

CEN-CENELEC TC10
Material Efficiency Aspects for Ecodesign'

Secretary Enquiry (new work item 65684 / prEN 45550)

To: National Standardisation Bodies and Collaborating Partners

Secretary Enquiry

CEN/CLC European Standard

prEN 45550 - Definitions related to material efficiency

National Standardisation Bodies and Collaborating Partners are invited to comment on the document. Comments can be considered only if form sheet (FormComments.doc) is used.

National Standardisation Bodies and Collaborating Partners shall upload their comments, as a reply to this document on the Collaboration tool, no later than 2017-12-20.

CEN-CLC/TC 10

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Definitions related to material efficiency

Einführendes Element — Haupt-Element — Ergänzendes Element

Élément introductif — Élément central — Élément complémentaire

ICS:

CCMC will prepare and attach the official title page.

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European foreword

This document (prEN 45550:2018) has been prepared by Technical Committee CEN-CLC/TC 10 “Energy-related products - Material Efficiency Aspects for Ecodesign”, the secretariat of which is held by The Netherlands.

This document is currently submitted to the Secretary Enquiry.

This standard, along with the standards of the CEN-CLC 45550 to 45559 series, has been developed under Standardization Request M/543 of the European Commission.

Topics covered in the CEN-CLC 45550 to 45559 series are inter alia, product durability, reparability, reusability, recyclability, recycled content, ability to remanufacture, and product lifespan. While various important topics in the context of material efficiency are covered in the standards of the CEN-CLC 45550 to 45559 series, other subjects of material efficiency, e.g. renewable resources, biodegradable plastics, light weighting and multi functionality, are not covered for the moment, despite their potential impact on material efficiency.

CEN, CENELEC and ETSI have been requested by M/543 to develop horizontal standards on fundamental principles, concepts, terminology or technical characteristics, relevant to a number of technical committees and of crucial importance to ensure the coherence of the corpus of standardisation documents. Generic standards developed under M/543 will be the baseline for future product publications covering a specific energy-related product (ErP) or group of related ErPs.

The primary addressees of the standards in the CEN-CLC 45550 to 45559 series are experts preparing product specific publications on the various covered topics. Standardisation request M/543 has asked the European standardisation organisations CEN, CENELEC and ETSI to jointly draft new European standards and standardisation deliverables on material efficiency Aspects for energy-related products in support of implementation of the EcoDesign Directive (2009/125/EC).

Introduction

When multiple groups work in parallel on different but closely related topics, it is important to have a common vocabulary to avoid confusing the reader.

Given the extent of Standardisation Request M/543 in terms of product coverage and number of deliverables, a common vocabulary is a key asset for all involved parties. Therefore, Standardisation Request M/543 requires the following: “Definition of parameters and methods relevant for assessing durability, upgradability and ability to repair, re-use and re-manufacture of products”.

1 Scope

This Technical Report “Definitions related to material efficiency” constitutes a collection of common terms used in deliverables prepared in accordance with Standardisation Request M/543. The purpose of such a collection is to provide a single definition of key terms used in different deliverables from the CENCENELEC TC10.

The source of the terms and definitions can be documents developed in the various working groups of the CEN-CENELEC TC10 or any text referenced by such documents.

Whenever possible, the proposed definitions are consistent with the ones given in European and International standards dealing with environmental aspects of products in scope of M/543.

2 Normative references

There are no normative references in this document.

Documents from which definitions are extracted or inspired can be found in bibliography.

3 Terms and definitions

No terms and definitions are listed in this document for the purposes of its understanding. Terms and definitions which are the subject of this document are listed in section 4.

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>

4 Terms and definitions related to material efficiency

4.1 General

Definitions listed here are the ones of interest for several working groups. At this stage of the work, terms have been agreed on 1-to-1 base between WG01 and other WG's

4.2 Terms and definitions related to durability

Unless otherwise mentioned, definitions from IEC 60050:2015, part 192 (dependability) apply. In addition, following terms and definitions are used in this standard:

4.2.1

durability

ability to perform a function as required, under given conditions of use and maintenance, until a limiting state is reached which means the end of useful life.

