SLOVENSKI STANDARD
SIST EN 18120-12:2026

01-junij-2026

Embalaža - Načrtovanje za recikliranje plastične embalaže - 12. del: Postopek za ocenjevanje zmožnosti recikliranja plastične embalaže - Protokoli za togo embalažo iz polietilena (PE) in polipropilena (PP)

Packaging - Design for recycling of plastic packaging - Part 12: Recyclability evaluation process for plastic packaging - Protocols for PE and PP rigid packaging

Verpackung - Recyclingorientierte Gestaltung von Kunststoffverpackungsprodukten - Teil 12 - Verfahren zur Bewertung der Recyclingfähigkeit von Kunststoffverpackungen - Protokolle für starre Verpackungen aus PE und PP

Emballages - Conception des emballages plastiques en vue de leur recyclage - Partie 12 : Processus d'évaluation de la recyclabilité des emballages plastiques - Protocoles pour les emballages rigides en PE et PP

Ta slovenski standard je istoveten z: **EN 18120-12:2026**

ICS:

13.030.50	Recikliranje	Recycling
55.020	Pakiranje in distribucija blaga na splošno	Packaging and distribution of goods in general
83.080.20	Plastomeri	Thermoplastic materials

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 18120-12

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ICS 13.030.50; 55.020

English Version

Packaging - Design for recycling of plastic packaging - Part 12: Recyclability evaluation process for plastic packaging - Protocols for PE and PP rigid packaging

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This European Standard was approved by CEN on 9 February 2026.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 18120-12:2026) has been prepared by Technical Committee CEN/TC 261 “Packaging”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by October 2026, and conflicting national standards shall be withdrawn at the latest by October 2026.

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 standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, Türkiye and the United Kingdom.

Introduction

The EN 18120 series, under the general title *Packaging — Design for recycling of plastic packaging,* which aims via a series of guidelines and protocols to establish consistency and improvement for the design for recycling of household, industrial and commercial plastic packaging, consists of the following parts:

— *Part 1: Definitions and principles for design-for-recycling of plastic packaging*

— *Part 3: Evaluation processes for the sortability of plastic packaging*

— *Part 4: Guideline for PET bottles*

— *Part 5: Guideline for PET rigid packaging (except bottles)*

— *Part 6: Guideline for PE and PP rigid packaging*

— *Part 7: Guideline for PE and PP flexible packaging*

— *Part 8: Guideline for PS and XPS rigid packaging*

— *Part 9: Guideline for EPS packaging*

— *Part 10: Recyclability evaluation process for plastic packaging — Protocols for PET bottles*

— *Part 11: Recyclability evaluation process for plastic packaging — Protocols for PET rigid packaging (except bottles)*

— *Part 12: Recyclability evaluation process for plastic packaging — Protocols for PE and PP rigid packaging*

— *Part 13: Recyclability evaluation process for plastic packaging — Protocols for PE and PP flexible packaging*

— *Part 14: Recyclability evaluation process for plastic packaging — Protocols for PS and XPS rigid packaging*

— *Part 15: Recyclability evaluation process for plastic packaging — Protocols for EPS packaging*

Design for recycling guidelines are a common way of evaluating the compatibility with plastic-packaging collection, sorting and recycling which enables the use of secondary raw materials that are of sufficient quality when compared to the original material, in state-of-the-art facilities.

They provide guidance on the level of compatibility, defined as:

— green: packaging constituents and components with full compatibility with state-of-the-art collection, sorting and recycling;

— yellow: packaging constituents and components with limited compatibility with state-of-the-art collection, sorting and recycling;

— red: packaging constituents and components which are not compatible with state-of-the-art collection, sorting and recycling.

The design for recycling guidelines provided in the EN 18120 series cover the design for recycling based on the knowledge available at the time of the development of this document and are representative of the

state-of-the-art. They consider packaging waste collection, sorting and recycling, so that the recycled plastic can substitute primary raw materials in packaging application or other applications. Compliance with the design guidelines in the EN 18120 series does not guarantee that the recycled plastic quality will be fit for purpose for a specific targeted end application or compliant with applicable regulations.

Packaging recyclability is the combination of design of recycling, proven collection, sorting and recycling in practice.

