SLOVENSKI STANDARD
SIST EN ISO 1872-2:2000

01-maj-2000

Polimerni materiali - Polietilenski materiali za oblikovanje in ekstrudiranje - 2. del: Priprava preskuġancev in doloļ anje lastnosti (ISO 1872-2:1997)

Plastics - Polyethylene (PE) moulding and extrusion materials - Part 2: Preparation of test specimens and determination of properties (ISO 1872-2:1997)

Kunststoffe - Polyethylen (PE)-Formmassen - Teil 2: Herstellung von Probekörpern und Bestimmung von Eigenschaften (ISO 1872-2:1997)

Plastiques - Polyéthylene (PE) pour moulage et extrusion - Partie 2: Préparation des éprouvettes et détermination des propriétés (ISO 1872-2:1997)

Ta slovenski standard je istoveten z: **EN ISO 1872-2:1997**

ICS:

83.080.20	Plastomeri	Thermoplastic materials

SIST EN ISO 1872-2:2000 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 1872-2

April 1997

ICS 83.080.20

Descriptors: see ISO document

English version

Plastics - Polyethylene (PE) moulding and extrusion materials - Part 2: Preparation of test specimens and determination of properties (ISO 1872-2:1997)

Plastiques - Polyéthylène (PE) pour moulage et extrusion - Partie 2: Préparation des éprouvettes et détermination des propriétés (ISO 1872-2:1997)

Kunststoffe - Polyethylen (PE)-Formmassen - Teil 2: Herstellung von Probekörpern und Bestimmung von Eigenschaften (ISO 1872-2:1997)

This European Standard was approved by CEN on 1997-03-28. 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.

The European Standards exist 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

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 ISO 1872-2:1997 has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with 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 October 1997, and conflicting national standards shall be withdrawn at the latest by October 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

The text of the International Standard ISO 1872-2:1997 was approved by CEN as a European Standard without any modification.

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

INTERNATIONAL STANDARD

ISO 1872-2

Second edition
1997-04-01

Plastics — Polyethylene (PE) moulding and extrusion materials —

Part 2:
Preparation of test specimens and determination of properties

Plastiques — Polyéthylène (PE) pour moulage et extrusion —

Partie 2: Préparation des éprouvettes et détermination des propriétés

Reference number
ISO 1872-2:1997(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 1872-2 was prepared by Technical Committee ISO/TC 61, *Plastics,* Subcommittee SC 9, *Thermoplastic materials.*

This second edition cancels and replaces the first edition (ISO 1872-2:1989) and includes the following changes:

— the text has been brought into accordance with the standard SC 9 frame text;

— the list of properties and test conditions has been revised in accordance with ISO 10350.

ISO 1872 consists of the following parts, under the general title *Plastics — Polyethylene (PE) moulding and extrusion materials*:

— *Part 1: Designation system and basis for specifications*

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

Descriptors: plastics, thermoplastic resins, moulding materials, extruding materials, polyethylene, tests, determination, properties, test specimens, specimen preparation.

Plastics — Polyethylene (PE) moulding and extrusion materials —

Part 2:
Preparation of test specimens and determination of properties

1 Scope

This part of ISO 1872 specifies the methods of preparation of test specimens and the test methods to be used in determining the properties of PE 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 PE 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 1872, as are the designatory properties specified in part 1.

In order to obtain reproducible and comparable test results, it is necessary to use the methods of 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 1872. 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 1872 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 291: —[1], *Plastics — Standard atmospheres for conditioning and testing.*

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1) To be published. (Revision of ISO 291:1977)

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

ISO 294-1:1996, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 1: General principles, and moulding of multipurpose and bar specimens.*

ISO 294-3:1996, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 3: Plates.*

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 1133:1997, *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: —[2)], *Plastics — Determination of the burning behaviour of horizontal and vertical specimens in contact with a small-flame ignition source.*

ISO 1628-3:1991, *Plastics — Determination of viscosity number and limiting viscosity number — Part 3: Polyethylenes and polypropylenes.*

ISO 1872-1:1993, *Plastics — Polyethylene (PE) moulding and extrusion materials — Part 1: Designation system and basis for specifications.*

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

ISO 3146:1985, *Plastics — Determination of melting behaviour (melting temperature or melting range) of semi-crystalline polymers.*

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

ISO 4589-2:1996, *Plastics — Determination of burning behaviour by oxygen index — Part 2: Ambient-temperature test.*

ISO 6603-2:1989, *Plastics — Determination of multiaxial impact behaviour of rigid plastics — Part 2: Instrumented puncture 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.*

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2) To be published. (Revision of ISO 1210:1992)

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

ASTM D 1693:1995, *Test method for environmental stress-cracking of ethylene plastics.*

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).

3.1 Treatment of the material before moulding

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

3.2 Injection moulding

Injection moulding of test specimens is used for PE moulding materials having a melt mass-flow rate of ≥ 1 g/10 min determined in accordance with ISO 1133 using set of conditions D (190 °C/2,16 kg).

Injection-moulded specimens shall be prepared in accordance with ISO 294-1 or ISO 294-3, 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	Cooling time s	Total cycle time s
MFR ≥ 1 g/10 min	210	40	100 ± 20	35 ± 5	40 ± 5

3.3 Compression moulding

Compression moulding is used for materials with a melt mass-flow rate of < 1 g/10 min determined in accordance with ISO 1133 using set of conditions D (190 °C/2,16 kg). In the case of thin sheet (< 2 mm), and, where individually prescribed in tables 3 and 4, compression moulding shall be used for all melt flow rates.

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.

Table 2 — Conditions for compression moulding of test specimens

Material	Moulding temperature °C	Average cooling rate °C/min	Demoulding temperature °C	Full pressure MPa	Full-pressure time min	Preheating pressure MPa	Preheating time min
All grades	180	15	≤ 40	5/10[1)]	5 ± 1	Contact	5 to 15

1) Use 5 MPa for frame mould and 10 MPa for positive mould.