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Plastics — Determination of Izod impact strength

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Foreword

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 2, *Mechanical properties*.

This fourth edition cancels and replaces the third edition (ISO 180:2000), of which it constitutes a minor revision. It also incorporates the Amendments ISO 180:2000/Amd.1:2006 and ISO 180:2000/Amd.2:2013.

The changes compared to the previous edition are as follows:

— Clause 2 has been updated;

— the following clauses have been revised:

  — Clause 5;

  — Clause 6;

  — Clause 7;

  — Clause 8;

  — Clause 9;

— a bibliography has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Plastics — Determination of Izod impact strength

1 Scope

1.1 This document specifies a method for determining the Izod impact strength of plastics under defined conditions. A number of different types of specimen and test configurations are defined. Different test parameters are specified according to the type of material, the type of test specimen and the type of notch.

1.2 The method is used to investigate the behaviour of specified types of specimen under the impact conditions defined and for estimating the brittleness or toughness of specimens within the limitations inherent in the test conditions.

1.3 The method is suitable for use with the following range of materials:

— rigid thermoplastic moulding and extrusion materials, including filled and reinforced compounds in addition to unfilled types; rigid thermoplastics sheets;

— rigid thermosetting moulding materials, including filled and reinforced compounds; rigid thermosetting sheets, including laminates;

— fibre-reinforced thermosetting and thermoplastic composites incorporating unidirectional or non-unidirectional reinforcements such as mat, woven fabrics, woven rovings, chopped strands, combination and hybrid reinforcements, rovings and milled fibres and sheet made from pre-impregnated materials (prepregs);

— thermotropic liquid-crystal polymers.

1.4 The method is not normally suitable for use with rigid cellular materials and sandwich structures containing cellular material. Notched specimens are also not normally used for long-fibre-reinforced composites or thermotropic liquid-crystal polymers.

1.5 The method is suited to the use of specimens which can be either moulded to the chosen dimensions, machined from the central portion of a standard multipurpose test specimen (see ISO 20753) or machined from finished or semi-finished products such as mouldings, laminates and extruded or cast sheet.

1.6 The method specifies preferred dimensions for the test specimen. Tests which are carried out on specimens of different dimensions or with different notches, or specimens which are prepared under different conditions, may produce results which are not comparable. Other factors, such as the energy capacity of the apparatus, its impact velocity and the conditioning of the specimens can also influence the results. Consequently, when comparative data are required, these factors are to be carefully controlled and recorded.

1.7 The method is not intended to be used as a source of data for design calculations. Information on the typical behaviour of a material can be obtained, however, by testing at different temperatures, by varying the notch radius and/or the thickness and by testing specimens prepared under different conditions.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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