technical Committee CEN/TC 260 “Fertilizers and liming materials”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12944-3:2001.

The following changes have been made to the former edition:

- a) definition 2.1.20 “liming material” harmonized with ISO 8157:2015;
- b) definition 2.2.5 “acidification” revised;
- c) definition 2.2.13 “neutralizing value” revised;
- d) definition 2.2.14 “reactivity” harmonized with ISO 8157:2015;
- e) definition 2.2.15 “specific area” deleted;
- f) new term and definition 2.2.15 “base saturation rate” added;
- g) definition 2.4.2 “liming effect” harmonized with ISO 8157:2015;

EN 12944, *Fertilizers and liming materials — Vocabulary*, is currently composed with 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 European Standard 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 Terms and definitions

2.1 Terms relating to products of production

2.1.1

calcination

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

2.1.2

carbonation

conversion of slaked lime to carbonate by uptake of carbon dioxide

2.1.3

chalk

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

2.1.4

wet grinding

grinding of material in the presence of water

2.1.5

degree of burning

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

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2.1.6

lime-burnt dolomite

dolomitic limestone calcined to the same carbon dioxide level as normally burnt limestone

2.1.7

burnt dolomite

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

2.1.8

burnt magnesium lime

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

2.1.9

free lime

< relating to 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 2.4.4.

2.1.10**kiln**

general term for the equipment used for lime burning

2.1.11**rotary kiln**

rotary tubular counter-current kiln

2.1.12**shaft kiln**

kiln constructed as a vertical combustion shaft

2.1.13**lime**

general term for burnt lime and hydrated lime

2.1.14**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

2.1.15**filter lime**

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

2.1.16**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".

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2.1.17**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

2.1.18**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

2.1.19**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

2.1.20**liming material**

agricultural lime

mineral substances and mixtures whose main function is to correct soil acidity containing either oxides, hydroxides, carbonates, or silicates of the nutrients calcium and/or magnesium

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

[SOURCE: ISO 8157:2015]

2.1.21**silicate liming material**

basic slag from metallurgical processes such as blast furnaces or converters

2.1.22**blast furnace lime**

blast furnace slag

product from ironmaking consisting mainly of calcium silicates and magnesium silicates

2.1.23**converter lime**

converter slag

product from steelmaking consisting mainly of calcium silicates

2.1.24**sludge liming material**

product from industry consisting of calcium carbonate and/or calcium hydroxide and a substantial amount of water

2.1.25**sugar factory lime**

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

2.1.26**marl**

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

2.1.27**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.

2.1.28**calcite**

trigonal crystalline form of calcium carbonate

2.1.29**aragonite**

orthorhombic crystalline form of calcium carbonate

2.1.30**magnesite**

crystalline mineral with the chemical composition magnesium carbonate isomorphous with calcite

2.1.31**slag**

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

2.1.32**dry slaking**

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

2.1.33**wet slaking**

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

2.1.34**liming material of natural origin**

calcium or calcium and magnesium carbonates, oxides and hydroxides produced from naturally occurring geological deposits

2.2 Terms relating to physical or physico-chemical properties**2.2.1****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.

2.2.2**alkaline solution**

basic solution

solution with a pH higher than 7

2.2.3**alkalinity**

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

2.2.4**acid solution**

solution with a pH lower than 7

2.2.5**acidification**

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

2.2.6**buffer capacity**

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

2.2.7**basicity**

ratio between alkaline oxides and acidic oxides

2.2.8**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^+ .

prEN 12944-3:2017 (E)**2.2.9****carbon dioxide residue**

residual carbonate content measured as carbon dioxide (CO₂) in burnt lime

2.2.10**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.

2.2.11**neutralizing effect**

ability of a liming material to neutralize soil acidity or water acidity

2.2.12**pH value**

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

2.2.13**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, CaCO₃ equivalent, or HO⁻ equivalent).

2.2.14**reactivity**

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

[SOURCE: ISO 8157:2015]

2.2.15**“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
$$\frac{[Ca + Mg + K + Na] \times 100}{CEC}$$
.

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

2.3 Terms relating to agricultural and environment liming purposes and use**2.3.1****liming for preservation purposes**

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