

Translated English of Chinese Standard: GB/T2546.1-2022

www.ChineseStandard.net → Buy True-PDF → Auto-delivery.

Sales@ChineseStandard.net

GB

NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

ICS 83.080.20

CCS G 31

GB/T 2546.1-2022

Replacing GB/T 2546.1-2006

**Plastics - Polypropylene (PP) Molding and Extrusion
Materials - Part 1: Designation System and Basis for
Specifications**

塑料 聚丙烯 (PP) 模塑和挤出材料

第 1 部分: 命名系统和分类基础

(ISO 19069-1:2015, MOD)

Issued on: July 11, 2022

Implemented on: February 1, 2023

Issued by: State Administration for Market Regulation;

Standardization Administration of the People's Republic of China.

Table of Contents

Foreword.....	3
Introduction.....	6
1 Scope.....	7
2 Normative References.....	8
3 Terms and Definitions.....	8
4 Designation and Classification System.....	8
5 Examples of Designation.....	14
Bibliography	19

Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020 *Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

This document is Part 1 of GB/T 2546 *Plastics - Polypropylene (PP) Molding and Extrusion Materials*. GB/T 2546 has issued the following parts:

---Part 1: Designation System and Basis for Specifications;

---Part 2: Preparation of Test Specimens and Determination of Properties.

This document serves as a replacement of GB/T 2546.1-2006 *Plastics - Polypropylene (PP) Molding and Extrusion Materials - Part 1: Designation System and Basis for Specifications*. In comparison with GB/T 2546.1-2006, apart from structural adjustments and editorial modifications, the main technical changes are as follows:

- a) The dated normative references are modified into undated normative references (see Chapter 2; Chapter 2 of Version 2006);
- b) The designation block and standard serial No. parts are added to the designation and classification modes (see Chapter 4; Chapter 3 of Version 2006);
- c) The sequence of the individual-item block and the data block for designation is modified (see 4.1; Chapter 3 of Version 2006);
- d) In Table 2 in the data block 2, Position 2 indicates that “S” (representing scaly and flaky) is added to the letter code of fillers and reinforcing materials (see Table 2 of 4.3; Table 6 of 3.4 of Version 2006);
- e) The meaning of the letter “E” in Position 1 of the data block 3 is modified from “extrusion” into “extrusion of pipes, profiles and sheets” (see Table 3 of 4.4; Table 2 of 3.2 of Version 2006);
- f) The letter in Position 1 of the data block 3 is added, using “J” to indicate the recommendation purpose “wire and cable insulation” (see Table 3 of 4.4; Table 2 of 3.2 of Version 2006);
- g) “the tensile elastic modulus is coded with three numbers based on the nominal value” is modified into “in accordance with the values that may appear, the tensile elastic modulus is divided into 6 ranges, and each range is represented by a digital code composed of two numbers, with the stipulations shown in Table 4”. The content of Table 4 is modified accordingly (see 4.5.2 and Table 4; 3.3.1 and Table 3 of Version 2006);
- h) “the Charpy notched impact strength is coded with two numbers based on the nominal value” is modified into “in accordance with the values that may appear, the Charpy

notched impact strength is divided into 12 ranges, and each range is represented by a digital code composed of two numbers, with the stipulations shown in Table 5”. The content of Table 5 is modified accordingly (see 4.5.3 and Table 5; 3.3.2 and Table 4 of Version 2006);

- i) “the melt mass-flow rate is coded with a letter and three numbers based on the nominal value” is modified into “the melt mass-flow rate is determined in accordance with GB/T 3682.1 or GB/T 3682.2. The test condition can be selected as M (temperature: 230 °C, load: 2.16 kg) or P (temperature: 230 °C, load: 5 kg)”. Condition P is recommended for the determination of materials with MFR value less than 0.10 g/10 min under the test condition M. In accordance with the values that may appear, the melt mass-flow rate is divided into 21 ranges, and each range is represented by a digital code composed of three numbers, with the stipulations shown in Table 6. Use “M” or “P” in front of the digital code to indicate the test condition. The content of Table 6 is modified accordingly (see 4.5.4 and Table 6; 3.3.3 and Table 5 of Version 2006).

This document uses the re-drafting method in the modification and adoption of ISO 19069-1:2015 *Plastics - Polypropylene (PP) Molding and Extrusion Materials - Part 1: Designation System and Basis for Specifications*.

This document adds the chapter “Terms and Definitions”.

