SLOVENSKI STANDARD
SIST EN ISO 75-3:2000

01-maj-2000

Polimerni materiali - Določanje temperature upogiba pod obremenitvijo - 3. del: Duromerni laminati z visoko trdnostjo in polimerni materiali, ojačeni z dolgimi vlakni (ISO 75-3:1993)

Plastics - Determination of temperature of deflection under load - Part 3: High-strength thermosetting laminates and long-fibre-reinforced plastics (ISO 75-3:1993)

Kunststoffe - Bestimmung der Wärmeformbeständigkeitstemperatur - Teil 3: Hochfeste duroplastische laminate und langfaserverstärkte Kunststoffe (ISO 75-3:1993)

Plastiques - Détermination de la température de fléchissement sous charge - Partie 3: Stratifiés thermodurcissables a haute résistance et plastiques renforcés de fibres longues (ISO 75-3:1993)

Ta slovenski standard je istoveten z: **EN ISO 75-3:1996**

ICS:

83.080.10	Duromeri	Thermosetting materials
83.120	Ojačani polimeri	Reinforced plastics

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English version

Plastics - Determination of temperature of deflection under load - Part 3: High-strength thermosetting laminates and long-fibre-reinforced plastics (ISO 75-3:1993)

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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.

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.

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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

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 a 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 August 1996, and conflicting national standards shall be withdrawn at the latest by August 1996.

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 75-3:1993 has been approved by CEN as a European Standard without any modification.

INTERNATIONAL STANDARD

ISO 75-3

First edition
1993-09-15

Plastics — Determination of temperature of deflection under load —

Part 3:

High-strength thermosetting laminates and long-fibre-reinforced plastics

Plastiques — Détermination de la température de fléchissement sous charge —

Partie 3: Stratifiés thermodurcissables à haute résistance et plastiques renforcés de fibres longues

Reference number
ISO 75-3:1993(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 a vote.

International Standard ISO 75-3 was prepared by Technical Committee ISO/TC 61, *Plastics*, Sub-Committee SC 2, *Mechanical properties*.

Together with the other parts, it cancels and replaces the second edition of ISO 75 (ISO 75:1987), which has been technically revised.

ISO 75 consists of the following parts, under the general title *Plastics — Determination of temperature of deflection under load*:

— *Part 1: General test method*

— *Part 2: Plastics and ebonite*

— *Part 3: High-strength thermosetting laminates and long-fibre-reinforced plastics*

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Plastics — Determination of temperature of deflection under load —

Part 3:
High-strength thermosetting laminates and long-fibre-reinforced plastics

1 Scope

1.1 This part of ISO 75 specifies a method for the determination of the temperature of deflection under load (bending stress) of high-strength thermosetting laminates and compression-moulded long-fibre-reinforced plastics. The test load used is not a fixed load, as in part 2 of this International Standard, but a function (1/10) of the ultimate or specified load. This allows the method to be applied to materials with a wide range of strengths and bending moduli.

1.2 The test specimen is tested in a flatwise position.

1.3 See ISO 75:1993, subclause 1.3.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 75. 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 75 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 75-1:1993, *Plastics — Determination of temperature of deflection under load — Part 1: General test method.*

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

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

ISO 2818:—[1], *Plastics — Preparation of test specimens by machining.*

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

3 Definitions

See ISO 75-1:1993, clause 3.

4 Principle

A standard test specimen made of thermosetting laminate or long-fibre-reinforced plastic is subjected to a bending stress equal to 1/10 of a specified or measured flexural strength. The temperature is raised at a uniform rate, and the temperature at which a specified deflection occurs is measured.

NOTE 1 It is recommended that, to facilitate comparison between materials, whenever this property is stated in product literature the test stress should also be given.

5 Apparatus

5.1 Means of applying a bending stress

See ISO 75-1:1993, subclause 5.1.

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

If apparatus in which the distance between the test-specimen supports can be varied is used, this distance shall be variable from 60 mm to 210 mm.

5.2 Heating equipment

See ISO 75-1:1993, subclause 5.2.

5.3 Weights

See ISO 75-1:1993, subclause 5.3.

5.4 Temperature-measuring instrument

See ISO 75-1:1993, subclause 5.4.

5.5 Deflection-measuring instrument

See ISO 75-1:1993, subclause 5.5.

6 Test specimens

See ISO 75-1:1993, clause 6.

6.1 The test specimen shall have the following dimensions:

length, l: at least 10 mm longer than the distance chosen for the span between the test-specimen supports

width, b: 9,8 mm to 12,8 mm

thickness, h: 2,0 mm to 7,0 mm

The test specimen shall be produced in accordance with ISO 295 (and ISO 2818, if applicable), or as agreed upon by the interested parties. In the case of compression-moulded test specimens, the width shall be perpendicular to the direction of the moulding force. For materials in sheet form, the thickness of the test specimens (this dimension is usually the thickness of the sheet) shall be in the range 2 mm to 7 mm. For samples over 7 mm thick, reduce the thickness to 7 mm by machining one face. If the faces of the test specimen are dissimilar, report the face machined in the test report.

In view of the requirement for the distance between the test-specimen supports to be 30 times the test-specimen thickness (see 8.3), the distance between the supports may be anywhere between 60 mm and 210 mm. Some test machines have a fixed span of 100 mm, however, and can therefore only be used with test specimens up to 3 mm thick. Such a machine may be used but, if the test-specimen thickness is greater than 3 mm, it will have to be reduced by machining. As before, machine only one face and, if the faces are dissimilar, report which face was machined in the test report.

NOTE 2 Most reinforced thermoset laminates are anisotropic, and machining may significantly alter their properties.

Ensure that all cut surfaces are as smooth as possible, and that any unavoidable machining marks are in the lengthwise direction.

6.2 The test results obtained on moulded test specimens depend on the moulding conditions used in their preparation. Moulding conditions shall be in accordance with the standard for the material, or shall be agreed upon by the interested parties.

6.3 Discrepancies in test results due to variations in moulding conditions may be minimized by annealing the test specimens before testing them. Since different materials require different annealing conditions, annealing procedures shall be employed only if required by the materials standard or if agreed upon by the interested parties.

7 Conditioning

See ISO 75-1:1993, clause 7.

8 Procedure

8.1 Calculation of force to be applied

See ISO 75-1:1993, subclause 8.1.

The force applied shall be such as to generate a bending stress σ equal to 1/10 of the requirement for the flexural strength quoted in the relevant standard for the material. If there is no such requirement, the bending stress σ shall be 1/10 of the flexural strength determined in accordance with ISO 178.

The dimensions of the test specimen are given in 6.1, The span between the test-specimen supports is given in 8.3.

8.2 Initial temperature of the heating equipment

See ISO 75-1:1993, subclause 8.2.

8.3 Measurement

See ISO 75-1:1993, subclause 8.3.

Place the test specimen on the supports in the flatwise position.

Adjust the span L between the supports to (30 ± 2) times the thickness h of the test specimen.

Apply the calculated force (see 8.1) to give the required nominal surface stress.