SLOVENSKI STANDARD
SIST EN 45557:2020

01-julij-2020

Splošna metoda za ocenjevanje deleža recikliranega materiala v proizvodih, povezanih z energijo

General method for assessing the proportion of recycled material content in energy related products

Allgemeines Verfahren zur Bewertung des Anteils an recyceltem Materials von energieverbrauchsrelevanter Produkte

Méthode générale pour l'évaluation du contenu en matériaux recyclés des produits liés à l'énergie

Ta slovenski standard je istoveten z: **EN 45557:2020**

ICS:

13.020.20	Okoljska ekonomija. Trajnostnost	Environmental economics. Sustainability

SIST EN 45557:2020 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 45557

April 2020

ICS 13.020.20

English version

General method for assessing the proportion of recycled material content in energy-related products

Méthode générale pour l'évaluation du contenu en matériaux recyclés des produits liés à l'énergie

Allgemeines Verfahren zur Bewertung des Anteils an recyceltem Material von energieverbrauchsrelevanten Produkten

This European Standard was approved by CEN on 13 February 2020.

CEN and CENELEC 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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN and CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN and CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN and CENELEC members are the national standards bodies and national electrotechnical committees of 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, Turkey and United Kingdom.

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

Ref. No. EN 45557:2020 E

Contents

Page

European foreword

This document (EN 45557:2020) has been prepared by Technical Committee CEN/CLC/JTC 10 “Energy-related products – Material Efficiency Aspects for Ecodesign”, the secretariat of which is held by NEN.

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 October 2020, and conflicting national standards shall be withdrawn at the latest by October 2020.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

The dual logo CEN-CENELEC standardization deliverables, in the numerical range of 45550 to 45559, have been developed under standardization request M/543 of the European Commission and are intended to potentially apply to any product within the scope of the Directive 2009/125/EC concerning energy-related products (ErP).

Topics covered in the above standardization request are linked to the following material efficiency aspects:

a) Extending product lifetime;

b) Ability to re-use components or recycle materials from products at end-of-life;

c) Use of re-used components and/or recycled materials in products.

These standards are general in nature and describe or define fundamental principles, concepts, terminology or technical characteristics. They can be cited together with other product-specific, or product-group, standards, e.g. developed by product technical committees.

This document is intended to be used by technical committees when producing horizontal, generic, and product, or product-group, standards.

NOTE CEN/CENELEC/JTC 10 is a joint TC, and uses either CEN or CENELEC foreword templates, as appropriate. The template for the current document is correct at the time of publication.

Attention is drawn to safety and other legislation relevant to ErP. Their purpose is to ensure that all products intended for or likely to be used by consumers and other users under normal or reasonable foreseeable conditions are safe.

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, Turkey and the United Kingdom.

Introduction

The recycled material content of a new product is a characteristic of the product and its parts, which contributes to material efficiency, in addition to the potentials of reusability, recyclability and recoverability.

With a focus on the efficient and effective use of natural resources, primary materials are often able to be substituted by recycled materials, reducing the demand for primary materials, with related potential environmental, social and economic implications. These could include reduced mining and consumption of natural resources, reduced landfill, reduced emissions and energy savings. The overall environmental impact will depend on the difference in the impacts of making materials from primary sources (oil, ore, etc.) vs. reprocessing waste into secondary materials which would directly substitute primary materials.

The benefit of increasing recycled materials content in products is, in many cases, the incentivisation of recycling of end-of-life (EoL) waste material through the stimulation of demand for recycled materials. In other cases, where there is already high demand for recycled materials compared to the available supply, the link between specification of higher recycled materials content and the incentivisation of recycling is weaker. In that case, specification of recycled materials content may not be relevant to eco-design. The rationale for specifying recycled materials content, therefore needs to be considered for each material individually depending on the specific supply/demand situation.

This document facilitates the provision of substantiated claims of the recycled materials content of energy-related products (ErPs). Key for substantiated claims for new products is the recognition of the chain of custody (CoC), which allows the tracing of recycled materials from different sources.

1 Scope

This document specifies a general method for assessing the proportion of recycled material in an energy-related product. This document is applicable as the framework to be used for defining the assessment of recycled materials content in specific product groups.

It is not intended to generate publicly available product information and compare products in the absence of a product standard based on this document.

This document does not cover aspects such as quality and physical properties of recycled materials.

This document does not apply to the assessment of reused components.

