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Plastics — Extruded sheets of polypropylene (PP) — Requirements and test methods

Plastiques — Plaques extrudées en polypropylène (PP) — Exigences et méthodes d'essai

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Foreword

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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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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 249, *Plastics,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 15013:2007), which has been technically revised. The main changes compared to the previous edition are as follows.

— The minimum value of tensile strain at yield for PP-H group 1.1 in Table 2 has been changed from ≥ 9 % to ≥ 7 %.

— The mandatory Clause 3 (Terms and definitions clause) has been added and subsequent clauses have been renumbered.

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Plastics — Extruded sheets of polypropylene (PP) — Requirements and test methods

1 Scope

This document specifies the requirements and test methods for solid flat extruded sheets of polypropylene homopolymers (PP-H) and polypropylene copolymers (PP-B and PP-R) without fillers or reinforcing materials. This document applies to PP sheet in rolled form. It applies only to thicknesses of 0,5 mm to 40 mm.

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.

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 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 2818, *Plastics — Preparation of test specimens by machining*

ISO 4577, *Plastics — Polypropylene and propylene-copolymers — Determination of thermal oxidative stability in air — Oven method*

ISO 11501, *Plastics — Film and sheeting — Determination of dimensional change on heating*

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

3 Terms and definitions

No terms and definitions are listed in this document.

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/

4 Material

Sheets shall consist of PP extrusion compounds as specified in ISO 19069-1, without fillers or reinforcing materials. The extrusion compounds can contain additives such as processing aids, stabilizers, flame

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retardants, impact modifiers and colorants. Compounds and additives of unknown identity shall not be used.

NOTE Legal conditions can necessitate a specific choice of extrusion material (see 5.3.3).

5 Requirements

5.1 Appearance

Sheets shall be substantially free from bubbles, voids, cracks, visible impurities and other defects which makes them unfit for the intended use. Surfaces shall be substantially smooth and free from sharp grooves, sink marks or damage. Colorants shall be homogeneously distributed throughout the material. Slight colour variations due to variations in the extrusion compound or processing conditions are admissible. The exact extent of variations in any of the above shall be agreed between the interested parties. Sheets shall be examined in accordance with 6.3.

5.2 Dimensional tolerances

5.2.1 Thickness

For any individual sheet, the thickness tolerance with reference to the nominal thickness shall be as given by Formula (1):

$$|\Delta h| \leq (0{,}08\ \text{mm} + 0{,}03 \times h_n) \quad (1)$$

where

Δh is the tolerance on the thickness, in millimetres;

h_n is the nominal thickness, in millimetres.

Testing shall be in accordance with 6.4.1.

5.2.2 Length and width

The nominal length, l_n, and nominal width, b_n, of sheets shall be as agreed between the interested parties. Unless agreed differently, the length shall be in the direction of extrusion.

For any individual sheet selected at random from any delivery, the tolerances on length and width shall be in accordance with Table 1. Testing shall be in accordance with 6.4.2.

Table 1 — Tolerances on length and width of sheet

Values in millimetres

Nominal dimension D_n	Tolerances	
	Length	Width
$D_n \leq 500$	$^{+2}_{-1}$	$^{+2}_{-1}$
$500 < D_n \leq 1\,000$	$^{+3}_{-1}$	$^{+3}_{-1}$
$1\,000 < D_n \leq 1\,500$	$^{+4}_{-1}$	$^{+4}_{-1}$
$1\,500 < D_n \leq 2\,000$	$^{+6}_{-1}$	$^{+4}_{-1}$
$2\,000 < D_n \leq 3\,000$	$^{+8}_{-1}$	$^{+6}_{-1}$
$3\,000 < D_n \leq 4\,000$	$^{+11}_{-1}$	$^{+7}_{-1}$

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