



SLOVENSKI STANDARD
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Polimerni materiali - Razvrščeni odpadki iz polimernih materialov - 2. del Stopnje kakovosti sortiranih polietilenskih (PE) odpadkov in posebne preskusne metode

Plastics - Sorted plastics wastes - Part 2: Quality grades of sorted Polyethylene (PE) wastes and specific test methods

Kunststoffe - Sortierte Kunststoffabfälle - Teil 2: Qualitätsstufen von sortierten Polyethylen(PE)-Abfällen und spezifische Prüfverfahren

Plastiques - Déchets de plastiques triés - Partie 2: Grades de qualité des déchets de polyéthylène (PE) triés et méthodes d'essai spécifiques

Ta slovenski standard je istoveten z: prEN 15347-2

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Plastics - Sorted plastics wastes - Part 2: Quality grades of sorted Polyethylene (PE) wastes and specific test methods

Kunststoffe - Güteklassen für sortierte
Kunststoffabfälle - Teil 2: Polyethylen (PE)

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 249.

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
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Contents	Page
European foreword	3
Introduction	4
1 Scope.....	5
2 Normative references.....	5
3 Terms, definitions, and abbreviated terms.....	5
4 Requirements.....	5
4.1 General.....	5
4.2 Classification scheme	5
4.3 HDPE Packaging	6
4.4 HDPE Building and Construction	8
4.5 HDPE Agriculture	10
4.6 LDPE Packaging	12
4.7 LDPE Agriculture.....	14
4.8 LDPE Building and Construction	16
Bibliography	18

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European foreword

This document (prEN 15347-2:2024) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by SIS.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a standardization request addressed to CEN by the European Commission.

This document is one part of a series of CEN publications on Plastics Recycling, which is structured as follows:

- EN 15342, *Plastics — Recycled Plastics — Characterization of polystyrene (PS) recyclates*
- EN 15343, *Plastics — Recycled Plastics — Plastics recycling traceability and assessment of conformity and recycled content*
- EN 15344, *Plastics — Recycled Plastics — Characterization of Polyethylene (PE) recyclates*
- EN 15345, *Plastics — Recycled Plastics — Characterization of Polypropylene (PP) recyclates*
- EN 15346, *Plastics — Recycled plastics — Characterization of poly(vinyl chloride) (PVC) recyclates*
- EN 15347 (all parts), *Plastics — Sorted plastics wastes*
- EN 15348, *Plastics — Recycled plastics — Characterization of poly(ethylene terephthalate) (PET) recyclates*
- CEN/TR 15353, *Plastics — Recycled plastics — Guidelines for the development of standards for recycled plastics*

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

Introduction

Low-density polyethylene (LDPE) is used in film applications for primary, secondary, or tertiary packaging where it plays an important part in household, but also commercial and industrial packaging. Additionally, films are widely used in agriculture either in the construction of greenhouses or as mulch film.

High-density polyethylene (HDPE) is widely used in many plastic applications across various sectors. HDPE is predominant in packaging, both household and commercial where it is widely used in the production of pallets and crates for transport. Particularly, commercial and industrial packaging will be quite uniform which is regarded as a high value for plastic recycling. It is also relevant in Building and Construction and Agriculture where it is used mainly in insulation materials, pipes, and irrigation systems. Finally, HDPE is also used widely in Household and Leisure applications such as garden furniture or sports equipment.

The disposal and collection of household PE waste is usually organized in comingled systems together with other packaging materials such as aluminium or cardboard (depending on EU Member State) that will be sorted out from impurities and in different recycling streams at a later stage.

Commercial and industrial applications are usually collected via private schemes. Bulky materials/products/parts of products (as household and leisure ones) are collected via dedicated collection. These will be sent to a sorting centre and separated into different polymer recycling streams.

PE plastic waste is characterized to determine the composition and quality of the batch. A clear and harmonized waste specification facilitates a transaction between the supplier and customer and establishes standard characteristics to monitor during any sorting or preparation of waste operations.

This document complements the general characterization of waste described in EN 15347-1¹ and adds additional clarification when it comes to the required and optional requirements of PE waste. Characteristics are defined for products part of the Packaging, Building and Construction, Household, Leisure and Sports and Agriculture sectors.

This document has been produced in accordance with the guidance produced by CEN on Environmental Aspects and in accordance with CEN/TR 15353.