4.2.2

useful life

time interval, from first use until user requirements are no longer met, due to economics of operation and maintenance, or obsolescence

4.2.3

test related first technical life time

time span or number of cycles of an ErP to perform a required function under defined laboratory testing conditions until a limiting state is reached.

Note 1 to entry: The given conditions include maintenance, and the limiting state is defined as a failure which necessitates repair.

4.2.4

calculation based technical lifetime

calculated time span or number of cycles of an ErP to perform a required function under defined conditions until a limiting state is reached, based on statistical data.

Note 1 to entry: The given conditions include maintenance, and the limiting state is defined as a failure which necessitates repair.

4.2.5

first useful life

time span or number of cycles of a new ErP to perform a required function under given conditions of use and maintenance until a limiting state is reached, which means until requirements of first user are no longer met, due to economics of operation, maintenance and repair or obsolescence.

4.2.6

extended useful life

time span or number of cycles of an ErP to perform a required function under given conditions of use and maintenance from the previous use until a limiting state is reached, which means until requirements of the user are no longer met, due to economics of operation, maintenance and repair or obsolescence

4.2.7

durability analysis

analysis of the equipment's responses to the stresses imposed by operational use, maintenance, shipping, storage and other activities throughout its specified life-cycle in order to estimate its predicted reliability and expected life

[SOURCE IEC 62308, definition 3.1]

4.3 Terms and definitions related to Upgradability, Ability to repair, Facilitate Re-Use, Use or re-used components

4.3.1

accessory

product supplementing a main product, but not forming part of it.

Note 1 to entry: this standard only considers accessories shipped together with the main product

[SOURCE: 151-11-24, modified]

4.3.2

assembly

set of components assembled into a single part.

[SOURCE: IEC 62542 definition 3.2, modified to cover more than “electronic assembly”]

4.3.3

component

part of a product that cannot be taken apart without destruction or impairment of its intended use.

[SOURCE IEC 62542 definition 3.3, modified to cover more than “electronic component”]

4.3.4

consumable

product content that is foreseen to be frequently replaced or refilled during the normal life time of the product.

EXAMPLE: filter, filter bag, ink or toner, lubricant, refrigerants and heat exchange liquid/gas...

4.3.5

direct re-use

reuse without any preparation for reuse, except minimal cleaning and adjustments that can be performed by the owner himself.

Note 1 to entry: products subject to direct reuse are also called “second hand” products

4.3.6

disassembly

process whereby a product is taken apart in such a way that it could subsequently be reassembled and made operational

[SOURCE: IEC 62542 definition 6.1, modified]

4.3.7

disjointment

process whereby materials are separated by mechanical or other means such that the product cannot subsequently be reassembled to make it operational

Note 1 to entry: The process typically employs actions such as cutting, grinding, scratching and abrasive processes. . It can also use thermal or chemical processes.

[SOURCE: IEC 62542 definition 6.2, modified to include thermal and chemical processes]

4.3.8

dismantling

process whereby a product is taken apart in such a way that some parts can be reused, although the product (and the parts not intended to be reused) cannot be reassembled and made operational

4.3.9

fastener

hardware device, mechanism or material that physically joins or affixes two or more parts together.

EXAMPLES : snap fit, hook and eye, screw, bolt and locknut, adhesive, glue, solder.

Note 1 to entry: Fasteners that are hardware devices can consist of several pieces, some of them being integrated in or permanently attached to a component or assembly in such a way that they cannot be removed

4.3.10

maintenance

set of procedures to ensure the serviceability of a product

Note 1 to entry: the word “maintenance” is sometimes reserved for “preventive maintenance”

[SOURCE: ISO 4306-1:2007, definition 5.1, modified by addition of the note 1 to entry]

4.3.11

preparation for re-use

sequence of operations by which products, parts or components are prepared so that they can be used by a person other than its previous owner or user, for the same or another purpose for which they were conceived

Note 1 to entry: preparation for re-use of products consists in cleaning, testing, repairing, etc. and can apply to both hardware and software.

Note 2 to entry: preparation for re-use of parts or components consists in extracting them from the product where they are installed so that they can be used to build or repair other products.