NOTE EN 45556:2019 provides a general method for assessing the proportion of reused components in ErPs.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 45559, *Methods for providing information relating to material efficiency aspects of energy-related products*

3 Terms and definitions

3.1 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:

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

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

NOTE See CLC/TR 45550:-[1] for additional definitions related to material efficiency of ErP.

3.1.1 Definitions related to materials

3.1.1.1
primary material
material made from virgin raw material(s)

3.1.1.2
recycled material
material which is either pre-consumer material or post-consumer material

Note 1 to entry: The terms “recycled material” and “secondary material” have the same meaning in this document.

[1] Under preparation. Stage at time of publication: CLC/prTR 45550:201X.

3.1.1.3
pre-consumer material
material diverted from the waste generated during a manufacturing process excluding reutilization of materials such as rework, regrind or scrap generated in a process and being reincorporated in the same process that generated it

Note 1 to entry: Same process means the same manufacturing operation for the same type of product in the same or different physical location.

[SOURCE: ISO 14021:2016, 7.8.1.1, modified by replacement of “stream” by “generated”, addition of Note 1 to entry and amended according to drafting rules of CEN/CLC Internal Regulations Part 3]

3.1.1.4
post-consumer material
material recovered from waste generated by households or by commercial, industrial and institutional facilities in their role as end-users of a finished product

Note 1 to entry: This includes returns of products, or parts thereof, from the distribution of finished products for end-users.

3.1.2 Other definitions

3.1.2.1
chain of custody
chain of responsibilities for, or control of, products or materials as they move through each step in the relevant supply chain

3.1.2.2
part
hardware, firmware or software constituent of a product

Note 1 to entry: Firmware and software are not relevant for the purpose of this document.

[SOURCE: EN 45554:2020 definition 3.2]

3.1.2.3
waste
substance or object of any kind, which the holder discards or intends or is required to discard

[SOURCE: Directive 2008/98/EC]

3.2 Abbreviations

The following abbreviations have been used in this document:

CoC chain of custody

EoL end-of-life

ErP energy-related product

4 General assessment procedure

Primary materials and recycled materials are often physically or chemically indistinguishable, and there are currently no reliable, accurate and reproducible methods available for directly measuring the recycled materials content in a product. For the purpose of this document, the verification of recycled materials content therefore relies on documented proof for traceability (see Clause 6) provided by the relevant operator in the CoC. Recycled materials content is expressed as the average ratio of recycled materials used to the total production output of energy-related products over a specific period of time.

The assessment of recycled materials content requires:

1) description of the scope of the assessment (see 5.1);

2) description of materials composition of a single product (see 5.2 and 5.3);

3) a management system to trace the type of material inputs, for both primary and recycled materials (see Clause 6);

4) performance of a mass balance calculation, linking recycled materials content of parts/products to total materials in parts/products produced (see Clause 7).

While Clause 7 elaborates on how to determine the recycled materials content of an ErP or its parts, Annex A elaborates on how to determine the recycled materials content of a material, as manufacturers can sometimes be ErP manufacturers, part manufacturers and/or material manufacturers. It is advised to refer to the respective part of this document.

In Annex A material manufacturers are the main audience addressed.

5 Description of material composition of ErPs

5.1 Scope of the assessment

The users of this document shall define the scope of the assessment and select its appropriate elements as detailed below. The assessment shall be applied either to

— the ErP, or

— parts of the ErP.

It is possible to perform the assessment of the ErP or parts at different levels for

— all materials, or

— a type of material, e.g. plastic, metal, glass (more details provided in 5.2), or

— individual material, e.g. polypropylene, aluminium, float glass (more details provided in 5.2).

The elements of the scope that are applicable shall be determined by the users of this document and shall be documented (see 8.2).

The scope of the assessment shall define whether the recycled materials content assessment is done on the pre-consumer material or the post-consumer material or both.

5.2 Material declaration clustering and unspecified materials

The material declaration is a way to express the composition of the materials contained in a product or part. To establish a material declaration, each part of the product shall be assessed for the mass of its constituent materials, according to the scope of assessment (see 5.1). The masses of the respective material fractions shall be summed up to obtain the material composition of the whole part/product.

In many cases a given material type can represent different grades of the same material that are not identical but very similar and thus share the majority of physical and chemical properties.

EXAMPLE Steel or polypropylene (PP) are produced in different grades for specific applications. The Society of Automotive Engineers lists among others different grades of nickel-chromium steels with varying proportion of nickel and chromium, e.g. 31xx, 32xx, 33xx, 34xx. For polypropylene, the three main grades are homopolymer PP, random copolymer PP, block copolymer PP.

