
International Standard



1622/1

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Plastics — Polystyrene (PS) moulding and extrusion materials — Part 1: Designation

Plastiques — Polystyrène (PS) pour moulage et extrusion — Partie 1: Désignation

First edition — 1985-12-15

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UDC 678.746.22 : 678.027.3 + 678.027.7

Ref. No. ISO 1622/1-1985 (E)

Descriptors : plastics, thermoplastic resins, polystyrene, moulding materials, designation.

Price based on 3 pages

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 1622/1 was prepared by Technical Committee ISO/TC 61, *Plastics*.

International Standards ISO 1622/1 and ISO 1622/2 cancel and replace International Standard ISO 1622-1975, of which they constitute a technical revision.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Plastics — Polystyrene (PS) moulding and extrusion materials —

Part 1: Designation

1 Scope and field of application

1.1 This part of ISO 1622 establishes a system of designation for polystyrene (PS) thermoplastic materials which may be used as the basis for specifications.

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

- a) Vicat softening temperature,
- b) melt flow rate,

and information about intended application, method of processing, important properties, additives and colour.

1.3 This designation system is applicable to all amorphous homopolymers of styrene. It applies to materials ready for normal use, unmodified and modified by colourants, additives, etc.

This International Standard does not apply to expanded polystyrene, styrene copolymers, homopolymers of substituted styrene and those modified with other polymers such as elastomers.

1.4 It is not intended to imply that materials having the same designations give necessarily the same performance. This part of ISO 1622 does not provide engineering data, performance

data or data on processing conditions which may be required to specify a material for a particular application or method of processing.

If such additional properties are required, they shall be determined in accordance with the test methods specified in ISO 1622/2, if suitable.

1.5 In order to specify a thermoplastic material for a particular application or reproducible processing, additional requirements may be coded in Data Block 5 (see clause 3).

2 References

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

ISO 306, *Plastics — Determination of the Vicat softening temperature of thermoplastics.*

ISO 1043, *Plastics — Symbols and codes*

— *Part 1: Symbols for basic polymers and their modifications and for plasticizers.*¹⁾

— *Part 2: Codes for designations of polymers by a data-block system.*¹⁾

ISO 1133, *Plastics — Determination of the melt flow rate of thermoplastics.*

ISO 1622/2, *Plastics — Polystyrene moulding and extrusion materials — Part 2: Determination of properties.*

1) At present at the stage of draft. (Partial revision of ISO 1043-1978.)

3 Designation system

The designation system of thermoplastics is based on the following standardized pattern¹⁾.

Designation						
Description Block (optional)	Identity Block					
	International Standard Number Block	Individual Item Block				Data Block 5
		Data Block 1	Data Block 2	Data Block 3	Data Block 4	

It 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 four data blocks comprising the following information:

- No. 1: Identification of the plastic by its symbol PS, according to ISO 1043/1.
- No. 2: Position 1: Intended application or method of processing (see 3.2).
Positions 2 to 4: Important properties, additives and supplementary information (see 3.2).
- No. 3: Designatory properties (see 3.3).
- No. 4: Fillers or reinforcing materials and their nominal content (not included in this particular designation).

For the purpose of specifications, a fifth data block may be added containing additional information. The kind of information and its code are not the subject of this part of ISO 4613.

The first character of the Individual Item Block shall be a hyphen. The four data blocks shall be separated from each other by a comma.

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

3.1 Data Block 1

In this data block, after a hyphen, polystyrene plastics are identified by the symbol PS, according to ISO 1043/1.

3.2 Data Block 2

In this data block, information about intended application or method of processing is given in Position 1 and information about important properties, additives and colour in Positions 2 to 4. The codes are specified in table 1.

Table 1 — Codes used in Data Block 2

Code	Position 1	Code	Positions 2 to 4
E F G	Extrusion of pipes, profiles and sheets Extrusion of film and thin sheeting General use	A	Processing stabilized
		C	Coloured ¹⁾
		F	Special burning characteristics
M	Injection moulding	L	Light and/or weather stabilized
		N	Natural (not coloured)
X	No indication	R	Moulding release agent
		S	Lubricated ²⁾
		Z	Antistatic

1) C1 = coloured transparent
C2 = coloured non-transparent.
2) In ISO 1622, S signifies external lubrication.

1) See ISO 1043/2.

If information is presented in Positions 2 to 4 and no specific information is given in Position 1, the letter X shall be inserted in Position 1.

3.3 Data Block 3

In this data block, the range of the Vicat softening temperature is coded by three figures (see 3.3.1) and the range of the melt flow rate by two figures (see 3.3.2). The two codes are separated from each other by a hyphen.

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

NOTE — Not all combinations of the values of the designatory properties may be provided by currently available materials.

3.3.1 The Vicat softening temperature (VST) shall be determined according to ISO 306, method B, using a load of 5,1 kg and a heating rate of 50 ± 5 K/h.

The resulting VST is classified by four cells and coded by three figures, as specified in table 2.

3.3.2 The melt flow rate (MFR) shall be determined according to ISO 1133 (condition No. 8) at a temperature of 200 °C with a load of 5,0 kg.

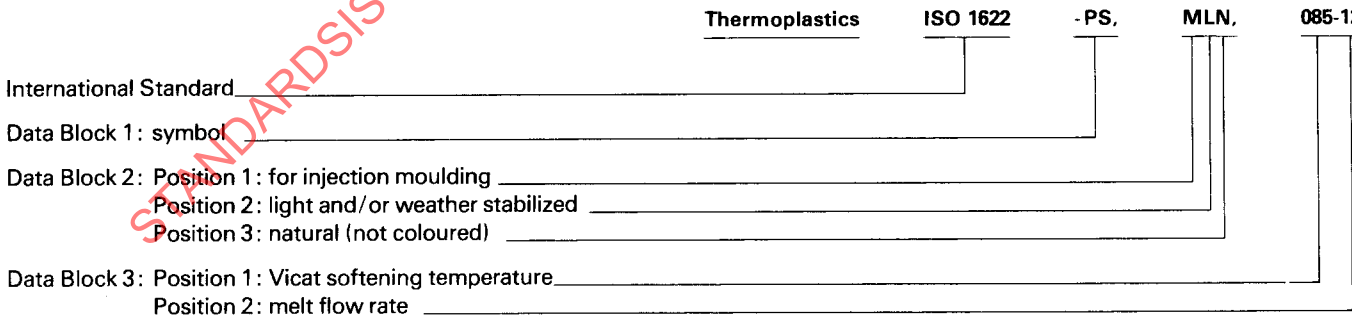
The MFR is classified by four cells and coded by two figures, as specified in table 2.

Table 2 — Cell codes and cell ranges for VST and MFR in Data Block 3

Vicat softening temperature (VST)		Melt flow rate (MFR)	
Code	VST range °C	Code	MFR range g/10 min
075	< 80	03	< 4
085	> 80 to 90	06	> 4 to 8
095	> 90 to 100	12	> 8 to 16
105	> 100	20	> 16

4 Coding example

A PS injection moulding material (M), light and/or weather stabilized (L), natural (not coloured) (N), with a Vicat softening temperature VST/B/50 of 84 °C (085) and a melt flow rate MFR of 9 g/10 min (12), would be designated:



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

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