

Plastics - Recycled plastics - Characterization of poly(vinyl chloride) (PVC) recyclates

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

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# EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

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#### **English Version**

# Plastics - Recycled plastics - Characterization of poly(vinyl chloride) (PVC) recyclates

Plastiques - Plastiques recyclés - Caractérisation des recyclats de poly(chlorure de vinyle) (PVC)

Kunststoffe - Kunststoff-Rezyklate - Charakterisierung von Polyvinylchlorid (PVC)-Rezyklaten

This European Standard was approved by CEN on 20 September 2014.

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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#### **Foreword**

This document (EN 15346:2014) 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of an identical text or by endorsement, at the latest by May 2015 and conflicting national standards shall be withdrawn at the latest by May 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15346:2007.

EN 15346:2014 includes the following significant technical change with respect to EN 15346:2007: revision of Annex C.

This European Standard is one part of 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 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

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Introduction

Recycling of plastics 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 has to 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 European Standard 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.

It is often impossible to trace back each individual product at the end user stage and to check whether the product has been used correctly through its life. Consequently products are out of industrial control for a period of time. It is possible that during this period contamination with other materials might occur that could affect the product's suitability for recycling into the intended application.

## 1 Scope

This European Standard defines a method of specifying delivery conditions for poly(vinyl chloride) (PVC) recyclates.

It gives the most important characteristics and associated test methods for assessing of PVC recyclates intended for use in the production of semi-finished/finished products.

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

This European Standard does not cover the characterization of plastics wastes. See EN 15347.

This European Standard is applicable without prejudice to any existing legislation.

#### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12099, Plastics piping systems — Polyethylene piping materials and components — Determination of volatile content

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

EN ISO 182-2, Plastics — Determination of the tendency of compounds and products based on vinyl chloride homopolymers and copolymers to evolve hydrogen chloride and any other acidic products at elevated temperatures — Part 2: pH method (ISO 182-2)

EN ISO 182-3, Plastics — Determination of the tendency of compounds and products based on vinyl chloride homopolymers and copolymers to evolve hydrogen chloride and any other acidic products at elevated temperatures — Part 3: Conductometric method (ISO 182-3)

EN ISO 182-4, Plastics — Determination of the tendency of compounds and products based on vinyl chloride homopolymers and copolymers to evolve hydrogen chloride and any other acidic products at elevated temperatures — Part 4: Potentiometric method (ISO 182-4)

EN ISO 306, Plastics — Thermoplastic materials — Determination of Vicat softening temperature (VST) (ISO 306)

EN ISO 472, Plastics — Vocabulary (ISO 472)

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

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

EN ISO 868, Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868)

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

EN ISO 1269, Plastics — Homopolymer and copolymer resins of vinyl chloride — Determination of volatile matter (including water) (ISO 1269)

EN ISO 3451-5, Plastics — Determination of ash — Part 5: Poly(vinyl chloride) (ISO 3451-5)

EN ISO 6186, Plastics — Determination of pourability (ISO 6186)

ISO 182-1, Plastics — Determination of the tendency of compounds and products based on vinyl chloride homopolymers and copolymers to evolve hydrogen chloride and any other acidic products at elevated temperatures — Part 1: Congo red method

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

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