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Plastics — Polytetrafluoroethylene (PTFE) semi-finished products —

Part 2: Preparation of test specimens and determination of properties

Plastiques — Semi-produits en polytétrafluoroéthylène (PTFE) —
Partie 2: Préparation des éprouvettes et détermination des propriétés

Reference number
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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 9, *Thermoplastic materials,* 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 13000-2:2005), which has been technically revised.

The main changes compared to the previous edition are as follows:

— in Clause 2, normative references have been updated;

— the former Figure 2 has been split into two figures (Figures 2 and 3) and subsequent figures have been renumbered;

— in Figures 2 and 3, new dimensions (thickness 1,5 ± 0,25 and 1,0 ± 0,20) have been added;

— in Clause 6:

  — Table 1 has been edited to compliment Figures 2 and 3;

  — a new Table 2 has been added to compliment Figure 4;

— former Annex A has been changed to Bibliography, and titles for standards have been corrected.

A list of all parts in the ISO 13000 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 — Polytetrafluoroethylene (PTFE) semi-finished products —

Part 2: Preparation of test specimens and determination of properties

WARNING — Persons using this document should be familiar with normal laboratory practice, if applicable. This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to determine the applicability of regulatory requirements prior to use.

1 Scope

This document specifies the preparation of test specimens and gives the test methods applicable to semi-finished products of polytetrafluoroethylene (PTFE).

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 472, *Plastics — Vocabulary*

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

ISO 527-3, *Plastics — Determination of tensile properties — Part 3: Test conditions for films and sheets*

ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness)*

ISO 1183 (all parts), *Plastics — Methods for determining the density of non-cellular plastics*

ISO 1923, *Cellular plastics and rubbers — Determination of linear dimensions*

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

ISO 3611, *Geometrical product specifications (GPS) — Dimensional measuring equipment: Micrometers for external measurements — Design and metrological characteristics*

ISO 22088-3, *Plastics — Determination of resistance to environmental stress cracking (ESC) — Part 3: Bent strip method*

ISO 22088-4, *Plastics — Determination of resistance to environmental stress cracking (ESC) — Part 4: Ball or pin impression method*

ISO 13000-1, *Plastics — Polytetrafluoroethylene (PTFE) semi-finished products — Part 1: Requirements and designation*

IEC 60243-1:2013, *Electrical strength of insulating materials — Test methods — Part 1: Tests at power frequencies*

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IEC 60243-2, *Electric strength of insulating materials — Test methods — Part 2: Additional requirements for tests using direct voltage*

CIE 1931*standard colorimetric system*

CIE 1964*standard colorimetric system*

CIE Publication No 15, *Colorimetry*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 472 and ISO 13000-1 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 Sampling

Details of procedures for sampling semi-finished products depend to a large extent on the physical shape of the particular material. Whenever feasible, the materials shall be sampled. Sampling shall be statistically adequate to satisfy the requirements of the test method concerned.

5 Preparation of test specimens

The specimens used for testing shall be taken directly from or shall be machined from the semi-finished product without other treatment. Thus, conversion of a semi-finished product into a test specimen by any moulding procedure is not permitted. In some instances, special procedures are required that are described either in the general discussion or in the method.

6 Testing of semi-finished PTFE products

6.1 General

Properties required for specification purposes shall be determined in accordance with the procedures given in this document. For the determination of density, tensile properties, hardness and electrical properties, condition the test specimens at 23 °C ± 2 °C for a period of at least 4 h prior to test. The other tests require no conditioning.

6.2 Linear dimensions

These shall be determined by the procedures provided in ISO 1923 for cellular plastics.

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