
**Plastics — Polystyrene (PS) moulding
and extrusion materials —**

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

*Plastiques — Polystyrène (PS) pour moulage et extrusion —
Partie 1: Système de désignation et base de spécification*

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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 1622-1 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*.

This third edition cancels and replaces the second edition (ISO 1622-1:1994), which has been technically revised. The main change is the replacement of melt flow rate (MFR) by melt volume-flow rate (MVR) as one of the designatory properties (see, in particular, Subclauses 1.2 and 3.4.3).

ISO 1622 consists of the following parts, under the general title *Plastics — Polystyrene (PS) moulding and extrusion materials*:

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

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Plastics — Polystyrene (PS) moulding and extrusion materials —

Part 1: Designation system and basis for specifications

1 Scope

1.1 This part of ISO 1622 establishes a system of designation for polystyrene thermoplastic material, which may be used as the basis for specifications.

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

- a) Vicat softening temperature and
- b) melt volume-flow rate

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

1.3 This part of ISO 1622 is applicable to all amorphous polystyrene homopolymers.

It applies to materials ready for normal use, unmodified or modified by colorants, additives, fillers, etc.

This part of ISO 1622 does not apply to expanded polystyrene, styrene copolymers, homopolymers of substituted styrene or those modified with other polymers such as elastomers.

1.4 It is not intended to imply that materials having the same designation give necessarily the same performance. This part of ISO 1622 does not provide engineering data, performance data or data on processing conditions which might 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 Part 2 of this International Standard, 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 1622-2, *Plastics — Polystyrene (PS) 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						
	Identity block					
Description block (optional)	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 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 (PS) in accordance with ISO 1043-1 (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 (not included in this part of ISO 1622).
- Data block 5: For the purpose of specifications, a fifth data block may be added containing additional information (see 3.5).

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, polystyrene plastics are identified by the abbreviated term “PS”, in accordance with ISO 1043-1.

3.3 Data block 2

In this data block, information about the 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 1.

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 1 — Code-letters used in data block 2

Code-letter	Position 1	Code-letter	Positions 2 to 8
		A	Processing stabilized
		C	Coloured
E	Extrusion		
F	Extrusion of films	F	Special burning characteristics
G	General use		
		L	Light- and/or weather-stabilized
M	Moulding		
		N	Natural (no colour added)
		R	Mould release agent
		S	Lubricated
X	No indication		
		Z	Antistatic

3.4 Data block 3

3.4.1 General

In this data block, the range of the Vicat softening temperature is represented by a three-figure code-number (see 3.4.2) and the range of the melt volume-flow rate by a two-figure code-number (see 3.4.3). The code-numbers are separated from each other by hyphens.

If a property value falls on or near a range limit, the manufacturer shall state which range will designate the material. If subsequent individual test values lie on, or on either side of, the limit because of manufacturing tolerances, the designation is not affected.

3.4.2 Vicat softening temperature

The Vicat softening temperature shall be determined in accordance with ISO 1622-2.

The possible values of Vicat softening temperature are divided into four ranges, each represented by a three-figure code-number as specified in Table 2.

Table 2 — Range of Vicat softening temperature in data block 3

Code-number	Range of Vicat softening temperature °C
075	≤ 80
085	> 80 but ≤ 90
095	> 90 but ≤ 100
105	> 100

3.4.3 Melt volume-flow rate

The melt volume-flow rate shall be determined in accordance with ISO 1622-2.

The possible values of melt volume-flow rate are divided into four ranges, each represented by a two-figure code-number as specified in Table 3.

Table 3 — Range of melt volume-flow rate in data block 3

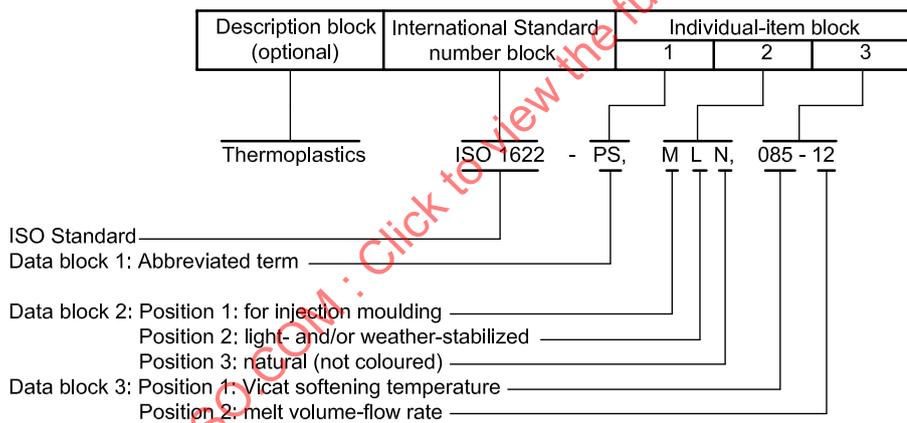
Code-number	Range of melt volume-flow rate (MVR)
	cm ³ /10 min
03	≤ 3,8
06	> 3,8 but ≤ 7,7
12	> 7,7 but ≤ 15,4
20	> 15,4

3.5 Data block 5

Indication of additional requirements in this optional data block is a way of transforming the designation of a material into a specification for a particular application. This may be done, for example, by reference to a suitable national standard or to a standard-like, generally established specification.

4 Example of a designation

A polystyrene moulding and extrusion material (PS), intended for injection moulding (M), light- and/or weather-stabilized (L), natural (not coloured) (N), with a Vicat softening temperature of 84 °C (085) and a melt volume-flow rate of 9,0 cm³/10 min (12), would be designated:



Designation: Thermoplastics ISO 1622-PS,MLN,085-12