SLOVENSKI STANDARD
SIST EN ISO 2897-2:2000

01-maj-2000

Polimerni materiali - Materiali za oblikovanje in ekstrudiranje iz polistirena, odpornega proti udarcem (PS-I) - 2. del: Priprava preskuġancev in doloļ anje lastnosti (ISO 2897-2:1994, vkljuļ no s tehniļ nim popravkom 1:1995)

Plastics - Impact-resistant polystyrene (PS-I) moulding and extrusion materials - Part 2: Preparation of test specimens and determination of properties (ISO 2897-2:1994, including Technical Corrigendum 1:1995)

Kunststoffe - Schlagzähe Polystyrol (PS-I)-Formmassen - Teil 2: Herstellung von Probekörpern und Bestimmung von Eigenschaften (ISO 2897-2:1994, einschließlich Technische Korrektur 1:1995)

Plastiques - Polystyrènes résistants au choc (PS-I) pour moulage et extrusion - Partie 2: Préparation des éprouvettes et détermination des propriétés (ISO 2897-2:1994), Rectificatif Technique 1:1995 inclus)

Ta slovenski standard je istoveten z: **EN ISO 2897-2:1999**

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83.080.20	Plastomeri	Thermoplastic materials

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EUROPEAN STANDARD

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English version

Plastics - Impact-resistant polystyrene (PS-I) moulding and extrusion materials - Part 2: Preparation of test specimens and determination of properties (ISO 2897-2:1994, including Technical Corrigendum 1:1995)

Plastiques - Polystyrènes résistants au choc (PS-I) pour moulage et extrusion - Partie 2: Préparation des éprouvettes et détermination des propriétés (ISO 2897-2:1994, Rectificatif Technique 1:1995 inclus)

Kunststoffe - Schlagzähe Polystyrol (PS-I)-Formmassen - Teil 2: Herstellung von Probekörpern und Bestimmung von Eigenschaften (ISO 2897-2:1994, einschließlich Technische Korrektur 1:1995)

This European Standard was approved by CEN on 16 April 1999.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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 November 1999, and conflicting national standards shall be withdrawn at the latest by November 1999.

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

Endorsement notice

The text of the International Standard ISO 2897-2:1994, including Technical Corrigendum 1:1995 has been approved by CEN as a European Standard without any modification.

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

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	Year
ISO 75-1	1993	Plastics - Determination of temperature of deflection under load - Part 1: General test method	EN ISO 75-1	1996
ISO 75-2	1993	Plastics - Determination of temperature of deflection under load - Part 2: Plastics and ebonite	EN ISO 75-2	1996
ISO 178	1993	Plastics - Determination of flexural properties	EN ISO 178	1996
ISO 179	1993	Plastics - Determination of Charpy impact strength	EN ISO 179	1996
ISO 180	1993	Plastics - Determination of Izod impact strength	EN ISO 180	1996
ISO 291	1997	Plastics - Standard atmospheres for conditioning and testing	EN ISO 291	1997
ISO 306	1994	Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST)	EN ISO 306	1996
ISO 527-1	1993	Plastics - Determination of tensile properties - Part 1: General principles	EN ISO 527-1	1996
ISO 527-2	1993	Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics	EN ISO 527-2	1996
ISO 899-1	1993	Plastics - Determination of creep behaviour - Part 1: Tensile creep	EN ISO 899-1	1996
ISO 2818	1994	Plastics - Preparation of test specimens by machining	EN ISO 2818	1996
ISO 3167	1993	Plastics - Multipurpose-test specimens	EN ISO 3167	1996
ISO 4589-3	1996	Plastics - Determination of burning behaviour by oxygen index - Part 3: Elevated-temperature test	EN ISO 4589-3	1996
ISO 8256	1990	Plastics - Determination of tensile-impact strength	EN ISO 8256	1996
ISO 10350	1993	Plastics - Acquisition and presentation of comparable single-point data	EN ISO 10350	1995

Publication	Year	Title	EN	Year
ISO 62	1999	Plastics - Determination of water absorption	EN ISO 62	1999
ISO 1133	1997	Plastics - Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics	EN ISO 1133	1999
ISO 2897-1	1997	Plastics - Impact-resistant polystyrene (PS-I) moulding and extrusion materials - Part 1: Designation system and basis for specifications	EN ISO 2897-1	1999

INTERNATIONAL STANDARD

ISO 2897-2

Second edition
1994-11-01

Plastics — Impact-resistant polystyrene (PS-I) moulding and extrusion materials —

Part 2:
Preparation of test specimens and determination of properties

Plastiques — Polystyrènes résistants au choc (PS-I) pour moulage et extrusion —

Partie 2: Préparation des éprouvettes et détermination des propriétés

Reference number
ISO 2897-2:1994(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 a vote.

International Standard ISO 2897-2 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*.

This second edition cancels and replaces the first edition (ISO 2897-2:1981), and includes the following changes:

The text has been brought into accordance with the frame text developed by SC 9. The table of test methods has been revised in accordance with ISO 10350.

ISO 2897 consists of the following parts, under the general title *Plastics — Impact-resistant polystyrene (PS-I) moulding and extrusion materials*:

— *Part 1: Designation*

— *Part 2: Preparation of test specimens and determination of properties*

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

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Plastics — Impact-resistant polystyrene (PS-I) moulding and extrusion materials —

Part 2:
Preparation of test specimens and determination of properties

1 Scope

This part of ISO 2897 specifies the methods of preparation of test specimens and the test methods to be used in determining the properties of PS-I moulding and extrusion materials. Requirements for handling test material and for conditioning both the test material before moulding and the specimens before testing are given here.