NOTE CEN/TR 15353 considers the general environmental aspects which are specific to the recycling process.

¹ Under preparation. Current stage is: prEN 15347-3:2024.

1 Scope

This document describes the quality grades for sorted Polyethylene (PE) waste streams as well as specific test methods laying out those properties for which the supplying party of the waste makes information available to the receiving party. Polyethylene waste quality grades are based on pre-determined sets of characteristics, taking into account sectorial and market specificities and related information needs and tests methods. The scheme provides for a division of information between “Required Data”, where a statement is required, and additional “Optional Data” as agreed between the supplying and receiving party.

This document does not cover the general characterization addressed in EN 15347-1¹.

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.

CEN/TR 15353, *Plastics - Recycled plastics - Guidelines for the development of standards for recycled plastics*

EN 15347-1¹, *Plastics — Sorted plastics wastes — Part 1: General Characterisation*

EN 17615, *Plastics - Environmental Aspects - Vocabulary*

EN ISO 1043-1, *Plastics - Symbols and abbreviated terms - Part 1: Basic polymers and their special characteristics (ISO 1043-1)*

3 Terms, definitions, and abbreviated terms

For the purposes of this document, the terms and definitions given in EN 17615, EN 15347-1¹ and CEN/TR 15353 apply. The abbreviated terms related to recyclates given in EN ISO 1043-1 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 Requirements

4.1 General

The characteristics of a batch of HDPE sorted plastics waste to be provided to the customer by the supplier are given in Table 1 and Table 2, and are divided into two types:

- required characteristics: Needed to characterize plastic wastes in general, and required for all batches of sorted plastic waste;
- optional characteristics: Additional information for the characterization of plastic wastes.

4.2 Classification scheme

The supplier of a batch of PE sorted plastics waste shall provide to the customer a statement of the characteristics of the waste listed in Table 1, 3, 5, 7, 9 or 11 (depending on the waste stream processed).

prEN 15347-2:2024 (E)

Providing a statement of the characteristics of the waste described in Table 2, 4, 6, 8, 10 or 12 (depending on the waste stream processed) is also recommended.

4.3 HDPE Packaging

Table 1 — Required characteristics of sorted plastic wastes – HDPE Packaging

Characteristics	Suitable statements/comments	Methods/references
General information		
Origin	Household packaging waste	-
Sector of origin	Indicate the sector where the material is coming from.	-
Type of collection	Separate collection, mixed	-
Pre-/Post-consumer	Indicate the types of sorted plastics waste. If the batch contains a mix of both, provide their percentages.	EN 17615
Composition		
HDPE content	Indicate the main polymer present in the waste stream and its minimum percentage by weight.	EN 15347-1:2024 ¹ , Annex A
PP content	Indicate PP content in the waste stream and its maximum percentage by weight.	EN 15347-1:2024 ¹ , Annex A
Other polymers present	Indicate the presence of any other polymers known and the maximum percentage by weight.	EN 15347-1:2024 ¹ , Annex A
Colour		
Colour	Indicate the dominating colour and its minimum share.	Visual inspection
Impurities		
Metals	Indicate the maximum percentage by weight of ferrous and non-ferrous metals.	EN 15347-1:2024 ¹ , Annex A
Paper/cardboard	Indicate the maximum percentage by weight of paper and cardboard.	EN 15347-1:2024 ¹ , Annex A
Hazardous waste	Indicate the maximum percentage by weight of hazardous waste.	EN 15347-1:2024 ¹ , Annex A
Material or substances prohibited in a bale	List of contaminants that can adversely affect the recycling process or the quality of the recycled materials.	Declaration
Packaging for silicones	Indicate the maximum percentage by weight of silicone.	EN 15347-1:2024 ¹ , Annex A
Supplier's information		
Supplier name	Indicate the name of the supplier	-
Supplier address	Indicate the address of the supplier	-
Delivery form	Indicate if the sorted plastics waste is in bulk, bales, briquettes, big bags or another format. If within these forms, the sorted plastics are other than whole products, specify the shape, e.g. flakes, large pieces, film-on-roll, etc.	-
Strapping	Indicate the type of strapping used in case of baled sorted waste.	-
Weight/size	Indicate the weight and size of the bale, big bag or briquettes	-
Truck load	Indicate the minimum tonnages transported.	-
Key:		
- Not applicable		

NOTE In case of transboundary movement, reference can be made to the Basel convention (on transboundary movement of wastes) and the corresponding Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste and the delegated act 2020/2174 to determine if the plastic waste batch meets or exceeds the 6 % impurity threshold for intra-EU waste shipments or the 2 % threshold for shipments to OECD countries. Please note that the specification of impurity is different for shipment intra and extra EU.

