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Plastics - Recycled plastics - Sample preparation

Plastiques - Plastiques recyclés - Préparation des échantillons

Kunststoffe - Kunststoff-Rezyklate - Probenvorbereitung

This Technical Specification (CEN/TS) was approved by CEN on 22 October 2012 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 COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (CEN/TS 16011:2013) 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 [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This Technical Specification 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 — Characterisation of Polyethylene (PE) recyclates*

— EN 15345, *Plastics — Recycled Plastics — Characterisation of Polypropylene (PP) recyclates*

— EN 15346, *Plastics — Recycled plastics — Characterisation of poly(vinyl chloride) (PVC) recyclates*

— EN 15347, *Plastics — Recycled Plastics — Characterisation of plastics wastes*

— EN 15348, *Plastics — Recycled plastic — Characterization of poly(ethylene terephthalate) (PET) recyclates*

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

— CEN/TS 16010, *Plastics — Recycled plastics — Sampling procedures for testing plastics waste and recyclates*

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, 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, energy), while minimising 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 Technical Specification 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.

The purpose of this Technical Specification is to define the procedures to be followed to prepare samples taken in accordance with CEN/TS 16010 in readiness for testing various material characteristics as set out in other relevant standards for recycled plastics (EN 15342 to EN 15348).

It is not the intention of this Technical Specification to develop new sample preparation methods.

1 Scope

This Technical Specification specifies the preparation of samples of recycled plastics prior to testing and takes account of the specifics of the material.

Sample preparation should avoid any process that causes 'de-mixing' of the sample. Following preparation, the sample should remain representative.

The behaviour of contaminants should be carefully analysed and observed to ensure this is homogeneous.

This Technical Specification does not address any legal or product safety issues.

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.

CEN/TR 15353:2007, *Plastics — Recycled plastics — Guidelines for the development of standards for recycled plastics*

CEN/TS 16010, *Plastics — Recycled plastics — Sampling procedures for testing plastics waste and recyclates*

EN ISO 472:2001, *Plastics — Vocabulary (ISO 472:1999)*

ISO 3085, *Iron ores — Experimental methods for checking the precision of sampling, sample preparation and measurement*

ISO 3086, *Iron ores — Experimental methods for checking the bias of sampling*

ISO 11648-1, *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*

ISO 13909-7, *Hard coal and coke — Mechanical sampling — Part 7: Methods for determining the precision of sampling, sample preparation and testing*

ISO 13909-8, *Hard coal and coke — Mechanical sampling — Part 8: Methods of testing for bias*

3 Terms and definitions

For the purposes of this document, the terms, definitions and abbreviated terms given in EN ISO 472:2001, in CEN/TR 15353:2007 apply.

4 Symbols and abbreviations

C_v coefficient of variation

5 General requirements

5.1 Implementation

Successful implementation of this Technical Specification depends on effective communication between the data user, the sampler and test laboratory. The aim is to close the information chain of the whole processes around the sampling in combination with the laboratory analysis.