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Plastics — Unplasticized poly(vinyl chloride) sheets —

Part 1: Types, dimensions and characteristics for sheets of thickness not less than 1 mm

Plastiques — Feuilles en poly(chlorure de vinyle) non plastifié —

Partie 1: Types, dimensions et caractéristiques pour des plaques d'épaisseur non inférieure à 1 mm

Reference number
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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products*.

This fourth edition cancels and replaces the third edition (ISO 11833-1:2012), which has been technically revised. The main changes compared to the previous edition are as follows:

— the title has been editorially revised to read "Plastics — Unplasticized poly(vinyl chloride) sheets — Part 1: Types, dimensions and characteristics for sheets of thickness not less than 1 mm";

— the "colour" requirements (former 5.3) have been incorporated with the "appearance" requirements in 6.2 (former 5.2);

— the requirements for measurement at any other temperature (*t* °C) than 23 °Chas been added to 7.3.1 (former 6.3.1);

— the method of handling the results of 7.4.1, 7.4.2 and 7.4.3 (former 6.4.1 to 6.4.3) have been added;

— “Testing of sheets with a thickness between 1,0 mm and <1,5 mm shall be subject between the interested parties” has been added in 7.5.1 (former 6.5.1);

— a new Table 7 "Frequency and measurement positions of appearance tests and dimensional measurements" has been added and the subsequent tables have been renumbered..

A list of all parts in the ISO 11833 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Plastics — Unplasticized poly(vinyl chloride) sheets —

Part 1: Types, dimensions and characteristics for sheets of thickness not less than 1 mm

1 Scope

This document specifies the requirements for flat extruded sheets and pressed sheets of unplasticized poly(vinyl chloride) (PVC-U) and the test methods to be used to measure the required values.

It applies only to sheets of thickness not less than 1,0 mm.

It does not cover biaxially stretched PVC-U sheets.

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 75-2:2013, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite*

ISO 178, *Plastics — Determination of flexural properties*

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

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

ISO 306:2013, *Plastics — Thermoplastic materials — Determination of Vicat softening temperature (VST)*

ISO 472, *Plastics — Vocabulary*

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

ISO 899-2, *Plastics — Determination of creep behaviour — Part 2: Flexural creep by three-point loading*

ISO 21306-1:2019, *Plastics — Unplasticized poly(vinyl chloride) (PVC-U) moulding and extrusion materials — Part 1: Designation system and basis for specifications*

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

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

ISO 2039-1, *Plastics — Determination of hardness — Part 1: Ball indentation method*

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

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

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ISO 13468-1, *Plastics — Determination of the total luminous transmittance of transparent materials — Part 1: Single-beam instrument*

IEC 62631-3-1, *Dielectric and resistive properties of solid insulating materials — Part 3-1: Determination of resistive properties (DC methods) — Volume resistance and volume resistivity — General method*

3 Terms and definition

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

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

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

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

4 Material

Sheets shall be fabricated from PVC-U compounds as defined in ISO 21306-1:2019, Clause 1. Compounds may contain additives such as stabilizers, lubricants, processing aids, impact modifiers, fillers, flame retardants and colourants. Compounds and additives of unknown identity and composition shall not be used for the processing of sheets.

5 Classification

Extruded and pressed sheets are each classified into the following five groups, characterized by type of sheet as well as by the numerical values of the three most important properties, i.e. tensile stress at yield, Charpy impact strength and Vicat softening temperature (see Table 5):

— Group 1: General-purpose grade;

— Group 2: Transparent grade;

— Group 3: High-modulus grade;

— Group 4: High-impact grade;

— Group 5: Heat-resistant grade.

6 Requirements

6.1 Masking

Protection of the sheet surface with a suitable material (for example polyethylene or paper) shall be agreed between the interested parties as required.

6.2 Appearance

The surface shall be free of noticeable flaws, cracks, mottling, voids, bubbles, impurities, colour unevenness (both within one sheet and between sheets) and other defects which are not acceptable for the application envisaged. The sheet shall have a smooth surface, except for embossed sheets which shall have a uniform pattern. Requirements concerning defects shall be agreed upon between the interested parties.

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