

Plastics - Recycled plastics - Characterization of
polypropylene (PP) recyclates

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 15345:2025 sisaldab Euroopa standardi EN 15345:2025 ingliskeelset teksti. Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 04.06.2025. Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	This Estonian standard EVS-EN 15345:2025 consists of the English text of the European standard EN 15345:2025. This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 04.06.2025. The standard is available from the Estonian Centre for Standardisation and Accreditation.
---	---

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.030.50, 83.080.20

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele. Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis-ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardimis-ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation and Accreditation: Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Plastics - Recycled plastics - Characterization of polypropylene (PP) recyclates

Plastiques - Plastiques recyclés - Caractérisation des
recyclats de polypropylène (PP)

Kunststoffe - Kunststoff-Rezyklate - Charakterisierung
von Polypropylen(PP)-Rezyklaten

This European Standard was approved by CEN on 28 April 2025.

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.

CEN members are the national standards bodies 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, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

Contents	Page
European foreword	3
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions.....	6
4 Symbols and abbreviations	7
5 Characterization of PP recyclates	7
6 Quality assurance	11
Annex A (normative) Test Method for the determination of bulk density	12
A.1 General.....	12
A.2 Material	12
A.3 Apparatus	12
A.4 Preparation of test sample	13
A.5 Procedure	13
A.6 Expression of results	14
A.7 Test report.....	14
Bibliography	15

European foreword

This document (EN 15345:2025) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by SIS.

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 December 2025, and conflicting national standards shall be withdrawn at the latest by December 2025.

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 15345:2007.

EN 15345:2025 includes the following significant changes with respect to EN 15345:2007:

- Scope has been clarified;
- Normative references have been updated;
- Terms and definitions have been updated and reference to EN 17615 has been added;
- Clause 4 “Symbols and abbreviations” has been added;
- Clause 5 “Characterization of PP recyclates” (formerly Clause 4) and Table 1 “Characterization of PP recyclates” have been revised;
- In Clause 6 “Quality assurance” (formerly Clause 5) requirement regarding traceability has been added;
- In Annex A, content of test report has been changed;
- Bibliography has been updated.

This document is part of CEN publications on plastics recycling, listed 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*
- EN 18064 (all parts), *Plastics — Quality recommendations and basis for specifications for application of plastic recyclates in products*

- EN 18065, *Plastics — Recycled plastics — Classification of recycled plastics based on Data Quality Levels for use and (digital) trading*
- EN 18067, *Plastics — Recycled plastics — Characterization of Acrylonitrile-Butadiene-Styrene (ABS) recyclates*
- CEN/TR 15353, *Plastics — Recycled plastics — Guidelines for the development of standards for recycled plastics*
- CEN/TR 00249A5G¹, *Plastics recycling — Classification of plastic recyclates as postconsumer recyclates (PCR) and postindustrial recyclates (PIR)*

This document has been prepared under a standardization request addressed to CEN and CENELEC 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.

¹ Under preparation.

Introduction

Recycling of 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. The environmental impact of recycling is 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 use phase, 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 polypropylene (PP) recyclates intended for use in the production of semi-finished/finished products.

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

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

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 472, *Plastics — Vocabulary (ISO 472)*

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

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 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 19069-1, *Plastics — Polypropylene (PP) moulding and extrusion materials — Part 1: Designation system and basis for specifications (ISO 19069-1)*

EN ISO 19069-2:2016, *Plastics — Polypropylene (PP) moulding and extrusion materials — Part 2: Preparation of test specimens and determination of properties (ISO 19069-2:2016)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 472, EN 17615 and CEN/TR 15353 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/>