Table 2 — Optional characteristics of sorted plastic wastes - HDPE Packaging

Characteristics	Suitable statements/comments	Methods/references
General information		
Waste category	Indicate the six-digit code	See footnote ^a
Composition		
Flexible plastics	Indicate the maximum percentage by weight of flexible plastics.	EN 15347-1:2024 ¹ , Annex A
Moisture	Indicate the maximum percentage by weight of moisture (according to contractual agreement)	Difference in weight before and after oven
Content of materials and articles that were used in contact with non-food materials or substances	Indicate the maximum percentage by weight of articles from non-food applications.	EN 15347-1:2024 ¹ , Annex A
Impurities		
Medical waste	Indicate the maximum percentage by weight of medical waste.	EN 15347-1:2024 ¹ , Annex A
Food contamination	Indicate the maximum percentage by weight of food contamination.	EN 15347-1:2024 ¹ , Annex A
Oxo and degradable materials	Indicate the maximum percentage by weight of oxo and degradable material.	EN 15347-1:2024 ¹ , Annex A
Minerals	Indicate the maximum percentage by weight of minerals.	EN 15347-1:2024 ¹ , Annex A
Rubber	Indicate the maximum percentage by weight of rubber.	EN 15347-1:2024 ¹ , Annex A
Glass	Indicate the maximum percentage by weight of glass.	EN 15347-1:2024 ¹ , Annex A
Wood	Indicate the maximum percentage by weight of wood.	EN 15347-1:2024 ¹ , Annex A
XPS	Indicate the maximum percentage by weight of XPS.	EN 15347-1:2024 ¹ , Annex A
EPS	Indicate the maximum percentage by weight of EPS.	EN 15347-1:2024 ¹ , Annex A
PUR	Indicate the maximum percentage by weight of PUR.	EN 15347-1:2024 ¹ , Annex A
Supplier's information		
Treatment undergone	Indicate the type of treatment that the material has already undergone.	-
Additional sorting information	Indicate any additional information on collection, sorting and/or any other preparation step.	-
Key:		
- Not applicable		
^a Article 7 of the Directive 2008/98/EC and listed the Decision 2000/532/EC can be applied.		

prEN 15347-2:2024 (E)

4.4 HDPE Building and Construction

Table 3 — Required characteristics of sorted plastic wastes – HDPE Building and Construction

Characteristics	Suitable statements/comments	Methods/references
General information		
Origin	Household packaging waste.	-
Sector of origin	Indicate the sector where the material is coming from.	-
Type of collection	Separate collection, mixed.	-
Pre-/Post-consumer	Indicate the types of sorted plastics waste. If the batch contains a mix of both, provide their percentages.	EN 17615
Composition		
HDPE content	Indicate the main polymer present in the waste stream and its minimum percentage by weight.	EN 15347-1:2024 ¹ , Annex A
PP content	Indicate PP content in the waste stream and its minimum percentage by weight.	EN 15347-1:2024 ¹ , Annex A
Colour		
Colour	Indicate the dominating colour and its minimum share.	Visual inspection
Supplier's information		
Supplier name	Indicate the name of the supplier	-
Supplier address	Indicate the address of the supplier	-
Delivery form	Indicate if the sorted plastics waste is in bulk, bales, briquettes, big bags or another format. If within these forms, the sorted plastics are other than whole products, specify the shape, e.g. flakes, large pieces, film-on-roll, etc.	-
Strapping	Indicate the type of strapping used in case of baled sorted waste.	-
Weight/size	Indicate the weight and size of the bale, big bag or briquettes	-
Truck load	Indicate the minimum tonnages transported.	-
Key:		
- Not applicable		

NOTE In case of transboundary movement, reference can be made to the Basel convention (on transboundary movement of wastes) and the corresponding Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste and the delegated act 2020/2174 to determine if the plastic waste batch meets or exceeds the 6 % impurity threshold for intra-EU waste shipments or the 2 % threshold for shipments to OECD countries. Please note that the specification of impurity is different for shipment intra and extra EU.