PD CEN/TS 16010:2020

BSI Standards Publication

Plastics — Recycled plastics — Sampling procedures for testing plastics waste and recyclates

bsi.

National foreword

This Published Document is the UK implementation of CEN/TS 16010:2020. It supersedes PD CEN/TS 16010:2013, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/-/1, GB Co-ordination for International work on plastics standards.

A list of organizations represented on this committee can be obtained on request to its committee manager.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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English Version

Plastics - Recycled plastics - Sampling procedures for testing plastics waste and recyclates

Plastiques - Plastiques recyclés - Procédures d'échantillonnage pour l'essai des déchets de plastiques et des recyclats

Kunststoffe - Kunststoff-Rezyklate - Probenahmeverfahren zur Prüfung von Kunststoffabfall und Rezyklaten

This Technical Specification (CEN/TS) was approved by CEN on 9 November 2020 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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European foreword

This document (CEN/TS 16010:2020) has been prepared by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by NBN.

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 CEN/TS 16010:2013.

In comparison with the previous edition, the following technical modifications have been made:

— formula in A.5.3 "Calculation of arithmetic mean" was corrected.

This document is one part of a series of CEN publications on Plastics Recycling that 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*

— CEN/TS 16011, *Plastics — Recycled plastics — Sample preparation*

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: 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, 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, energy), while minimizing harmful emissions into air, water and soil as well as their impacts on human health. The environmental impact of recycling should 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:

— the 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;

— the 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 for society.

This document has been produced in accordance with the guidance produced by CEN on Environmental Aspects and in accordance with CEN/TR 15353, *Plastics — Recycled plastics — Guidelines for the development of standards for recycled plastics*.

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

This document is intended to serve two purposes.

1. To provide a guide to plastic recyclers and others that enables a calculation to be made of the risk of inaccuracy presented by a chosen sampling regime. This will help to inform decisions about sampling that can also be influenced by factors such as the supply record of a supplier or the reliability of a process. This is covered in Clause 5.

2. To define the sampling procedures to be followed to characterize the material being sampled. These procedures may be followed where a particular level of accuracy is required, or where the sampling is in support of the resolution of a dispute. This is covered in Clause 7 and Annex A.

It is not the intention of this document to develop new sampling methods.

1 Scope

This document specifies a system for sampling procedures for testing plastics waste and recyclates which take into account the specifics of the plastics waste and recyclates. It is intended to cover all stages of the plastic recycling process.

The sampling procedures include the statistical specifics of the plastic waste and the behaviour of recyclates.

The sampling method is expected to produce a representative testing sample. Differences can arise due to:

— the mixture of plastics;

— the origin (e.g. green dot in Germany, or electronic/automotive industry);

— the previous use of the plastic material;

— the residual contents (e.g. of containers);

— inert, residual or moisture content on or in the material.

This document is 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 15353:2007, *Plastics — Recycled plastics — Guidelines for the development of standards for recycled plastics*

CEN/TS 16011, *Plastics — Recycled plastics — Sample preparation*

EN ISO 472:2013,[1] *Plastics — Vocabulary (ISO 472:1913)*

ISO 11648-1:2003, *Statistical aspects of sampling from bulk materials — Part 1: General principles*

ISO 11648-2:2001, *Statistical aspects of sampling from bulk materials — Part 2: Sampling of particulate materials*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 472:2013[1], CEN/TR 15353:2007 and the following apply.

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

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

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

NOTE The terms used are confined to the field of bulk sampling.

[1] As impacted by EN ISO 472:2013/A1:2018.