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Plastics — Poly(phenylene ether) (PPE) moulding and extrusion materials —

Part 1: Designation system and basis for specifications

*Plastiques — Matériaux à base de poly(phénylène éther) (PPE) pour
moulage et extrusion —*

Partie 1: Système de désignation et base de spécification

Please see the administrative notes on page iii

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ISO/CEN PARALLEL PROCESSING

The CEN Secretary-General has advised the ISO Secretary-General that this final draft International Standard covers a subject of interest to European standardization. Consultation on the ISO/DIS had the same effect for CEN members as a CEN enquiry on a draft European Standard. In accordance with the ISO-lead mode of collaboration as defined in the Vienna Agreement, this final draft, established on the basis of comments received, is hereby submitted to a parallel two-month FDIS vote in ISO and formal vote in CEN.

Positive votes shall not be accompanied by comments.

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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.

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.

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.

ISO 28941-1 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastics*.

ISO 28941 consists of the following parts, under the general title *Plastics — Poly(phenylene ether) (PPE) moulding and extrusion materials*:

— *Part 1: Designation system and basis for specifications*

ISO 28941-1 is a revision of ISO 15103-1, the revision concerning principally the inclusion of melt volume-flow rate as a designatory property and the inclusion of additional ranges of values of the other designatory properties. In order to give users time to switch from ISO 15103-1 to ISO 28941-1, ISO 15103-1 will remain in force for a number of years after publication of ISO 28941-1. During this period, ISO 15103-2 will effectively be Part 2 of this International Standard.

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Plastics — Poly(phenylene ether) (PPE) moulding and extrusion materials —

Part 1: Designation system and basis for specifications

1 Scope

1.1 This part of ISO 28941 establishes a system of designation for PPE thermoplastic materials, which may be used as the basis for specifications.

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

- a) temperature of deflection under load
- b) melt volume-flow rate
- c) Charpy notched impact strength
- d) flammability

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

1.3 This part of ISO 28941 is applicable to all PPE materials, including those modified with polystyrene or polyamide or other materials.

It applies to materials ready for normal use in the form of powder, granules or pellets and to materials unmodified or modified by colorants, additives, fillers, etc.

1.4 It is not intended to imply that materials having the same designation necessarily have the same performance. This part of ISO 28941 does not provide engineering data, performance data or data on processing conditions which may be required to specify a material for a particular application and/or method of processing.

If such additional properties are required, they shall be determined in accordance with the test methods specified in ISO 15103-2, if suitable.

1.5 In order to specify a thermoplastic material for a particular application or to ensure reproducible processing, additional requirements may be given in data block 5 (see 3.1).

2 Normative references

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 1043-1, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics*

ISO 15103-2, *Plastics — Poly(phenylene ether) (PPE) moulding and extrusion materials — Part 2: Preparation of test specimens and determination of properties*

3 Designation system

3.1 General

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

Designation						
Description block (optional)	Identity block					
	International Standard number block	Individual-item block				
		Data block 1	Data block 2	Data block 3	Data block 4	Data block 5

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 coding, the individual-item block is subdivided into five data blocks comprising the following information:

- Data block 1: Identification of the plastic by its symbol PPE in accordance with ISO 1043-1 and information about the composition of the polymer (see 3.2).
- Data block 2: Position 1: intended application or method of processing (see 3.3).
Positions 2 to 8: important properties, additives and supplementary information (see 3.3).
- Data block 3: Designatory properties (see 3.4).
- Data block 4: Fillers or reinforcing materials and their nominal content (see 3.5).
- Data block 5: For the purposes of specifications, a fifth data block may be added containing additional information.

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

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

3.2 Data block 1

In this data block, after the hyphen, poly(phenylene ether) materials are identified by the symbol PPE, in accordance with ISO 1043-1, followed by a hyphen and a code-number giving additional information on the polymer, as specified in Table 1.

Table 1 — Code-numbers used for additional information in data block 1

Code-number	Material
1	PPE
2	PPE+PS
3	PPE+PA
4	PPE+another polymer not already given in this table
5	PPE+PS+another polymer not already given in this table
6	PPE+PP
7	PPE+PPS

3.3 Data block 2

In this data block, information about intended application and/or method of processing is given in position 1 and information about important properties, additives and colour in positions 2 to 8. The code-letters used are specified in Table 2.

If information is presented in positions 2 to 8 and no specific information is given in position 1 the letter X shall be inserted in position 1.

Table 2 — Code-letters used in data block 2

Code-letter	Position 1	Code-letter	Positions 2 to 8
A	Adhesives	A	Processing stabilized
B	Blow moulding	B	Antiblocking
C	Calendering	C	Coloured
		D	Powder
E	Extrusion	E	Expandable
F	Extrusion of films	F	Special burning characteristics
G	General use	G	Granules
		G1	Pellets
		G3	Beads
H	Coating	H	Heat-ageing stabilized
K	Cable and wire coating	K	Metal deactivated
L	Monofilament extrusion	L	Light and weather stabilized
M	Moulding		
		N	Natural (no colour added)
		P	Impact modified
Q	Compression moulding	Q1	Plateable
R	Rotational moulding	R	Mould release agent
S	Sintering	S	Lubricated
T	Tape manufacture	T	Transparent
V	Thermoforming		
X	No indication	X	Cross-linkable
Y	Textile yarns, spinning	Y	Increased electrical conductivity
		Z	Antistatic