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

**GB/T 6594.2-2025**

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**Plastics - Polystyrene(PS) moulding and extrusion materials -  
Part 2: Preparation of test specimens and determination of  
properties**

**塑料 聚苯乙烯 (PS) 模塑和挤出材料 第2部分：试样制备和性能测定  
(English Translation)**

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### Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 2 of GB/T 6594 "Plastic Polystyrene (PS) Molding and Extrusion Materials". GB/T 6594 has been published the following parts.

--- Part 1: Nomenclature system and basis of classification;

--- Part 2: Sample preparation and property determination.

This document replaces GB/T 6594.2-2003 "Plastics Polystyrene (PS) Molding and Extrusion Materials Part 2: Preparation and Properties of Specimens" Compared with GB/T 6594.2-2003, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) Added description on specimen selection for injection molding (see 4.3);
- b) Added description on injection molding uniformity (see 4.3);
- c) The average injection speed in the injection molding conditions table has been changed (see Table 1, Table 1 of the 2003 edition);
- d) The standard ambient relative humidity of the test has been changed (see Chapter 5, 5 and 6 of the 2003 edition);
- e) Added the thickness combustion grade of the flammability test specimen (see Table 2);
- f) The test standards for the determination of relative dielectric constant and dielectric loss factor have been changed (see Table 2, Table 3 of the 2003 edition);
- g) The dimensions of the comparative tracking index test specimens have been changed (see Table 2, Table 3 of the 2003 edition);
- h) The footnote on the environmental requirements for electrical performance tests has been deleted (see Table 3 of the 2003 edition);

i) Added the description of the sample method for density determination, using "Method A. Immersion Method" (see Table 2);

j) Added mechanical properties "penetration energy" and "maximum penetration force" (see Table 3);

k) The standard for the determination of residual styrene monomer content has been changed (see Table 3, Table 4 of the 2003 edition).

This document is modified to adopt ISO 24022-2:2020 "Plastics Polystyrene (PS) molding and extrusion materials Part 2: Preparation of test specimens and Performance Measurement.

This document has many technical differences compared to ISO 24022-2:2020.

A list of these technical differences and their reasons is given in Appendix A.

Compared with ISO 19063-2:2020, this document has the following editorial changes.

--- Increased the scope of application of this document;

--- Changed the symbol and unit of residual styrene monomer content from "Wst,r" to "Pa", and the unit from "µg/g" to "mg/kg" (See Table 3);

--- Added Appendix A (informative) "Technical differences between this document and ISO 24022-2:2020 and their causes".

## Introduction

GB/T 6594 is the basic standard for polystyrene resin and provides support for polystyrene product standards.

ISO 1622, due to changes in the ISO standard guidelines, the naming system has been adjusted accordingly, closely related to sample preparation and performance determination.

The relevant test method standard has been revised and there are technical differences, so GB/T 6594 is revised.

GB/T 6594 "Plastic Polystyrene (PS) Molding and Extrusion Materials" consists of two parts.

--- Part 1: Naming system and classification basis. The purpose is to establish a standard model for the naming of polystyrene materials Methods and classification principles.

--- Part 2: Sample preparation and performance determination. The purpose is to establish the sample preparation method and performance test for polystyrene materials Measurement items, methods and conditions.

This document specifies uniform specimen preparation, state adjustment, and specimen size based on the characteristics of polystyrene (PS) molding and extrusion materials.

and test conditions to obtain reproducible and comparable test results, which provides support for polystyrene product standards.

Plastic polystyrene (PS) molding and extrusion materials Part 2: Preparation of test specimens and determination of properties

## 1 Scope

This document describes methods for the preparation of test specimens and the determination of properties of polystyrene (PS) molding and extrusion materials.

Requirements for pretreatment of test materials and condition adjustment of test specimens before testing.

This document specifies the methods and conditions for the preparation of test specimens and the determination of properties.

Suitable and necessary properties of materials and test methods.

These properties are selected from the general test methods of GB/T 19467.1. This document also lists the properties of polystyrene (PS) molding and extrusion. Other test methods that are widely used or have special significance for materials, as well as the determination methods of the named properties in GB/T 6594.1.

## 2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 1033.1 Plastics - Determination of density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method (GB/T 1033.1-2008, ISO 1183-1:2004, IDT) GB/T 1034 Determination of water absorption of plastics (GB/T 1034-2008, ISO 62:2008, IDT) GB/T 1040.1 Determination of tensile properties of plastics Part 1: General (GB/T 1040.1-2018, ISO 527-1.

2012, IDT)

GB/T 1040.2 Determination of tensile properties of plastics Part 2: Test conditions for moulding and extruded plastics (GB/T 1040.2-2022, ISO 527-2:2012, IDT) GB/T 1043.1 Determination of impact properties of simply supported plastic beams Part 1: Non-instrumented impact test (GB/T 1043.1-2008, ISO 179-1:2000, IDT) GB/T 1043.2 Determination of impact properties of simply supported plastic beams Part 2: Instrumented impact test (GB/T 1043.2-2018, ISO 179-2:1997, IDT) GB/T 1408.1 Test methods for

electrical strength of insulating materials Part 1: Tests at power frequency (GB/T 1408.1-2016, IEC 60243-1:2013, IDT) GB/T 1633 Plastics Thermoplastics - Determination of Vicat softening temperature (VST) (GB/T 1633-2000, ISO 306.

1994, IDT)

GB/T 1634.1 Determination of deflection temperature of plastics under load Part 1: General test method (GB/T 1634.1-2019, ISO 75-1:2013, MOD) GB/T 1634.2 Determination of deflection temperature of plastics under load Part 2: Plastics and hard rubber (GB/T 1634.2-2019, ISO 75-2:2013, MOD) GB/T 2406.2 Plastics - Determination of combustion behavior by oxygen index method - Part 2: Room temperature test (GB/T 2406.2-2009, ISO 4589-2:1996, IDT) GB/T 2408 Determination of burning properties of plastics - Horizontal and vertical methods (GB/T 2408-2021, IEC 60695-11-10.

2013, IDT)