

SLOVENSKI STANDARD SIST EN ISO 180:2000

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Plastics - Determination of Izod impact strength (ISO 180:1993, including Technical Corrigendum 1:1995)

Kunststoffe - Bestimmung der Izod-Schlagzähigkeit (ISO 180:1993, einschliesslich Technische Korrektur 1:1995) STANDARD PREVIEW

Plastiques - Détermination de la résistance au choc Izod (ISO 180:1993, Rectificatif Technique 1:1995 inclus)

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Ta slovenski standard je istoveten z: EN ISO 180:1996

ICS:

83.080.01 Polimerni materiali na splošno

Plastics in general

SIST EN ISO 180:2000

en



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SIST EN ISO 180:2000

EUROPEAN STANDARD

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ICS 83.080

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English version

Plastics - Determination of Izod impact strength (ISO 180:1993, including Technical Corrigendum 1:1995)

Plastiques - Détermination de la résistance au choc Izod (ISO 180:1993, Rectificatif Technique DARD PREIzod-Schlagzähigkeit (ISO 180:1993, 1:1995) inclus)

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R E PU BLATKASIS-SISVDBaba2d-8c91 MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO Urad RS za standardizacijo in meroslovje

LJUBLJANA

SIST. EN 150 180 PREVZET PO METODI RAZGLASITVE -DE

-115- 2000

This European Standard was approved by CEN on 1994-12-14. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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CEN

European Committee for Standardization Comité Européen de Normalisation Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Ref. No. EN ISO 180:1996 E

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Foreword

The text of the International Standard from Technical Committee ISO/TC 61 "Plastics" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 1997, and conflicting national standards shall be withdrawn at the latest by June 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

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The text of the International Standard ISO 180:1993 has been approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

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Year

Annex ZA (normative) Normative references to international publications with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

Publication Year Title

EN

ISO 3167 1993 Plastics - Multipurpose test specimens EN ISO 3167 1996

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INTERNATIONAL STANDARD

ISO 180

Second edition 1993-05-15

Plastics — Determination of Izod impact strength

iTeh Splastiques Détermination de la résistance au choc Izod (standards.iteh.ai)

SIST EN ISO 180:2000 https://standards.iteh.ai/catalog/standards/sist/bf3aba2d-8c9f-4790-a20c-24f1269a71c9/sist-en-iso-180-2000



Reference number ISO 180:1993(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting VIEW a vote.

International Standard ISO 180 was prepared by Technical Committee ISO/TC 61, *Plastics*, Sub-Committee SC 2, *Mechanical properties*.

SIST EN ISO 180:2000 This second edition cancels and replaces the first edition (ISO/s180:3982). 8c9f-4790-a20cwhich has been revised in the following ways f1269a71c9/sist-en-iso-180-2000

- The recommended specimen types for testing moulding materials are reduced to one only, which can be taken from the central part of the multipurpose test specimen complying with ISO 3167 by simple machining.
- Instead of testing in a "reversed-notch" configuration, the use of unnotched specimens is recommended.
- The designations of sizes are harmonized to those of a great number of other International Standards for testing plastics, in accordance with ISO 31.
- The method designations are changed and fitted to the modifications described above.

Annex A forms an integral part of this International Standard.

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International Organization for Standardization

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Plastics — Determination of Izod impact strength

1 Scope

iTeh STANDARD PREVIEW

1.1 This International Standard specifies a method is not normally suitable for use with rigid for determining the lzod impact strength of plastics under defined conditions. A number of different types of specimen and test configurations are defined. Dif-thermotropic liquid-crystal polymers. ferent test parameters are specified according to the ards/sist/blaba2d-8c91-4790-a20c-type of material, the type of test specimen and the test parameters.
1.1 This International Standard specifies a method is not normally suitable for use with rigid cellular materials and sandwich structures containing cellular material. Also, notched specimens are not normally used for long-fibre-reinforced composites or normally used for long-fibre-reinforced composites or the specified according to the ards/sist/blaba2d-8c91-4790-a20c-type of material, the type of test specimen and the terminant the terminant the type of test specimen and the terminant test configurations.
1.4 The method is adapted to the use of specimens.

