Irish Standard
I.S. EN ISO 75-2:2013

Plastics - Determination of temperature of deflection under load - Part 2: Plastics and ebonite (ISO 75-2:2013)

I.S. EN ISO 75-2:2013

Incorporating amendments/corrigenda/National Annexes issued since publication:

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NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie

W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

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EUROPEAN STANDARD

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Supersedes EN ISO 75-2:2004

English Version

Plastics - Determination of temperature of deflection under load - Part 2: Plastics and ebonite (ISO 75-2:2013)

Plastiques - Détermination de la température de fléchissement sous charge - Partie 2: Plastiques et ébonite (ISO 75-2:2013)

Kunststoffe - Bestimmung der Wärmeformbeständigkeitstemperatur - Teil 2: Kunststoffe und Hartgummi (ISO 75-2:2013)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN ISO 75-2:2013) 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 NBN.

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of an identical text or by endorsement, at the latest by October 2013, and conflicting national standards shall be withdrawn at the latest by October 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 75-2:2004.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 75-2:2013 has been approved by CEN as EN ISO 75-2:2013 without any modification.

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I.S. EN ISO 75-2:2013

INTERNATIONAL STANDARD

ISO 75-2

Third edition
2013-04-15

Plastics — Determination of temperature of deflection under load —

Part 2: Plastics and ebonite

Plastiques — Détermination de la température de fléchissement sous charge —

Partie 2: Plastiques et ébonite

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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ISO 75-2 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 2, *Mechanical properties*.

This third edition cancels and replaces the second edition (ISO 75-2:2004), which has been technically revised. In particular, Clause 5 and Annex A have been updated.

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*

Introduction

The first editions of ISO 75-1 and this part of ISO 75 described three methods (A, B and C) using different test loads and two specimen positions, edgewise and flatwise. For testing in the flatwise position, test specimens with dimensions 80 mm × 10 mm × 4 mm were required. These can be moulded directly or machined from the central section of the multipurpose test specimen (see ISO 20753).

The previous (i.e. second) editions of ISO 75-1 and this part of ISO 75 specified the flatwise test position as preferred, while still allowing testing in the edgewise position with test conditions given in Annex A until the next revision of ISO 75-1 and this part of ISO 75, as agreed in ISO/TC 61/SC2/WG 5. Therefore, with this revision, the edgewise test position will be removed.

Technical development of testing instruments in recent years made instruments based on a fluidized bed or air ovens available. These are especially advantageous for use at temperatures at which the common silicone oil-based heat transfer fluids reach their limit of thermal stability. The fluidized bed and air oven methods of heat transfer are introduced in ISO 75-1.

An additional precision statement covering the new heating methods is introduced in this part of ISO 75.

Plastics — Determination of temperature of deflection under load —

Part 2: Plastics and ebonite

1 Scope

This part of ISO 75 specifies three methods, using different values of constant flexural stress, which can be used for the determination of the temperature of deflection under load of plastics (including filled plastics and fibre-reinforced plastics in which the fibre length, prior to processing, is up to 7,5 mm) and ebonite:

— method A, using a flexural stress of 1,80 MPa;

— method B, using a flexural stress of 0,45 MPa;

— method C, using a flexural stress of 8,00 MPa.

The standard deflection, Δs, used to determine the temperature of deflection under load corresponds to a flexural-strain increase, $\Delta\varepsilon_f$, defined in this part of ISO 75. The initial flexural strain due to the loading of the specimen at room temperature is neither specified nor measured in this part of ISO 75. The ratio of this flexural-strain increase to the initial flexural strain depends on the modulus of elasticity, at room temperature, of the material under test. This method is, therefore, only suitable for comparing the temperatures of deflection of materials with similar room-temperature elastic properties.

NOTE 1 The methods give better reproducibility with amorphous plastics than with semi-crystalline ones. With some materials, it can be necessary to anneal the test specimens to obtain reliable results. Annealing procedures, if used, generally result in an increase in the temperature of deflection under load (see 6.6).

NOTE 2 For additional information, see ISO 75-1:2013, Clause 1.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

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

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

ISO 10724-1, *Plastics — Injection moulding of test specimens of thermosetting powder moulding compounds (PMCs) — Part 1: General principles and moulding of multipurpose test specimens*

ISO 20753, *Plastics — Test specimens*