Note 3 to entry: “preparation for re-use” has a specific meaning and is subject to specific requirements for products in scope of the WEEE Directive (2008/98/EC); see EN 50614 for more details.

4.3.12

Re-use

any operation by which products or components are used again for the same or another purpose for which they were conceived

Note 1 to entry: in many cases, reuse requires various operations referred to as “preparation for reuse”

4.3.13

refurbishing

functional or aesthetical maintenance or repair of a product to restore to original, upgraded, or other predetermined form and functionality

[SOURCE: IEC 62542 definition 6.11]

4.3.14

remanufacture

production process that creates products using parts taken from previously used products

[SOURCE: IEC 62542 definition 6.12]

4.3.15

repair

process of returning the product to serviceability

Note 1 to entry: “repair” is sometimes referred to as “corrective maintenance”

[SOURCE: ISO 4306-1:2007, definition 5.2, modified by addition of the note 1 to entry]

4.3.16

replaceable part

component, assembly or any other hardware or software constituent, that can be replaced in order to repair or upgrade a product.

4.3.17

serviceability

ability of a product to perform the specified functions

[SOURCE: ISO 4306-1:2007, definition 1.2]

4.3.18

spare part

part which can replace a faulty, failed or worn-out replaceable part.

4.3.18

upgrade

process to enhance the functionality or capacity of a product

Note 1 to entry: upgrade can involve hardware as well as software

[SOURCE: IEC 62075:2012, definition 3.23, modified by addition of note 1 to entry]

4.4 Terms and definitions related to Ability to re-manufacture

4.4.1

significant change

change which is likely to influence safety or performance of an energy related product.

4.4.2

refurbishment

industrial process returning a used product to a satisfactory working condition. No significant change is made during refurbishment.

Note 1 to entry: Warranties can be granted to refurbished products but these are generally shorter than the legal warranties for new products.

4.4.3

remanufacturing

industrial process inspecting, disassembling, cleaning, reprocessing, storing, reassembling and testing an energy related product in such a manner that the product is in a condition equal to a newly manufactured product.

Note 1 to entry: The remanufacturing process includes significant changes to the appliance.

4.4.4

disassembly

See 4.3.6

4.4.5

inspection

determination and evaluation of the actual condition of the energy related product. Working in accordance with the manufacturer's inspection plan

4.4.6

Repair

See 4.3.15

4.4.7

accessibility

ease or difficulty with which a part can be reached and cleared of all interferences, in order for it to be ready for disassembly

4.4.8

durability

wear resistance

see 4.2.1

4.4.9

core

used or discarded energy-related product that is used as input for a remanufacturing process.

4.4.10

competent person

physical person who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Note 1 to entry: This definition provide that a competent person must have authority to take prompt measures to eliminate hazards at the work site and have the experience to be capable of identifying these hazards.

Note 1 to entry: This is the reason a competent person is required under inspection requirements.

4.4.11

Qualified person

physical person **who**, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

Note 1 to entry: Refer to National requirements which can vary from country to country.

Note 2 to entry: This definition providese that a qualified person must have a recognized degree, certificate, etc., or extensive experience and ability to solve the subject problems, at the worksite.

4.4.12

Reprocessing

Definition missing in prEN 45554

Note 1 to entry: Reprocessing can include activities such as repair, rework, replacement of worn parts, and upgrade of soft-/hardware. Terms and definitions related to Recyclability, recoverability, RRR index, Recycling, Use of recycled materials

4.5 Terms and definitions related to Recyclability, recoverability, RRR index, Recycling, Use of recycled materials

4.5.1

dismantling

Definition in prEN 45555 conflicts with others. See disjointment in 4.3.8

4.5.2

End-of-life treatment

any operation after a waste has been handed over to a facility for product and product part reuse, recycling, recovery and residue disposal

[Source: IEC 62635:2012, modified]

4.5.3

End-of-life treatment scenario

description of an end-of-life process flow and corresponding recycling rates of product parts and materials

[Source: IEC 62635:2012, modified]

4.5.4

Energy recovery

production of useful energy through direct and controlled combustion or other processing of waste

Note 1 to entry: Waste incinerators producing hot water, steam and/or electricity are a common form of energy recovery.

