



## Standard Specification for Multipurpose Test Specimens Used for Testing Plastics<sup>1</sup>

This standard is issued under the fixed designation D 5936; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscript epsilon (ε) indicates an editorial change since the last revision or reappraisal.

### 1. Scope

1.1 This standard specifies requirements relating to multipurpose test specimens for plastic moulding materials intended for processing by injection or direct compression moulding.

1.2 Specimens of Types A and B are tensile test specimens, from which with simple machining, specimens for a variety of other tests can be taken (see Table 1). Because they have such wide utility, these tensile specimens are referred to in this ISO standard as multipurpose test specimens.

1.3 The principal advantage of a multipurpose test specimen is that it allows all the test methods mentioned in Table 1 to be carried out on the basis of comparable mouldings. Consequently, the properties measured are coherent as all are measured with specimens in the same state. In other words, it can be expected that test results for a given set of specimens will not vary appreciably due to unintentionally different moulding conditions. On the other hand, if desired, the influence of moulding conditions or different states of the specimens, or both, can be assessed without difficulty for all of the properties measured.

1.4 For quality-control purposes, the multipurpose test specimen may serve as a convenient source of further specimens not readily available. Furthermore, the fact that only one mould is required may be advantageous.

1.5 The use of multipurpose test specimens shall be agreed upon by the interested parties, because there may be significant differences between properties of the multipurpose test specimens and those specified in the relevant test methods.

1.6 This standard is identical to ISO 3167.

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

### 2. Referenced Documents

#### 2.1 ASTM Standards:

D 5937 Test Method for Determination of Tensile Properties of Moulding and Extrusion Plastics<sup>2</sup>

D 5939 Practice for Preparing Multipurpose Test Specimens

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D20.61 on USA Technical Advisory Group for ISO/TC 61 on Plastics.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 08.03.

**TABLE 1 Recommended Applications for Multipurpose Test Specimens or Parts**

Method	Reference <sup>A</sup>	Type of Specimen or Dimensions, or both, mm
Tensile test	ISO 527-2 (Test Method D 5937)	A or B
Tensile creep test	ISO 899	A or B
Flexural test	ISO 178 (Test Method D 5943)	80 × 10 × 4
Flexural creep test	ISO 6602	80 × 10 × 4
Compressive test	ISO 604	(10 to 40) × 10 × 4
Impact strength—Charpy	ISO 179 (Test Method D 5942)	80 × 10 × 4
Impact strength—Izod	ISO 180 (Test Method D 5941)	80 × 10 × 4
Impact strength—tensile	ISO 8256	80 × 10 × 4
Temperature of deflection under load	ISO 75 (Guide D 5944 and Test Method D 5945)	(110 or 80) × 10 × 4
Vicat softening temperature	ISO 306	10 × 10 × 4
Hardness, ball indentation	ISO 2039-1	(>20) × 20 × 4
Environmental stress cracking	ISO 4599	A or B or 80 × 10 × 4
Density	ISO 4600	30 × 10 × 4
Oxygen index	ISO 1183, Method A	80 × 10 × 4
Comparative tracking index (CTI)	ISO 4589	80 × 10 × 4
Electrolytic corrosion	IEC 112	>15 × 15 × 4
Linear expansion	IEC 426	30 × 10 × 4
		>30 × 10 × 4

<sup>A</sup>See Section 2.

- D 5940 Practice for Preparing Small Plate Test Specimens of Thermoplastics by Injection Moulding<sup>2</sup>
- D 5941 Test Method for Determining the Izod Impact Strength of Plastics<sup>2</sup>
- D 5942 Test Method for Determining Charpy Impact Strength of Plastics<sup>2</sup>
- D 5943 Test Method for Determining Flexural Properties of Plastics<sup>2</sup>
- D 5944 Guide for Describing the General Principles for Determining the Temperature of Deflection of Plastics Under Load<sup>2</sup>
- D 5945 Test Method for Determining Temperature of Deflection of Plastics and Ebonite Under Load<sup>2</sup>
- 2.2 *ISO Standards:*<sup>3</sup>
- ISO 75:1987 Plastics and Ebonite—Determination of Temperature of Deflection Under Load

<sup>3</sup> Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.