



**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 1040.2-2022**

Replacing GB/T 1040.2-2006

**Plastics – Determination of Tensile Properties – Part 2: Test  
Conditions for Moulding and Extrusion Plastics**

**塑料 拉伸性能的测定 第2部分：模塑和挤塑塑料的试验条件**

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## Foreword

This Document was drafted as per the rules specified in GB/T 1.1-2020 Directives for Standardization – Part 1: Rules for the Structure and Drafting of Standardizing Documents.

This Document is Part 2 of GB/T 1040 Plastics – Determination of Tensile Properties, which has published the following parts:

- Part 2: Test Conditions for Molding and Extrusion Plastics;
- Part 3: Test Conditions for Films and Sheets;
- Part 5: Test Conditions for Unidirectional Fiber-Reinforced Plastic Composites.

This Document replaced GB/T 1040.2-2006 Plastics - Determination of Tensile Properties - Part 2: Test Conditions for Moulding and Extrusion Plastics. Compared with GB/T 1040.2-2006, the major technical changes are as follows besides the structural adjustments and editorial modifications:

- Add the 75mm gauge length of the specimen (see 5.2 of this Edition);
- Add the requirements for the accuracy of the extensometer when using different gauge lengths to determine the modulus (see 5.2 of this Edition);
- Add the inter-lab precision data in China (see B.3 of this Edition).

This Document modified and adopts ISO 527-2:2012 Plastics – Determination of Tensile Properties – Part 2: Test Conditions for Moulding and Extrusion Plastics.

The major technical differences and their causes between this Document and ISO 527-2:2012 are as follows:

--- For the Normative References, this Document has made adjustments with technical differences to adapt to the technical conditions of China. The adjustments are reflected in Clause 2 “Normative References”. The specific adjustments are as follows:

- ☐ Use GB/T 1040.1-2018 that equivalently adopts the international standard to replace ISO 527-1:2012;
  - ☐ Use GB/T 5471 that equivalently adopts the international standard to replace ISO 295;
  - ☐ Use GB/T 9352 that equivalently adopts the international standard to replace ISO 293;
  - ☐ Use GB/T 17037.1 that modifies and adopts the international standard to replace ISO 291-1;
  - ☐ Use GB/T 37426 that modifies and adopts the international standard to replace ISO 20753;
  - ☐ Use GB/T 39812 that equivalently adopts the international standard to replace ISO 2818.
- Add the requirements for the accuracy of the extensometer when using different gauge

lengths to determine the modulus (see 5.2 of this Document), which is consistent with ISO 527-1:2019.

--- Add the inter-lab precision data in China as the content of B.3, so that adapt to the actual situation of China.

Please note some contents of this Document may involve patents. The issuing agency of this Document shall not assume the responsibility to identify these patents.

This Document was proposed by China Petroleum and Chemical Industry Federation.

This Document shall be under the jurisdiction of National Technical Committee on Plastics of Standardization Administration of China (SAC/TC 15).

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This Document was first-time published in 1979; first-time revised in 1992; second-time revised in 2006; and it is third-time revised hereby.

## Introduction

GB/T1040 specifies the method for determining the tensile properties of plastics and composite materials. As the basic method of plastic testing, the formulation and revision of this series of standards not only conforms to the actual situation in China, but also helps to promote the healthy development of the industry. GB/T 1040 consists of the following parts:

- Part 1: General Principles (This Document specifies general principles for determining the tensile properties of plastics and composite materials under defined conditions, and specifies several test specimens of different shapes for use with different types of materials);
- Part 2: Test Conditions for Molding and Extrusion Plastics (This Document specifies the test conditions for determining the tensile properties of molded and extruded materials on the basis of GB/T1040.1);
- Part 3: Test Conditions for Films and Sheets (This Document specifies the test conditions for determining the tensile properties of plastic films or sheets with a thickness of less than 1mm on the basis of GB/T1040.1);

Composites ((This Document specifies the test conditions for the determination of isotropic and orthotropic fiber-reinforced composite materials on the basis of GB/T1040.1);

Document specifies the test conditions for unidirectional fiber-reinforced composite materials on the basis of GB/T1040.1).

GB/T 1040.1 has been revised in 2018. Because the corresponding terms and definitions have undergone major changes, GB/T 1040.2-2006 no longer matches GB/T1040.1. For the overall coordination of the basic national standard system, GB/T1040.2-2006 was revised this time.

## 1 Scope

This Document specifies the test conditions for determining the tensile properties of moulding and extrusion plastics, based upon the general principles given in GB/T 1040.1.