1 Scope

This document covers the design of any rigid packaging with the main body of the packaging unit predominantly made of PE or PP and the design of separate components predominantly made of rigid PE or rigid PP, with respect to compatibility of the design with state-of-the-art collection, sorting and recycling processes and useability of the recyclates in an application.

Packaging constituents and packaging components made of other materials than PE and PP are also covered by this document as they need to be evaluated on compatibility with PE or PP polymer recycling.

2 Normative references

The following documents are referred to in the text in such a way that 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 18120-1, *Packaging — Design for recycling of plastic packaging — Part 1: Definitions and principles for design-for-recycling of plastic packaging3*

EN ISO 178, *Plastics — Determination of flexural properties (ISO 178)*

EN ISO 527-1:2019, *Plastics — Determination of tensile properties — Part 1: General principles (ISO 527-1:2019)*

EN ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2)*

EN ISO 1133-1, *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 1: Standard method (ISO 1133-1)*

EN ISO 18314-1, *Analytical colorimetry — Part 1: Practical colour measurement (ISO 18314-1)*

EN ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1)*

EN ISO 3451-1, *Plastics — Determination of ash — Part 1: General methods (ISO 3451-1)*

EN ISO 11357-1, *Plastics — Differential scanning calorimetry (DSC) — Part 1: General principles (ISO 11357-1)*

EN ISO 11357-3, *Plastics — Differential scanning calorimetry (DSC) — Part 3: Determination of temperature and enthalpy of melting and crystallization (ISO 11357-3)*

EN ISO 11358-1, *Plastics — Thermogravimetry (TG) of polymers — Part 1: General principles (ISO 11358-1)*

EN ISO 15512, *Plastics — Determination of water content (ISO 15512)*

ASTM D2457, *Standard Test Method for Specular Gloss of Plastic Films and Solid Plastics*

ASTM D2463, *Standard Test Method for Drop Impact Resistance of Blow-Molded Thermoplastic Containers*

ASTM D2659, *Standard Test Method for Column Crush Properties of Blown Thermoplastic Containers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 18120-1 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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

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

4 Recyclability evaluation process

4.1 Principle

This document provides a method of evaluating the *technical recyclability* of a rigid PE or PP packaging sample in *mechanical recycling* processes as they are implemented in Europe. The results characterize both the *processability* of the sample as well as the *quality of the recycled plastic*.

Depending on the choice of the sample, the method can either provide a technical recyclability determination for a given packaging design or item, or it can be employed to selectively study the impact of individual design elements in rigid PE and PP plastic packaging on technical recyclability. The latter approach may be employed to generate data for the updating of design-for-recycling guidelines.

The test method follows the steps (*unit operations*) that occur in a state-of-the-art mechanical recycling process for rigid PE or PP packaging and seeks to simulate each operation on a laboratory scale. The relevant unit operations are shown in Table 1. Steps 1 and 2 describe the plastic recycling process itself whereas step 3 represents the conversion of the recycled plastic into products, either bottles or rigid products. As such, steps 1 and 2 provide information on the processability of the sample whereas step 3 provides information on the quality of the recycled plastic that can be obtained.

The goal of the evaluation process is to identify all foreseeable critical points and establish a testing strategy that either confirms or excludes a negative impact for each critical point considered. The testing strategy may only use some of the test described below, if the tested innovation is known to have no impacts on some unit operations in terms of processing and recyclates quality. The sample size to be tested is also part of the testing strategy definition. The reasoning for the testing strategy deployed shall be described in the test report.

Table 1 — List of unit operations in mechanical recycling of PE or PP rigid packaging

Step #	Unit operation	Description of operation
1	**Pretreatment**	
1.1	Grinding	PE or PP based rigid packaging waste is ground into flakes
1.2	Washing	The flakes are washed to remove product residue and optionally components such as labels. Most European PE and PP rigid packaging recycling lines use cold washing conditions for coloured items. Hot wash is normally used to remove inks, and therefore increase the yield and prevent odour after extrusion. For the purpose of this protocol, the hot wash shall be used to demonstrate the effective deinkability of the printing and labels, in cases where deinkable inks are used.
1.3	Flotation	(Washed) flakes are separated from higher density materials in a float/sink tank. Flakes and other objects that sink are removed; flakes that float together with the PE or PP flakes proceed to the next recycling step with the floating PE or PP flakes