



SLOVENSKI STANDARD
oSIST prEN ISO 20568-1:2015
01-julij-2015

Polimerni materiali - Disperzije in materiali za oblikovanje in ekstrudiranje na osnovi fluoropolimerov - 1. del: Sistem označevanja in podlage za specifikacije (ISO/DIS 20568-1:2015)

Plastics - Fluoropolymer dispersions and moulding and extrusion materials - Part 1: Designation system and basis for specifications (ISO/DIS 20568-1:2015)

Kunststoffe - Fluorpolymerdispersionen, Formmassen und Extrusionsmaterialien - Teil 1: Bezeichnungssystem und Basis für Spezifikationen (ISO/DIS 20568-1:2015)

Plastiques - Polymère fluoré: dispersions et matériaux pour moulage et extrusion - Partie 1 : Système de désignation et base de spécification (ISO/DIS 20568-1:2015)

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Plastics — Fluoropolymer dispersion and moulding and extrusion materials —

Part 1: Designation system and basis for specifications

*Plastiques — Polymère fluoré: dispersions et matériaux pour moulage et extrusion —
Partie 1: Système de désignation et base de spécification*

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the European Committee for Standardization (CEN), and processed under the **CEN lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.



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ISO DIS 20568-1**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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 20568-1 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*.

ISO 20568 consists of the following parts, under the general title *Plastics — Fluoropolymer dispersions and moulding and extrusion materials*:

- *Part 1: Designation system and basis for specifications*
- *Part 2: Preparation of test specimens and determination of properties*

Plastics — Fluoropolymer dispersions and moulding and extrusion materials —

Part 1: Designation system and basis for specifications

1 Scope

1.1 This part of ISO 20568 establishes a system of designation for fluoropolymer materials, which may be used as the basis for specifications.

1.2 The various types of fluoropolymer are differentiated from each other by a classification system based on appropriate levels of the designatory properties.

1.2.1 For PTFE

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

a) Standard specific gravity (SSG)

b) Bulk density

c) Particle size

1.2.1.2 For aqueous dispersion of polytetrafluoroethylene (PTFE)

a) PTFE percentage in dispersion

b) Surfactant percentage in dispersion

c) Surfactant tolerance level

1.2.2 For melt processable resins

1.2.2.1 For CPT, ECTFE, EFEP, ETFE, FEP, PFA, PVDF, PVF,

VDF/CTFE, VDF/HFP, VDF/TFE, VDF/TFE/HFP

a) melting-peak temperature

b) Melt mass-flow rate

1.2.2.2 For PCTFE

a) zero-strength time (ZST)

1.2.2.3 For TFE/PDD

a) Glass transition temperature (T_g)

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1.2.2.4 For aqueous dispersion of melt processable resins (ETFE, FEP, PFA, PVDF, PVF, VDF/CTFE, VDF/HFP, VDF/TFE, VDF/TFE/HFP)

- a) Polymer percentage in dispersion
- b) Surfactant percentage in dispersion
- c) Surfactant tolerance level

and on information about the intended application and/or method of processing, important properties additives, colorants, fillers and reinforcing materials.

1.3 The designation system is applicable to all fluoropolymers and blends. It applies to unmodified materials ready for normal use and materials modified, for example, by colorants, additives, fillers, reinforcing materials, and polymer modifiers

1.4 One should not assume that materials having the same designation give the same performance. This part of ISO 20568 does not provide engineering data, performance data or data on processing conditions which may be required to specify a material. If such additional properties are required, they shall be determined in accordance with the test methods specified in part 2 of this International Standard, if suitable.

1.5 In order to designate a thermoplastic material to meet particle specifications, the requirements are to be given in data block 5 (see 3.1).

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2 Normative references (standards.iteh.ai)

The following referenced documents are indispensable for the application 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 1043-1, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics*

ISO 1043-2, *Plastics — Symbols and abbreviated terms — Part 2: Fillers and reinforcing materials*

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

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

ASTM D 1430, *Standard Classification System for Polychlorotrifluoroethylene (PCTFE) Plastics*

ASTM D 2116, *Specification for FEP fluorocarbon molding and extrusion materials.*

ASTM D 3418, *Standard Test Method for Transition Temperatures of Polymers by Differential Scanning Calorimetry*

ASTM D 4441, *Specification for aqueous dispersions of polytetrafluoroethylene.*

ASTM D 4591, *Standard Test Method for Determining Temperatures and Heats of Transitions of Fluoropolymers by Differential Scanning Calorimetry*

ASTM D 4894, *Specification for polytetrafluoroethylene (PTFE) granular molding and ram extrusion materials.*

