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Plastics — Mixtures of polypropylene (PP) and polyethylene (PE) recyclate derived from PP and PE used for flexible and rigid consumer packaging —

Part 2: Preparation of test specimens and determination of properties

Plastiques — Recyclat mixte de polypropylène (PP) et polyéthylène (PE) —

Partie 2: Préparation des éprouvettes et détermination des propriétés

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*.

ISO 18263 consists of the following parts, under the general title *Plastics — Mixtures of polypropylene (PP) and polyethylene (PE) recyclate derived from PP and PE used for flexible and rigid consumer packaging*:

— *Part 1: Designation system and basis for specification*

— *Part 2: Preparation of test specimens and determination of properties*

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Plastics — Mixtures of polypropylene (PP) and polyethylene (PE) recyclate derived from PP and PE used for flexible and rigid consumer packaging —

Part 2: Preparation of test specimens and determination of properties

1 Scope

This part of ISO 18263 specifies methods of preparation of test specimens and the standard test methods to be used in determining the properties of mixtures of polypropylene (PP) and polyethylene (PE) recyclate derived from PP and PE used for flexible and rigid consumer packaging for moulding and extrusion. Recyclate from packaging used for the transport, handling, or storage of hazardous goods is not to be used. Since it is impossible to get the information about stabilizer levels of recyclate, it is necessary to add stabilizer as needed. Requirements for handling test material and for conditioning both the test material before moulding and the specimens before testing are given in this part of ISO 18263.

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.

ISO 178, *Plastics — Determination of flexural properties*

ISO 179-1, *Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test*

ISO 179-2, *Plastics — Determination of Charpy impact properties — Part 2: Instrumented impact test*

ISO 291, *Plastics — Standard atmospheres for conditioning and testing*

ISO 472, *Plastics — Vocabulary*

ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles*

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

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

ISO 1183-2, *Plastics — Methods for determining the density of non-cellular plastics — Part 2: Density gradient column method*

ISO 1183-3, *Plastics — Methods for determining the density of non-cellular plastics — Part 3: Gas pyknometer method*

ISO 1873-2, *Plastics — Polypropylene (PP) moulding and extrusion materials — Part 2: Preparation of test specimens and determination of properties*

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ISO 10350-1, *Plastics — Acquisition and presentation of comparable single-point data — Part 1: Moulding materials*

ISO 15270, *Plastics — Guidelines for the recovery and recycling of plastics waste*

ISO 18263-1, *Plastics — Mixtures of polypropylene (PP) and Polyethylene (PE) recyclate derived from PP and PE used for flexible and rigid consumer packaging — Part 1: Designation system and basis for specifications*

ISO 20753, *Plastics — Test specimens*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 472 and ISO 15270 apply.

4 Preparation of test specimens

The test specimens shall be prepared in accordance with ISO 1873-2 and shall be tested in accordance with each test method indicated in Table 1. It is essential that specimens are always prepared by the same procedure using the same processing conditions.

5 Conditioning of test specimens

Test specimens for the determination of mechanical properties and density shall be conditioned in accordance with ISO 291 for 40 h to 96 h at 23 °C ± 2 °C.

6 Determination of ratio of PP and PE

The ratio of PP and PE shall be determined in accordance with traceable documents from the supplier.

NOTE In regard to the procedures etc. needed for the traceable documents on the recycled plastics, it is recommended to use EN 15343 or ISO/IEC 17050-1 and ISO/IEC 17050-2 as references. It is known that the ratio of PP and PE can be determined by FTIR spectrometer, but sufficient precision data, especially including other materials, is not yet available (see Annex A).

7 Determination of properties

In the determination of properties and the presentation of data, the standards, supplementary instructions, and notes given in ISO 10350-1 shall be applied. All tests shall be carried out in the standard atmosphere of 23 °C ± 2 °C, unless specifically stated otherwise in Table 1 and Table 2.

Table 1 is compiled from ISO 10350-1 and the properties listed are those which are appropriate for the mixtures of PP and PE recyclate for moulding and extrusion materials. These properties are those considered useful for comparisons of data generated for different thermoplastics.

Table 2 contains those properties which are in wide use or of particular significance in the practical characterization of mixtures PP and PE recyclate for moulding and extrusion materials.

NOTE This recyclate is derived from PP and PE used for flexible and rigid consumer packaging for moulding and extrusion. Therefore, there is no information about a stabilizer of recyclate and it may be necessary to add a stabilizer as needed.

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