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

**GB/T 17037.1-2019**

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**Plastics -- Injection moulding of test specimens of  
thermoplastic materials -- Part 1: General principles, and  
moulding of multipurpose and bar test specimens**

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### Foreword

GB/T 17037 "Preparation of injection molded samples of plastic thermoplastic materials" is divided into five parts.

--- Part 1. General principles and preparation of multi-purpose and long strip samples;

--- Part 2. Small tensile specimens;

--- Part 3. Small square test piece;

--- Part 4. Determination of mold shrinkage;

--- Part 5. Preparation of standard samples for anisotropic evaluation.

This part is the first part of GB/T 17037.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 17037.1-1997 "Preparation of injection molded specimens of thermoplastic materials - Part 1. General principles and multipurpose

Preparation of sample and strip samples. Compared with GB/T 17037.1-1997, the main technical changes except editorial changes are as follows.

--- Added the following terms and definitions. molded part quality (3.22), sample quality (3.23), shrinkage ratio (3.24) and cavity pressure (3.25);

--- Revised the sample type code according to the provisions of GB/T 37426;

--- Increased the setting method of injection molding machine parameters (see Appendix D);

--- Increased the method of determining the holding pressure and holding time (see Appendix E).

This section uses the redrafting method to modify the use of ISO 294-1.2017 "plastic thermoplastic materials injection molding sample preparation 1

Part. General principles and preparation of multi-purpose and long strip samples.

The technical differences between this part and ISO 294-1.2017 and their reasons are as follows.

---About the normative reference documents, this standard has made technical adjustments to adapt to China's technical conditions, adjustments

The situation is reflected in Chapter 2, "Regulatory Citations", and the specific adjustments are as follows.

- \* Replace ISO 179-1 with GB/T 1043.1 equivalent to the international standard;
- \* Replace ISO 294-4 with GB/T 17037.4 equivalent to the international standard;
- \* Replace ISO 20753 with GB/T 37426 modified to international standards.

This section has made the following editorial changes.

--- Give the URL information of the ISO and IEC maintenance terminology database in Chapter 3 Terms and Definitions as a note.

## Introduction

During the injection molding process, many factors can affect the performance of the injection molded specimen and the measured values of the various tests obtained with this specimen. Preparation note

The injection molding conditions used in the plastic sample process have a great influence on the mechanical properties of the sample. Give exact to each major parameter of the injection molding process

The definition is the basic requirement for standardization, which makes the operating conditions reproducible and comparable, see references [1], [2], [4], [5] and [6].

When determining the injection molding conditions, it is important to consider the effect that the injection molding conditions may have on the properties of the material being measured. In thermoplastics, there is no fixed

Shaped polymers can exhibit different molecular chain orientations; crystalline and semi-crystalline polymers can exhibit different crystalline forms; heterogeneous heat

Plastic plastics can exhibit different phases; anisotropic filler materials, such as short fibers, can also exhibit different orientations, see references

[3]. The residual stress in the "frozen" injection molded specimen and the thermal degradation in the injection molding process may also affect the performance of the specimen. Therefore, it must

These phenomena must be controlled to avoid fluctuations in the test performance values of the samples.

Special care must be taken to ensure that the GB /ISO standard mold description requirements apply to all injection molding equipment and all replaceable types.

Cavity plate.

Preparation of injection molded samples of plastic thermoplastic materials

Part 1. General principles and multi-purpose specimens and

Preparation of long strip samples

## 1 Scope

This part of GB/T 17037 gives the general principles followed by injection molding of thermoplastic materials and is given for the preparation of two

Detailed reference data for the mold design of the sample, such as the A1 and B1 specimens specified in GB/T 37426, provides reproducible injection molding

The purpose of the condition is to provide a consistent description of the main parameters of the molding process and to establish a uniform method under the reported molding conditions. Sample

The detailed conditions required for reproducibility preparation will vary depending on the materials used, as specified in the national standards for the relevant materials, or

As agreed by the relevant parties.

This section applies to thermoplastic materials injection molding to produce reproducible multi-purpose samples and long strip samples.

Note. Experiments between laboratories of acrylonitrile/butadiene/styrene (ABS), styrene/butadiene (SB) and polymethyl methacrylate (PMMA) have shown that

Mold design is one of the important factors to ensure the reproducibility of the sample.

## 2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 1043.1 Determination of impact properties of simply supported beams - Part 1 .  
Non-instrumental impact test (GB/T 1043.1-

2008, ISO 179-1.2000, IDT)

Plastics -- Thermoplastics -- Preparation of injection mouldings - Part 3 . slabs ( ISO 294-3 .  
2002, IDT)

Plastics -- Injection moulding of thermoplastics -- Part 4 . Determination of moulding  
shrinkage

(GB/T 17037.4-2003, ISO 294-4.2001, IDT)

GB/T 37426 plastic sample (GB/T 37426-2019, ISO 20753.2018, MOD)

Plastics -- Thermoplastics materials -- Preparation of injection mouldings - Part 2 . Small  
tensile specimens (Plastics-Injection

Moulding of test specimens of thermoplastic materials - Part 2. Small tensile bars)

### 3 Terms and definitions

The following terms and definitions apply to this document.

Note. ISO and IEC maintain the terminology database with the following URL.

#### 3.1

Mold temperature mould temperature

TC

After the mold system reaches thermal equilibrium, the mold is opened and the average  
temperature of the mold cavity surface measured immediately is measured in degrees  
Celsius (°C).