In comparison with ISO 19069-1:2015, this document has technical differences. The main technical differences and the reasons for these differences are as follows:

- a) In terms of Normative References, this document makes adjustments with technical differences, using Chinese standards that equivalently adopt or modify international documents to replace the corresponding international documents, so as to adapt to the technical conditions of China. The adjustments are intensively reflected in Chapter 2 “Normative References”. See the specific adjustments below:
 - Use GB/T 1844.1, which equivalently adopts international document, to replace ISO 1043-1 (see 4.1);
 - Use GB/T 2546.2, which modifies and adopts international document, to replace ISO 1873-2 (see 4.5.2 and 4.5.3);
 - Use GB/T 3682.1 and GB/T 3682.2, which modify and adopt international documents, to replace ISO 1133 (all parts) (see 4.5.4).
- b) In terms of data block 3, the description “if the polypropylene is natural color and (or) granule, the code of natural color (N) and (or) granule (G) can be omitted in designation” is added, so as to make the stipulations more clarified (see 4.4);
- c) The test condition P “temperature: 230 °C, load: 5 kg” is added to MFR, so as to make the stipulations more reasonable (see 4.5.4);

Plastics - Polypropylene (PP) Molding and Extrusion Materials - Part 1: Designation System and Basis for Specifications

1 Scope

This document specifies the designation system of polypropylene (PP) thermoplastic materials, and this system can be used as the basis for specifications.

Different types of polypropylene thermoplastic materials are distinguished by a classification system based on the following specified characteristic property values and recommended purposes and (or) processing methods, important properties, additives, colorants, fillers and reinforcing materials, etc.:

- a) tensile elastic modulus;
- b) Charpy notched impact strength;
- c) melt mass-flow rate (MFR).

This document is applicable to all propylene homopolymers and other propylene copolymers with a mass fraction of 1-olefin monomers less than 50% and blends of the above-mentioned polymers with a mass fraction of not less than 50%.

This document is applicable to materials that are conventionally in the form of powders, granules or crumbs, unmodified or modified by colorants, additives and fillers, etc.

This document does not apply to propylene-based rubber.

This document does not imply that materials with the same designation will necessarily have identical properties. This document does not provide the engineering data, property data or processing condition data necessary to describe a particular purpose and (or) processing method for the materials.

If necessary, these additional properties can be determined in accordance with the test methods specified in GB/T 2546.2.

In order to illustrate a particular purpose of a certain polypropylene thermoplastic material or to ensure the reproducibility of processing, additional requirements may be provided in data block 5.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 1844.1 Plastics - Symbols and Abbreviated Terms - Part 1: Basic Polymers and Their Special Characteristics (GB/T 1844.1-2008, ISO 1043-1:2001, IDT)

GB/T 2546.2 Plastics - Polypropylene (PP) Molding and Extrusion Materials - Part 2: Preparation of Test Specimens and Determination of Properties (GB/T 2546.2-2022, ISO 19069-2:2016, MOD)

GB/T 3682.1 Plastics - Determination of the Melt Mass-flow Rate (MFR) and Melt Volume-flow Rate (MVR) of Thermoplastics - Part 1: Standard Method (GB/T 3682.1-2018, ISO 1133-1:2011, MOD)

GB/T 3682.2 Plastics - Determination of the Melt Mass-flow Rate (MFR) and Melt Volume-flow Rate (MVR) of Thermoplastics - Part 2: Method for Materials Sensitive to Time-temperature History and / or Moisture (GB/T 3682.2-2018, ISO 1133-2:2011, MOD)

3 Terms and Definitions

This document does not have terms or definitions that need to be defined.

4 Designation and Classification System

4.1 General Rules

The designation and classification system of polypropylene is based on the following standard mode:

The designation is composed of an optional designation block written as “thermoplastic” and an identification group including the national standard serial No. and the individual-item block. In order to make the designation more clarified, the individual-item block is divided into the following five data blocks:

Data block 1: in accordance with GB/T 1844.1, the plastic code PP and the information about

This is an excerpt of the PDF (Some pages are marked off intentionally)

Full-copy PDF can be purchased from 1 of 2 websites:

1. <https://www.ChineseStandard.us>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Select your country (currency), for example: USA (USD); Germany (Euro).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Tax invoice can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with download links).

2. <https://www.ChineseStandard.net>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Add to cart. Only accept USD (other currencies - <https://www.ChineseStandard.us>).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with PDFs attached, invoice and download links).

Translated by: Field Test Asia Pte. Ltd. (Incorporated & taxed in Singapore. Tax ID: 201302277C)

About Us (Goodwill, Policies, Fair Trading...): <https://www.chinesestandard.net/AboutUs.aspx>

Contact: Wayne Zheng, Sales@ChineseStandard.net

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

----- The End -----