[Source: IEC 62635:2012]

4.5.5

Material recovery

any recovery operation, excluding energy recovery and the reprocessing into materials which are to be used as fuel

[SOURCE: EN 50625-1:2014, 3.23]

4.5.6

Recovery

Void

Note 1 to entry: Directive 2008/98/EC contains the following: “recovery’ means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II sets out a non-exhaustive list of recovery operations”

Note 2 to entry: Recovery operations include material recovery and energy recovery

4.5.7

Recoverability

ability of a waste product to be recovered

[SOURCE: IEC 62635:2012, modified])

4.5.8

recoverability rate

ratio of recoverable products, product parts, materials mass to total waste product mass reprocessed

[SOURCE: IEC 62635:2012]

4.5.9

recycling

Void

Note 1 to entry: Directive 2008/98/EC contains the following: “recycling’ means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes organic recycling but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.”

4.5.10

recycling rate

ratio of recycled products, product parts or materials mass to waste product mass reprocessed

Note 1 to entry: A recycling rate is obtained by computing data obtained from recycling operations. Determination of the recycling rate shall start with the untreated waste and end:

- when the end-of-waste status for fractions is achieved, or;
- with the final recycling or disposal of fractions.
- the determination of the recycling rates shall be based on the input/output analysis of every step, of every operator, within the waste treatment chain.

[SOURCE: IEC 62635:2012, modified, addition to Note 1 to entry from EN 50 625-1, Annex C (Normative)]

4.5.11

Recyclability

ability of a product to be recycled at end-of-life

[SOURCE: IEC 62635:2012, modified]

4.5.13

Waste

Void

Note 1 to entry Directive 2008/98/EC contains the following: “‘waste’ means any substance or object which the holder discards or intends or is required to discard”

4.5.14

Hazardous waste

Void

Note 1 to entry Directive 2008/98/EC contains the following: “‘hazardous waste’ means waste which displays one or more of the hazardous properties listed in Annex III of Directive 2008/98/EC” prEN 45555:2019 (E)

4.5.15

Removal

Void

Note 1 to entry Directive 2012/19/EU contains the following: “‘removal’ means manual, mechanical, chemical or metallurgic handling with the result that hazardous substances, mixtures and components are contained in an identifiable stream or are an identifiable part of a stream within the treatment process. A substance, mixture or component is identifiable if it can be monitored to verify environmentally safe treatment”.

4.5.16

Disposal

Void

Note 1 to entry: Directive 2008/98/EC contains the following: “‘disposal’ means any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy. Annex I sets out a non-exhaustive list of disposal operations”

3.17

Waste collection

gathering of waste, including the preliminary sorting and preliminary storage of waste for the purposes of transport to a logistics facility or a treatment facility.

[SOURCE: adapted from EN 50625-1:2014, 3.9 - modified]

4.6 Terms and definitions related to Use of Critical Raw Materials, Recyclability of Critical Raw Materials

4.6.1

consumer

natural (also called physical) person purchasing products or services for personal or private use

[SOURCE ISO 16759:2013, 3.4.1]

4.6.2

Critical Raw Material

CRM

material which, according to a defined classification methodology, is crucial because of its economic importance and its supply risk

Note 1 to entry: for the purpose of this standard, critical raw materials are the ones listed in annex 1 of "{COM(2017) 490 final} : COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on the 2017 list of Critical Raw Materials for the EU". Future updates to this list also apply.

4.6.3

Regulated Critical Raw Material

Regulated CRM

Critical Raw Material for which specific requirements have been enforced

Note 1 to entry: not all CRM are "Regulated CRM"

Note 2 to entry: In EU, Regulated CRM are the subject of implementing measures under the Eco-design Directive 2009/125/EC.

4.6.4

manufacturer

natural (also called physical) or legal person placing a product on the market, regardless of whether this person acts as the actual producer, the importer, or an authorized representative of the actual producer

4.6.5

professional

natural (also called physical) or legal person with recognized qualifications to perform certain operations in relation to the product

Note 1 to entry: these include but are not limited to installers, repairers, recyclers, (re-)manufacturers, maintenance operators, upgrade services, reuse-operators

4.6.6

component

see 4.3.3

4.6.7

declarable substance

DS

substance that meets specified criteria for reporting

Note 1 to entry: criteria for declarable substances within the IEC 62474 DSL are specified in clause 5 of IEC 62474 Edition 2.