ASTM D 4895, *Specification for polytetrafluoroethylene (PTFE) resins produced from dispersion.*

2.1 Terms and definitions

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

2.1.1

melt-processable

capable of being processed by, for example, injection moulding, screw extrusion and other operations typically used with thermoplastics

2.1.2

presintered resin

resin that has been treated thermally at or above the melting point of the resin at atmospheric pressure without having been previously preformed

2.1.3

reprocessed plastic

material from the manufacture of semifinished forms of fluoropolymers that has been converted to a form suitable for further use

2.1.4

sintering

(PTFE) thermal treatment during which the material is melted and recrystallized by cooling, with coalescence occurring during the treatment

2.1.5

standard specific gravity

SSG

specific gravity of a specimen of PTFE material preformed, sintered and cooled through the crystallization point at a rate of 1 °C per minute in accordance with the appropriate sintering schedule as described in ISO 20568-2

NOTE The SSG of unmodified PTFE is inversely related to its molecular mass.

2.1.6

zero-strength time

ZST

measure of the relative molecular mass of PCTFE.

NOTE The ZST of PCTFE is proportionally related to its molecular mass.

3 Designation and specification system

3.1 General

The designation system for thermoplastics is based on the following standard pattern:

Designation

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Description block (optional)	Identity block				
	International Standard number block	Individual-item block			
		Data block 1	Data block 2	Data block 3	Data block 4

The designation consists of an optional description block, reading “Thermoplastics”, and an identity block comprising the International Standard number and an individual-item block. For unambiguous designation, the individual-item block is subdivided into five data blocks comprising the following information:

- Data block 1: Identification of the plastic by its abbreviated term for the fluoropolymer as listed in Table 1 and information about the composition of the polymer (see Table 1 and Table 2).
- Data block 2: Fillers or reinforcing materials and their nominal content (see 3.3).
- Data block 3: Position 1: Intended application and/or method of processing (see 3.4).
Positions 2 to 8: Important properties, additives and supplementary information (see 3.4).
- Data block 4: Designatory properties (see 3.5).
- Data block 5: For the purpose of specifications, the fifth data block contains appropriate information (see 3.6)

The first character of the individual-item block shall be a hyphen. The data blocks shall be separated from each other by a comma.

If a data block is not used, this shall be indicated by doubling the separation sign, i.e. by two commas (,,).

NOTE: Data blocks 1 and 2 together form the part marking symbol.

3.2 Data block 1

In this data block, fluoropolymers are identified by the abbreviated term accordance with ISO 1043-1 (supplemented by the abbreviated term listed in Table1) and, after a hyphen , a symbol indicating the additional information as specified in Table2.

Table 1 - Symbols indicating the chemical structure of fluoropolymers materials in Data Block 1

	Meaning of code-letter
CPT	chlorotrifluoroethylene-perfluoroalkoxy-tetrafluoroethylene copolymer
ECTFE	ethylene-chlorotrifluoroethylene copolymer
EFEP	ethylene-tetrafluoroethylene-hexafluoropropene copolymer
ETFE	ethylene-tetrafluoroethylene copolymer
FEP	perfluoro(ethylene-propene) copolymer
PCTFE	polychlorotrifluoroethylene
PFA	perfluoro(alkoxy alkane)
PTFE	polytetrafluoroethylene
PVDF	poly(vinylidene fluoride)
PVF	poly(vinyl fluoride)
TFE/PDD	Tetrafluoroethylene-perfluorodioxole copolymer
VDF/CTFE	vinylidene fluoride-chlorotrifluoroethylene copolymer
VDF/HFP	vinylidene fluoride-hexafluoropropene copolymer
VDF/TFE	vinylidene fluoride-tetrafluoroethylene copolymer
VDF/TFE/HFP	vinylidene fluoride-tetrafluoroethylene-hexafluoropropene copolymer

Table 2 – Meaning of code letter, when used, for additional information in Data Block 1

Code-letter	Meaning of code-letter
A	Modified
D	Dispersion
E	Emulsion polymer
F	Filler resin (additive resin)
H	Homopolymer
K	Copolymer
S	Suspension polymer
SS	Presintered suspension polymer
Z1	In-house-recovered material; out of specification/waste
Z2	Reprocessed; byproduct from processing
Z3	Postconsumer material

Blends

Blends can be made from materials mentioned in both tables and/or other polymers (ISO 1043). For polymer blends or alloys use the abbreviated terms for the basic polymers, with the main component in first place followed by the other components in descending order according to their mass fractions, separated by a plus sign and no space before or after the plus sign.

EXAMPLE A blend of FEP and PFA is designated : FEP+PFA