
**Thermoplastic polymers for plain
bearings — Classification and
designation**

*Polymères thermoplastiques pour paliers lisses — Classification et
désignation*



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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 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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 123, *Plain bearings*, Subcommittee SC 2, *Materials and lubricants, their properties, characteristics, test methods and testing conditions*.

This third edition cancels and replaces the second edition (ISO 6691:2000), which has been technically revised.

The main changes compared to the previous edition are as follows:

- references in 4.5, Data Block 4 for position 3 and 4, have been made precise;
- Annexes A and B have been revised.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Thermoplastic polymers for plain bearings — Classification and designation

1 Scope

This document specifies a classification and designation system for a selection of the most common unfilled thermoplastic polymers for plain bearings.

The unfilled thermoplastic polymers are classified on the basis of appropriate levels of distinctive properties, additives and information about their application for plain bearings. The designation system does not include all properties; thermoplastic polymers having the same designation cannot therefore be interchanged in all cases.

It also provides an outline of the properties and applications of the most common unfilled thermoplastic polymers as well as listing some of the fundamental parameters that influence the selection of thermoplastic polymers for use for plain bearings.

NOTE In the further course of the work, it is intended to prepare standards on “thermosetting polymers” and “mixed polymers” for plain bearings.

2 Normative references

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 307, *Plastics — Polyamides — Determination of viscosity number*

ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles*

ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics*

ISO 527-3, *Plastics — Determination of tensile properties — Part 3: Test conditions for films and sheets*

ISO 527-4, *Plastics — Determination of tensile properties — Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites*

ISO 527-5, *Plastics — Determination of tensile properties — Part 5: Test conditions for unidirectional fibre-reinforced plastic composites*

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

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

ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method*

ISO 1183-2, *Plastics — Methods for determining the density of non-cellular plastics — Part 2: Density gradient column method*

ISO 1183-3, *Plastics — Methods for determining the density of non-cellular plastics — Part 3: Gas pycnometer method*

ISO 1628-5, *Plastics — Determination of the viscosity of polymers in dilute solution using capillary viscometers — Part 5: Thermoplastic polyester (TP) homopolymers and copolymers*

ISO 16396-1, *Plastics — Polyamide (PA) moulding and extrusion materials — Part 1: Designation system, marking of products and basis for specifications*

ISO 16396-2, *Plastics — Polyamide (PA) moulding and extrusion materials — Part 2: Preparation of test specimens and determination of properties*

ISO 17855-1, *Plastics — Polyethylene (PE) moulding and extrusion materials — Part 1: Designation system and basis for specifications*

ISO 17855-2, *Plastics — Polyethylene (PE) moulding and extrusion materials — Part 2: Preparation of test specimens and determination of properties*

ISO 20028-1, *Plastics — Thermoplastic polyester (TP) moulding and extrusion materials — Part 1: Designation system and basis for specification*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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

4 Classification and designation system

4.1 General

The classification and designation are based on a block system consisting of a “description block” and “Identity block” (see [Table 1](#)). The “Identity block” comprises an “International Standard number block” and an “individual item block”. For unambiguous coding of all thermoplastic polymers, the “individual item block” is subdivided into four data blocks.

Table 1 — Classification and designation

Designation					
Description block	Identity block				
	International Standard number block	Individual item block			
		Data block 1	Data block 2	Data block 3	Data block 4

The “individual item block” starts with a dash. The data blocks are separated by commas.

Data blocks 1 to 4 include the following information:

- data block 1: material symbol (see [4.2](#), [Table 2](#));
- data block 2: intended application or method of processing (see [4.3](#));
- data block 3: distinctive properties (see [4.4](#));
- data block 4: type and content of fillers or reinforcing materials (see [4.5](#));

The meaning of the letters and digits is different for each data block (see [4.2](#) to [4.5](#)).