Various grades of a material type shall be treated as one material to determine the proportion of recycled materials content of a product. Alloys may require the allocation to a certain material. The users of this document shall define the applicable material clusters for their respective product group.

It may be necessary to exclude parts from allocation to specific material clusters due to their small size, complexity of their material composition or for other reasons, e.g. administrative or legal. To keep the mass balance even, these unspecified parts/materials shall be classified as “other materials” and be accounted for in the total mass of the product. These “other materials” shall be treated as primary material. The users of this document may determine limits for materials classified as “other materials” if applicable.

5.3 Distinction between pre-consumer material and post-consumer material

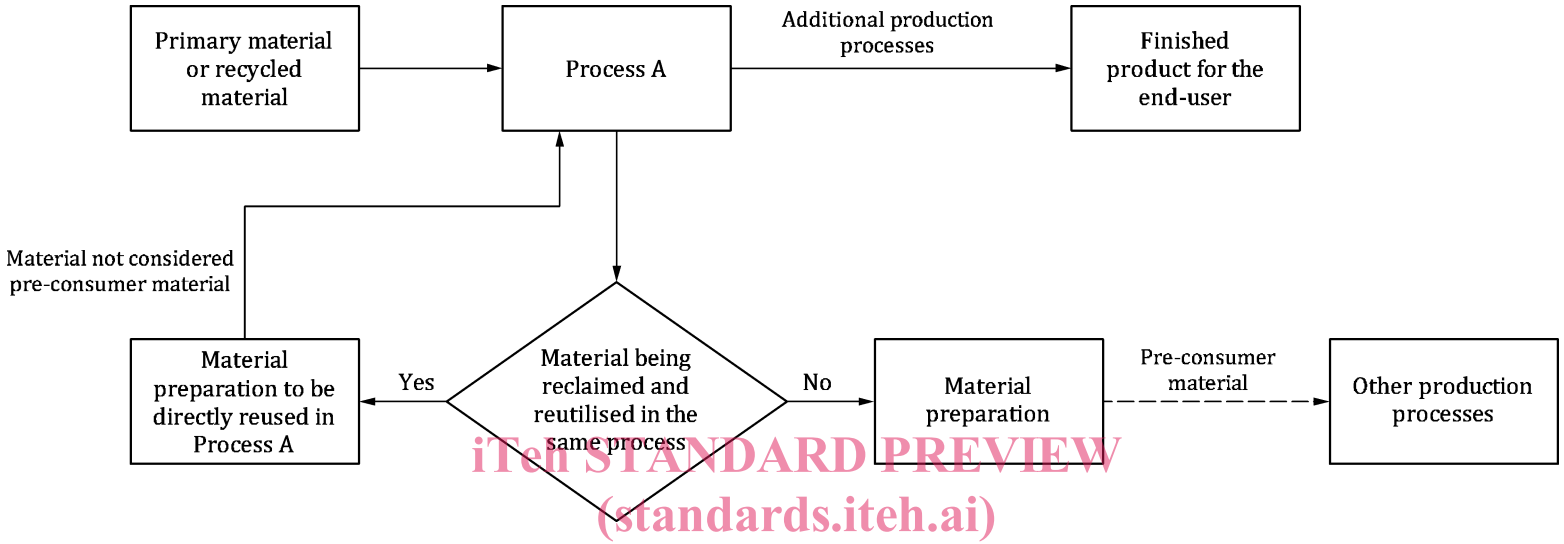
5.3.1 General

Only pre-consumer materials and post-consumer materials shall count towards recycled materials content, in accordance with the definition provided in Clause 3, and in line with specific guidelines provided in Annex A for different material types.

Recycled material content is typically brought into a production process to substitute some primary material. The recycled material can be pre-consumer or post-consumer material. The point of substitution is reached when the different properties of the input materials combine into an output comprised of homogenous material of defined properties.

5.3.2 Pre-consumer material

A material, which is reclaimed and reutilized within the same process that generated it shall not count towards pre-consumer material. A material which is not reclaimed and reutilized within the same process that generated it, and which undergoes material preparation, shall count towards pre-consumer material. This general concept is visualized in Figure 1.



Key

——→ Potential mix of material

– – –→ Pre-consumer material

Figure 1 — Concept of pre-consumer material