[SOURCE: IEC 62474 Edition 2 (111/459/CDV), definition 3.6]

4.6.8

declarable substance group

DSG

substance group that meets specified criteria for reporting

Note 1 to entry: criteria for declarable substance groups within the IEC 62474 DSL are specified in clause 5 of IEC 62474 Edition 2.

[SOURCE: IEC 62474 Edition 2 (111/459/CDV), definition 3.7]

4.6.9

declarable substance list

DSL

list of declarable substances and/or declarable substance groups each with a reporting threshold and reportable application (s) which require reporting when contained at or above its maximum threshold value and reportable application within a product, product part or material

[SOURCE: IEC 62474 Edition 2 (111/459/CDV), definition 3.7]

4.6.10

energy-related product

ErP

product covered by the EcoDesign Directive, 2009/125/EC

Commission representative's opinion is welcome to state whether this definition is seen as a "regulatory statement" or not. In such case, the following is proposed:

4.6.10bis

energy-related product

ErP

void

Note 1 to Entry: Directive 2009/125/EC defines "Energy-related product" as "any good that has an impact on energy consumption during use which is placed on the market and/or put into service"

Note 2 to Entry: According to the same Directive, the term "Energy-related product" includes parts intended to be incorporated into energy-related products covered by this Directive which are placed on the market and/or put into service as individual parts for end-users and of which the environmental performance can be assessed independently.

4.6.11

material

substance or mixture of substances within a product or product part

[SOURCE: EN 62474: 2012, definition 3.4]

[SOURCE: IEC 62474 Edition 2 (111/459/CDV), definition 3.12]

4.6.12

material declaration

declaration of the presence of certain substances or substance groups contained within a product, product part, or material as applicable

Note 1 to entry: the declaration might be quantitative, where the amount of the declared substance or substance group is provided OR it might qualitative, where only the presence or absence of the declared substance or substance group is provided

[SOURCE: IEC 62474 Edition 2 ?]

4.6.13

product

any goods or service

Note 1 to entry: Including components as they may be considered products under the Eco Design Directive (e.g. motor and fans)

Note 2 to entry: In the context of this European Standard, the definition of product is limited to the product category "hardware" according to ISO 9000:2015.

4.6.14

product part

sub-unit of a product or another (product) part

Note 1 to entry: This is a recursive definition.

Note 2 to entry: If a standard product part e.g. a cable of 1m length is declared as product part only portions of it might be physically present in the product.

[SOURCE: EN 62474: 2012, definition 3.9, modified by addition of Note 2 to entry]

[SOURCE: IEC 62474 Edition 2 (111/459/CDV), definition 3.17]

In order to avoid conflicts, it is proposed to define "product part" (according to WG06) and "replaceable part" (according to WG03), but not "part" itself.

4.6.15

reporting threshold level

concentration limit at or above which the presence of a declarable substance in a material or product is declared if declaration of the declarable substance is, or if it is agreed on to be declared.

Note 1 to entry: mandatory declaration can be according to legislation and/or according to specification in the IEC 62474 Database or equivalent

[SOURCE: EN 62474: 2012, definition 3.12, modified]

4.6.16

substance

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

[SOURCE: Globally Harmonized System of Classification and Labelling (GHS):2003, Chapter 1.2, Definitions and Abbreviations]

4.6.17

substance group

two or more substances, that share at least one chemical sub-structure, or chemical or physical property under a generic name

[SOURCE: IEC 62474 Edition 2 (111/459/CDV), definition 3.25]

4.7 Terms and definitions related to Documentation and/or marking regarding information relating to material efficiency of the product

Not provided at this time.

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- [14] EN 45553:2019 - General method for the assessment of the ability to re-manufacture energy related products
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- [18] EN 45557:2019 - General method for assessing the proportion of recycled content in an energy related product
- [19] EN 45558:2019 - General method to declare the use of critical raw materials in energy related products

- [20] EN 45559:2019 - Methods for providing information relating to material efficiency aspects of energy related products