
**Plastics — Ultra-high-molecular-weight
polyethylene (PE-UHMW) moulding
and extrusion materials —**

Part 2:

**Preparation of test specimens
and determination of properties**

*Plastics — Matériaux à base de polyéthylène à très haute masse
moléculaire (PE-UHMW) pour moulage et extrusion —*

Partie 2: Préparation des éprouvettes et détermination des propriétés



Foreword

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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 11542-2 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*.

ISO 11542 consists of the following parts, under the general title *Plastics — Ultra-high-molecular-weight polyethylene (PE-UHMW) moulding and extrusion materials*:

- *Part 1: Designation system and basis for specifications*
- *Part 2: Preparation of test specimens and determination of properties*

Annexes A and B form an integral part of this part of ISO 11542.

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Plastics — Ultra-high-molecular-weight polyethylene (PE-UHMW) moulding and extrusion materials —

Part 2:

Preparation of test specimens and determination of properties

1 Scope

This part of ISO 11542 specifies the methods of preparation of test specimens and the test methods to be used in determining the properties of PE-UHMW 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-UHMW moulding and extrusion materials are listed.

The properties have been selected from the general test methods in ISO 10350-1. 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 11542, 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 11542. 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 11542 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:—¹⁾, *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.*

¹⁾ To be published. (Revision of ISO 62:1980)

ISO 179-1:—²⁾, *Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test.*

ISO 291:1997, *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 527-4:1997, *Plastics — Determination of tensile properties — Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastics composites.*

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

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

ISO 1210/IEC 60695-11-10:—³⁾, *Determination of the burning behaviour of horizontal and vertical specimens in contact with a small-flame (50 W) 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:—⁴⁾, *Plastics — Determination of melting behaviour (melting temperature or melting range) of semi-crystalline polymers by capillary tube and polarizing-microscope methods.*

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

ISO 4589-1:1996, *Plastics — Determination of burning behaviour by oxygen index — Part 1: Guidance.*

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

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

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

ISO 11542-1:1994, *Plastics — Ultra-high-molecular-weight polyethylene (UHMW) moulding and extrusion materials — Part 1: Designation system and basis for specifications.*

IEC 60093:1980, *Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials.*

IEC 60112:1979, *Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions.*

IEC 60243-1:1998, *Electrical strength of insulating materials — Test methods — Part 1: Tests at power frequencies.*

IEC 60250:1969, *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 60296:1982, *Specification for unused mineral insulating oils for transformers and switchgear.*

²⁾ To be published. (Revision of ISO 179:1993)

³⁾ To be published. (Revision of ISO 1210:1992)

⁴⁾ To be published. (Revision of ISO 3146:1985)