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 thermoplastics moulding and extrusion materials, including filled and reinforced compounds in addition to unfilled types; rigid thermoplastics sheet;
- rigid thermosetting moulding materials, including filled and reinforced compounds; rigid thermosetting sheet, including laminates;
- fibre-reinforced thermoset and thermoplastics composites incorporating unidirectional or nonunidirectional reinforcements such as mat, woven fabrics, woven rovings, chopped strands, combination and hybrid reinforcements, rovings and milled fibres; sheet made from pre-impregnated materials (prepregs);

1.4 The method is adapted to the use of specimens which may be either moulded to the chosen dimensions, machined from the central portion of a standard multipurpose test specimen (see ISO 3167) or machined from finished and semifinished products such as mouldings, laminates and extruded or cast sheet.

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

1.6 The method should not be used as a source of data for design calculations of components. 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 standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 291:1977, *Plastics — Standard atmospheres for conditioning and testing.*

ISO 293:1986, *Plastics* — *Compression moulding test specimens of thermoplastic materials.*

ISO 294:—¹⁾, Plastics — Injection moulding of test specimens of thermoplastic materials.

ISO 295:1991, Plastics — Compression moulding of test specimens of thermosetting materials

ISO 1268:1974, Plastics — Preparation of glass fibre ard kJm²h.ai) reinforced, resin bonded, low-pressure laminated plates or panels for test purposes.

ISO 2557-1:1989, *Plastics* — Amorphous thermoplas standard sheet materials. The blow direction in the Izod test tics — Preparation of test specimens with a specified ^{c9/sist} is "edgewise" (e) (see figure 1, "edgewise parallel"). maximum reversion — Part 1: Bars.

ISO 2557-2:1986, Plastics — Amorphous thermoplastics — Preparation of test specimens with a specified reversion — Part 2: Plates.

ISO 2602:1980, Statistical interpretation of test results — Estimation of the mean — Confidence interval.

ISO 2818:—²⁾, *Plastics* — *Preparation of test specimens by machining*.

ISO 3167:—³⁾, *Plastics* — *Multipurpose test specimens*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 Izod impact strength of unnotched specimens, $a_{i\cup}$: Impact energy absorbed in breaking an unnotched specimen, referred to the original cross-sectional area of the specimen.

It is expressed in kilojoules per square metre (kJ/m²).

3.2 Izod impact strength of notched specimens, a_{iN} : Impact energy absorbed in breaking a notched specimen, referred to the original cross-sectional area of the specimen at the notch, the pendulum striking the face containing the notch.

It is expressed in kilojoules per square metre (kJ/m²).

3.3 Izod impact strength of reversed-notch specimens, a_{iR} : Impact energy absorbed in breaking a reversed-notch specimen, referred to the original cross-sectional area of the specimen at the notch, the pendulum striking the face opposite the notch.

It is expressed in kilojoules per square metre

3.5 normal impact (n) (for laminar reinforced plastics): Direction of blow normal to the laminate plane of sheet materials (see figure 1, "edgewise normal").

3.4 parallel impact (p) (for laminar reinforced plas-

NOTE 1 This kind of impact is not used with the lzod test, but is indicated only for clarifying the designation system.

4 Principle

The test specimen, supported as a vertical cantilever beam, is broken by a single swing of a pendulum, with the line of impact at a fixed distance from the specimen clamp and, in the case of notched specimens, from the centreline of the notch (see figure 2).

¹⁾ To be published. (Revision of ISO 294:1975)

²⁾ To be published. (Revision of ISO 2818:1980)

³⁾ To be published. (Revision of ISO 3167:1983)

ISO 180:1993(E)



Direction of blow with respect to specimen thickness h and specimen width b: edgewise (e) and flatwise (f); with respect to the laminate plane: parallel (p) and normal (n).

The usual lzod test is edgewise parallel. When h = b, then parallel as well as normal can be tested.

Figure 1 — Scheme of designations describing the direction of blow