Plastid. Etüleen/vinüülatsetaat (E/VAC) vormimis- ja ekstrusioonimaterjalid. Osa 2: Proovikehade ettevalmistamine ja omaduste määramine

Plastics - Ethylene/vinyl acetate (E/VAC) moulding and extrusion materials - Part 2: Preparation of test specimens and determination of properties

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 4613-2:2000 sisaldab Euroopa standardi EN ISO 4613-2:1995 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 4613-2:2000 consists of the English text of the European standard EN ISO 4613-2:1995.
Standard on kinnitatud Eesti Standardikeskuse 11.01.2000 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 11.01.2000 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

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Plastics - Ethylene/vinyl acetate (E/VAC) moulding and extrusion materials - Part 2: Preparation of test specimens and determination of properties (ISO 4613-2:1995)

Plastiques - Matériaux à base d'éthylène/acétate de vinyle (E/VAC) pour moulage et extrusion - Partie 2: Préparation des éprouvettes et détermination des propriétés (ISO 4613-2:1995)

Kunststoffe - Ethylen-Vinylacetat (E/VAC) Formmassen - Teil 2: Herstellung von Probekörpern und Bestimmung von Eigenschaften (ISO 4613-2:1995)

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

Foreword

The text of the International Standard ISO 4613-2:1995 has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with CEN/TC 249 "Plastics".

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of an identical text or by endorsement, at the latest by February 1996, and conflicting national standards shall be withdrawn at the latest by February 1996.

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Endorsement notice

The text of the International Standard ISO 4613-2:1995 has been approved by CEN as a European Standard without any modification.

INTERNATIONAL STANDARD

ISO 4613-2

Second edition
1995-08-15

Plastics — Ethylene/vinyl acetate (E/VAC) moulding and extrusion materials — Part 2: Preparation of test specimens and determination of properties

Plastiques — Éthylène/acétate de vinyle (E/VAC) pour moulage et extrusion —

Partie 2: Préparation des éprouvettes et détermination des propriétés

Reference number
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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 4613-2 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*.

This second edition cancels and replaces the first edition (ISO 4613-2:1989) 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 4613 consists of the following parts, under the general title *Plastics — Ethylene/vinyl acetate (E/VAC) moulding and extrusion materials*:

— *Part 1: Designation and specification*

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

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Plastics — Ethylene/vinyl acetate (E/VAC) moulding and extrusion materials —

Part 2:
Preparation of test specimens and determination of properties

1 Scope

This part of ISO 4613 specifies the methods of preparation of test specimens and the test methods to be used in determining the properties of E/VAC 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 E/VAC 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 4613, 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 4613. 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 4613 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 291:1977, *Plastics — Standard atmospheres for conditioning and testing.*

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

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 527-4:—[1], *Plastics — Determination of tensile properties — Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites.*

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

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:—[1], *Plastics — Determination of burning behaviour by oxygen index — Part 2: Ambient-temperature test.*

ISO 4613-1:1993, *Plastics — Ethylene/vinyl acetate (E/VAC) moulding and extrusion materials — Part 1: Designation and specification.*

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

ISO 8985:1989, *Plastics — Ethylene/vinyl acetate copolymer (E/VAC) thermoplastics — Determination of vinyl acetate content.*

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.*

3 Preparation of test specimens

Test specimens shall be prepared by compression moulding.

It is essential that the specimens are always prepared by the same procedure using the same processing conditions.

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.

3.2 Compression moulding

Compression-moulded sheets shall be prepared in accordance with ISO 293, using the conditions specified in table 1.

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.

1) To be published.

A type 1 (frame) mould may be used, but it is necessary to start cooling whilst simultaneously applying the full pressure. This avoids the melt being pressed out of the frame and avoids sink marks. For thicker sheet (~ 4 mm), a type 2 (positive) mould has been found to work satisfactorily. The preheating time depends on the type of mould and the energy input (steam, electricity). For frame moulds, 5 min is usually sufficient, but for positive moulds, due to the bigger mass, a preheating time of 5 min to 15 min can be necessary, especially if electric heating is used.

4 Conditioning of test specimens

Test specimens shall be conditioned in accordance with ISO 291 for at least 40 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 2 and 3.

Table 2 is compiled from ISO 10350, and the properties listed are those which are appropriate to E/VAC moulding and extrusion materials. These properties are those considered useful for comparisons of data generated for different thermoplastics.

Table 3 contains those properties, not found specifically in table 2, which are in wide use or of particular significance in the practical characterization of E/VAC moulding and extrusion materials.

Table 1 — 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
⩽ 10 % vinyl acetate	155	15	⩽ 40	20	5 ± 1	Contact	5 to 15
> 10 % vinyl acetate	125	15	⩽ 40	10	5 ± 1	Contact	5 to 15