

STN	Plasty Recyklované plasty Charakterizácia recyklátov z polyetyléntereftalátu (PET)	STN EN 15348 64 8106
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Plastics - Recycled plastics - Characterization of poly(ethylene terephthalate) (PET) recyclates

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/24

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EN 15348

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English Version

Plastics - Recycled plastics - Characterization of poly(ethylene terephthalate) (PET) recyclates

Plastiques - Plastiques recyclés - Caractérisation des recyclats de poly(éthylène téréphtalate) (PET)

Kunststoffe - Kunststoff-Rezyklate - Charakterisierung von Polyethylenterephthalat (PET)-Rezyklaten

This European Standard was approved by CEN on 19 February 2024.

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. 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 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 member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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EN 15348:2024 (E)**European foreword**

This document (EN 15348:2024) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by October 2024, and conflicting national standards shall be withdrawn at the latest by October 2024.

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 supersedes EN 15348:2014.

This document includes the following significant changes with respect to EN 15348:2014:

- Scope has been clarified;
- Normative References have been updated;
- Terms and definitions have been removed, reference to EN ISO 472 and CEN/TR 15353 have remained;
- Clause 4 “Symbols and abbreviations” has been added;
- Clause 5 “Characterization of PET recyclates” and Table 1 “Characterization of PET recyclates” have been completely revised;
- In Clause 6 “Quality assurance” requirement regarding traceability has been added;
- Annex C “Rapid method for the determination of residual contaminants” has been revised;
- Annex D “Rapid method for the determination of Polyolefin contaminants” has been added.
- Annex A to F: harmonization of the content of the Test reports.

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.

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, *Plastics — Recycled Plastics — Characterization of 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 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.

EN 15348:2024 (E)**Introduction**

Recycling plastic waste is one type of material recovery process intended to save resources (virgin raw materials, water, and energy), while minimizing harmful emissions into air, water and soil as well as any impacts on human health. The environmental impact of recycling must be assessed over the whole life cycle of the recycling system (from the waste generation point to the disposal of final residues). To ensure that recycling constitutes the best environmental option for treating the available waste, some prerequisites should preferably be met:

- recycling scheme being contemplated should generate lower environmental impacts than alternative recovery options;
- existing or potential market outlets should be identified that will secure a sustainable industrial recycling operation;
- collection and sorting schemes should be properly designed to deliver recyclable plastics waste fractions fitting reasonably well with the available recycling technologies and with the (changing) needs of the identified market outlets, preferably at minimum costs to society.

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.

During their life, products are temporarily out of industrial control. Consequently, at the end user stage, it is often impossible to trace back each individual product and whether it has been used correctly through its life cycle.

1 Scope

This document specifies the main characteristics and associated test methods for assessing of poly(ethylene terephthalate) (PET) recyclates intended for use in the production of semi-finished/finished products.

It is intended to support parties involved in the use of PET recyclates to agree on specifications for specific and generic applications.

This document does not cover the characterization of plastics wastes, which is covered by the EN 15347 series, neither traceability topics which are covered by EN 15343.

This document is applicable without prejudice to any existing legislation.

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 15343, *Plastics — Recycled Plastics — Plastics recycling traceability and assessment of conformity and recycled content*

EN 17615, *Plastics — Environmental Aspects — Vocabulary*

EN ISO 60, *Plastics — Determination of apparent density of material that can be poured from a specified funnel (ISO 60)*

EN ISO 472, *Plastics — Vocabulary (ISO 472)*

EN ISO 1133-2, *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 2: Method for materials sensitive to time-temperature history and/or moisture (ISO 1133-2)*

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

EN ISO/CIE 11664-4, *Colorimetry — Part 4: CIE 1976 L*a*b* colour space (ISO/CIE 11664-4)*

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

EN ISO 23900-5, *Pigments and extenders — Methods of dispersion and assessment of dispersibility in plastics — Part 5: Determination by filter pressure value test (ISO 23900-5)*

ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

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ISO 1628-5, *Plastics — Determination of the viscosity of polymers in dilute solution using capillary viscometers — Part 5: Thermoplastic polyester (TP) homopolymers and copolymers*

ISO 3534-2, *Statistics — Vocabulary and symbols — Part 2: Applied statistics*

ISO 12418-2, *Plastics — Post-consumer poly(ethylene terephthalate) (PET) bottle recyclates — Part 2: Preparation of test specimens and determination of properties*

ASTM D6980-17, *Standard Test Method for Determination of Moisture in Plastics by Loss in Weight*

ASTM D1895, *Standard Test Methods for Apparent Density, Bulk Factor, and Pourability of Plastic Materials*

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