

SLOVENSKI STANDARD

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Nadomešča:

SIST EN ISO 12086-2:2006

SIST EN ISO 12086-2:2006/AC:2009

Polimerni materiali - Disperzije in materiali za oblikovanje in ekstrudiranje na osnovi fluoropolimerov - 2. del: Priprava preskušancev in določanje lastnosti (ISO 20568-2:2017)

Plastics - Fluoropolymer dispersions and moulding and extrusion materials - Part 2: Preparation of test specimens and determination of properties (ISO 20568-2:2017)

Kunststoffe - Fluorpolymerdispersionen, Formmassen und Extrusionsmaterialien - Teil 2: Herstellung von Probekörpern und Bestimmung von Eigenschaften (ISO 20568-2:2017)

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Plastiques - Polymères fluorés: dispersions et matériaux pour moulage et extrusion - Partie 2 : Préparation des éprouvettes et détermination des propriétés (ISO 20568-2:2017)

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NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 20568-2

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Supersedes EN ISO 12086-2:2006

English Version

**Plastics - Fluoropolymer dispersions and moulding and
extrusion materials - Part 2: Preparation of test specimens
and determination of properties (ISO 20568-2:2017)**

Plastiques - Polymères fluorés: dispersions et
matériaux pour moulage et extrusion - Partie 2:
Préparation des éprouvettes et détermination des
propriétés (ISO 20568-2:2017)

Kunststoffe - Fluorpolymerdispersionen, Formmassen
und Extrusionsmaterialien - Teil 2: Herstellung von
Probekörpern und Bestimmung von Eigenschaften
(ISO 20568-2:2017)

This European Standard was approved by CEN on 29 April 2017.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European foreword

This document (EN ISO 20568-2:2017) has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with Technical Committee CEN/TC 249 "Plastics" the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2017 and conflicting national standards shall be withdrawn at the latest by December 2017.

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.

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According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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INTERNATIONAL
STANDARD

ISO
20568-2

First edition
2017-05

**Plastics — Fluoropolymer dispersions
and moulding and extrusion
materials —**

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

*Plastiques — Polymères fluorés: dispersions et matériaux pour
moulage et extrusion —*

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).

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 <http://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 on 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 the following URL: www.iso.org/iso/foreword.html. (standards.iteh.ai)

This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*. [SIST EN ISO 20568-2:2017](https://standards.iteh.ai/catalog/standards/sist/63e5d85c-297f-45dd-9b08-81c1401c059a/iso-20568-2:2017)

This first edition of ISO 20568-2 cancels and replaces ISO 12086-2:2006, which has been technically revised.

A list of all parts in the ISO 20568 series can be found on the ISO website.

Plastics — Fluoropolymer dispersions and moulding and extrusion materials —

Part 2: Preparation of test specimens and determination of properties

SAFETY STATEMENT — 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 ensure compliance with any regulatory requirements. The warnings in [7.1.1.4](#) and [7.1.3.1](#) point out specific hazards.

1 Scope

This document describes the preparation of test specimens and provides test methods to define characteristics of thermoplastic fluoropolymer resins. Results from the testing can be used as the basis for designation, material specifications or both.

2 Normative references (standards.iteh.ai)

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

ISO 472, *Plastics — Vocabulary*

ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings.*

ISO 1133-1:2011, *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 1: Standard method*

ISO 11357-2, *Plastics — Differential scanning calorimetry (DSC) — Part 2: Determination of glass transition temperature and glass transition step height*

ISO 11357-3, *Plastics — Differential scanning calorimetry (DSC) — Part 3: Determination of temperature and enthalpy of melting and crystallization*

ASTM D1430, *Standard Classification System for Polychlorotrifluoroethylene (PCTFE) Plastics*

ASTM D4591, *Standard Test Method for Determining Temperatures and Heats of Transitions of Fluoropolymers by Differential Scanning Calorimetry*

ASTM D4894, *Standard Specification for Polytetrafluoroethylene (PTFE) Granular Molding and Ram Extrusion Materials*

ASTM D4895, *Standard Specification for Polytetrafluoroethylene (PTFE) Resin Produced From Dispersion*

ASTM E11, *Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves*

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3 Terms and definitions

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:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Preparation of test specimens

Where applicable, ISO standards shall be followed for the preparation of test specimens. In some instances, special procedures are required that are described either in the general discussion or in the method.

5 Conditioning and test conditions

For determinations of specific gravity, condition the moulded test specimens in atmosphere 23 of ISO 291 for a period of at least 4 h prior to testing. The other determinations require no conditioning.

Conduct tests at a laboratory temperature of $23\text{ °C} \pm 2\text{ °C}$ for determining specific gravity.

A minimum temperature of 22 °C should preferably be maintained with PTFE due to its first-order transition just below 22 °C that affects properties determined at slightly lower temperatures. This effect of temperature is especially important during the determination of density/specific gravity.

6 Determination of properties

Properties required for designation or specification, or both, shall be determined in accordance with the international or national standards listed in [Clause 2](#) or the procedures given in this document.

7 Testing of PTFE

7.1 Testing of polytetrafluoroethylene (PTFE) granular moulding and ram extrusion materials, and for PTFE resin produced from coagulation of dispersion

7.1.1 Standard specific gravity (SSG)

7.1.1.1 Use the PTFE powder as received.

7.1.1.2 A cylindrical preforming mould is used to prepare the preforms prior to sintering. The mould is a tube 28,6 mm in internal diameter by at least 76,2 mm deep, with a removable bottom insert and a piston. Clearance between the piston and wall of the mould shall be sufficient to ensure escape of entrapped air during compression. Place flat aluminium foil discs, normally 0,13 mm thick and 28,6 mm in diameter, on each side of the resin. The test resin shall be near ambient temperature prior to preforming. For maximum precision, the weighing and performing operations shall be carried out in a constant-temperature room at $23\text{ °C} \pm 1\text{ °C}$. The method shall not be run below 22 °C due to the “room temperature” crystalline transition of PTFE which may lead to cracks in sintered specimens and differences in specimen density. ASTM D4895 provides additional details.

7.1.1.3 Weigh out $12,0\text{ g} \pm 0,1\text{ g}$ of resin and place it in the preforming mould. Screen non-free-flowing resins through a 2,00 mm (No. 10) sieve. Compacted resins can be broken up by hand-shaking cold resin in a half-filled sealed glass container. To do this, first condition the resin in the sealed glass container in a freezer or dry-ice chest. After shaking to break up resin lumps, allow the sealed container to equilibrate to near ambient temperature. Then screen and weigh the $12,0\text{ g} \pm 0,1\text{ g}$ test sample. Insert the mould in