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General methods for assessing the recyclability and recoverability of energy-related products

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English version

General methods for assessing the recyclability and recoverability of energy-related products

Méthodes générales pour l'évaluation de la recyclabilité et de la récupérabilité des produits liés à l'énergie

Allgemeines Verfahren zur Bewertung der Recyclingfähigkeit und Verwertbarkeit energieverbrauchsrelevanter Produkte

This European Standard was approved by CEN on 6 October 2019.

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.



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European foreword

This document (EN 45555:2019) 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of an identical text or by endorsement, at the latest by May 2020, and conflicting national standards shall be withdrawn at the latest by May 2020.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.

The dual logo CEN-CENELEC standardization deliverables, in the numerical range of 45550 – 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 reuse components or recycle materials from products at end-of-life;
- c) Use of reused components/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, or product or product-group standards.

Attention is drawn to safety and other legislations 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

To close the loop in a circular economy, amongst other measures, an efficient handling of waste is paramount. Recovering materials and energy can reduce environmental impacts over the product lifecycle, including reduced extraction of natural resources and associated emissions of primary material production. To determine the recycling potential of an energy-related product (ErP) in terms of how easy it is to recycle/recover materials from the product or to what degree a product can undergo recycling/recovery, the concepts of recyclability and recoverability are introduced.

While recycling of ErPs aims at closing the circular economy loop, trade-offs might arise between different material efficiency related topics. For instance mass of an ErP, durability, reparability, reusability and energy efficiency, need to be balanced in order to improve the environmental benefit. See also ISO Guide 64 [12]. Further explanation on the relationship with environmental impacts of recycling and recovery, including environmental benefits, are displayed in the informative Annex C.

NOTE The Waste Framework Directive 2008/98/EC [9] provides the concept of waste hierarchy, which ranks the waste management practices from highest to lowest priority as follows: prevention, preparing for reuse, recycling, recovery and disposal.

Once an ErP has reached its end-of-life (EoL) and has become waste, the ErP can be either prepared for reuse, recycled/recovered. This document elaborates on the product characteristics which are relevant for recyclability and recoverability of an entire ErP. The focus is therefore on the recyclability/recoverability of the product itself rather than the recycling or recovery processes. The general method presented in this document takes into account the availability and efficiency of state-of-the-art recycling and recovery processes to determine the recyclability/recoverability rate of an ErP. Based on the reference EoL treatment scenario, it is assumed that the assessment of the recyclability/recoverability of an ErP as a whole may be valid for a certain period of time in a given geographical area.

1 Scope

This document establishes general principles for:

- Assessing the recyclability of energy-related products;
- Assessing the recoverability of energy-related products.

This document also considers:

- The ability to access or remove certain components, assemblies, materials or substances from products to facilitate their extraction at the end-of-life for ease of treatment, recycling and other recovery operations;
- The recyclability of critical raw materials (CRMs).

This document defines parameters which are applicable for the development of product or product-group standards in order to calculate recyclability/recoverability rates. This document serves as a method for writing product or product-group standards, rather than being directly applied. Additional information and requirements not provided in this document will be necessary for product or product-group standards.

This document is not applicable to generate publicly available product information and compare products in absence of product standards based on this document.

Although this document can be used for a product or product-group, for the sake of a better readability only “product” is used throughout the rest of the document.

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 45558, *General method to declare the use of critical raw materials in energy-related products*

EN 45559:2019, *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:

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

NOTE See FprCLC/TR 45550 for additional definitions related to material efficiency of ErP.

3.1.1

EoL

end-of-life

life cycle stage of a product starting when it is removed from its intended use stage