Procedures and conditions for the preparation of test specimens and procedures for measuring properties of the materials from which these specimens are made are given. Properties and test methods which are suitable and necessary to characterize PS-I moulding and extrusion materials are listed.

The properties have been selected from the general test methods in ISO 10350. Other test methods in wide use for or of particular significance to these moulding and extrusion materials are also included in this part of ISO 2897, as are the designatory properties specified in part 1: Vicat softening temperature, melt flow rate, impact strength and flexural modulus.

In order to obtain reproducible and comparable test results, it is necessary to use the methods of specimen preparation and conditioning, the specimen dimensions and the test procedures specified herein. Values determined will not necessarily be identical to those obtained using specimens of different dimensions or prepared using different procedures.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 2897. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 2897 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 62:1980, *Plastics — Determination of water absorption.*

ISO 75-1:1993, *Plastics — Determination of temperature of deflection under load — Part 1: General test method.*

ISO 75-2:1993, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite.*

ISO 178:1993, *Plastics — Determination of flexural properties.*

ISO 179:1993, *Plastics — Determination of Charpy impact strength.*

ISO 180:1993, *Plastics — Determination of Izod impact strength.*

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 306:1994, *Plastics — Thermoplastic materials — Determination of Vicat softening temperature (VST).*

ISO 527-1:1993, *Plastics — Determination of tensile properties — Part 1: General principles.*

ISO 527-2:1993, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics.*

ISO 899-1:1993, *Plastics — Determination of creep behaviour — Part 1: Tensile creep.*

ISO 1133:1991, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics.*

ISO 1183:1987, *Plastics — Methods for determining the density and relative density of non-cellular plastics.*

ISO 1210:1992, *Plastics — Determination of the burning behaviour of horizontal and vertical specimens in contact with a small-flame ignition source.*

ISO 2561:1974, *Plastics — Determination of residual styrene monomer in polystyrene by gas chromatography.*

ISO 2818:1994, *Plastics — Preparation of test specimens by machining.*

ISO 2897-1:1990, *Plastics — Impact-resistant polystyrene (SB) moulding and extrusion materials — Part 1: Designation.*

ISO 3167:1993, *Plastics — Multipurpose test specimens.*

ISO 4589-2:—[2], *Plastics — Determination of flammability — Part 2: Determination of oxygen index (OI) at ambient temperature.*

ISO 4589-3:—[2], *Plastics — Determination of burning behaviour by oxygen index — Part 3: Elevated-temperature test.*

ISO 8256:1990, *Plastics — Determination of tensile-impact strength.*

ISO 10350:1993, *Plastics — Acquisition and presentation of comparable single-point data.*

IEC 93:1980, *Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials.*

IEC 112:1979, *Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions.*

IEC 243-1:1988, *Methods of test for electric strength of solid insulating materials - Part 1: Tests at power frequencies.*

IEC 250:1969, *Recommended methods for the determination of the permittivity and dielectric dissipation factor of electrical insulating materials at power, audio and radio frequencies including metre wavelengths.*

IEC 296:1982, *Specification for unused mineral insulating oils for transformers and switchgear.*

IEC 1006:1991, *Methods of test for the determination of the glass transition temperature of electrical insulating materials.*

3 Preparation of test specimens

It is essential that specimens are always prepared by the same procedure (either injection moulding or compression moulding), using the same processing conditions.

The procedure to be used for each test method is indicated in tables 3 and 4 (M = injection moulding, Q = compression moulding).

The material shall be kept in moisture-proof containers until it is required for use.

Moisture content of filled or reinforced materials shall be expressed as a percentage of the total mass of the compound.

3.1 Treatment of the material before moulding

Before processing, no pretreatment of the material sample is normally necessary.

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

2) To be published.

3.2 Injection moulding

Injection-moulded specimens shall be prepared in accordance with ISO 294, using the conditions specified in table 1.

Table 1 — Conditions for injection moulding of test specimens

Material	Melt temperature °C	Mould temperature °C	Average injection velocity mm/s
All grades	220	45	200 ± 100
NOTE — Flame-retardant grades may show discoloration if moulded at a melt temperature ⩾ 220 °C. In such cases, a melt temperature of 210 °C may be used.			

3.3 Compression moulding

Compression-moulded sheets shall be prepared in accordance with ISO 293, using the conditions specified in table 2.

The test specimens required for the determination of the properties shall be machined from the compression-moulded sheets in accordance with ISO 2818 or stamped.

4 Conditioning of test specimens

Test specimens shall be conditioned in accordance with ISO 291 for at least 16 h at 23 °C ± 2 °C and (50 ± 5) % relative humidity.

5 Determination of properties

In the determination of properties and the presentation of data, the standards, supplementary instructions and notes given in ISO 10350 shall be applied. All tests shall be carried out in the standard atmosphere of 23 °C ± 2 °C and (50 ± 5) % relative humidity unless specifically stated otherwise in tables 3 and 4.

Table 3 is compiled from ISO 10350, and the properties listed are those which are appropriate to impact-resistant polystyrene moulding and extrusion materials. These properties are those considered useful for comparisons of data generated for different thermoplastics.

Table 4 contains those properties, not found specifically in table 3, which are in wide use or of particular significance in the practical characterization of impact-resistant polystyrene moulding and extrusion materials.

NOTE 1 Izod impact strength is a designatory property in part 1 of this International Standard. However, after 1998 only Charpy impact strength will be used for designation, and consequently Izod impact strength will be cancelled.

Table 2 — Conditions for compression moulding of test specimens

Material	Moulding temperature °C	Cooling rate °C/min	Demoulding temperature °C	Full pressure MPa	Full pressure time min	Preheating time min
All grades	200	10	⩽ 60	4 ± 0,5	5 ± 1	5 ± 1