

Plastics - Determination of temperature of deflection under load - Part 1: General test method

Plastics - Determination of temperature of deflection under load - Part 1: General test method (ISO 75-1:2013)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Plastics - Determination of temperature of deflection under load - Part 1: General test method (ISO 75-1:2013)

Plastiques - Détermination de la température de fléchissement sous charge - Partie 1: Méthode d'essai générale (ISO 75-1:2013)

Kunststoffe - Bestimmung der Wärmeformbeständigkeitstemperatur - Teil 1: Allgemeines Prüfverfahren (ISO 75-1:2013)

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Foreword

This document (EN ISO 75-1:2013) 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of an identical text or by endorsement, at the latest by October 2013, and conflicting national standards shall be withdrawn at the latest by October 2013.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 75-1:2004.

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Endorsement notice

The text of ISO 75-1:2013 has been approved by CEN as EN ISO 75-1:2013 without any modification.

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Introduction

The first editions of this part of ISO 75 and ISO 75-2 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 this part of ISO 75 and ISO 75-2 specified the flatwise test position as preferred, while still allowing testing in the edgewise position with the test conditions given in Annex A until the next revision of this part of ISO 75 and ISO 75-2, as agreed in ISO/TC 61/SC 2/WG 5. Therefore, with this revision, the edgewise test position will be removed.

At the time of publication, technical development of testing instruments 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 this part of ISO 75.

An additional precision statement covering the new heating methods is introduced in ISO 75-2.

Plastics — Determination of temperature of deflection under load —

Part 1: General test method

1 Scope

This part of ISO 75 gives a general test method for the determination of the temperature of deflection under load (flexural stress under three-point loading) of plastics. Different types of test specimen and different constant loads are defined to suit different types of material.

ISO 75-2 gives specific requirements for plastics (including filled plastics and fibre-reinforced plastics in which the fibre length, prior to processing, is up to 7,5 mm) and ebonite, while ISO 75-3 gives specific requirements for high-strength thermosetting laminates and long-fibre-reinforced plastics in which the fibre length is greater than 7,5 mm.

The methods specified are suitable for assessing the relative behaviour of different types of material at elevated temperature under load at a specified rate of temperature increase. The results obtained do not necessarily represent maximum applicable temperatures because in practice essential factors, such as time, loading conditions and nominal surface stress, can differ from the test conditions. True comparability of data can only be achieved for materials having the same room-temperature flexural modulus.

The methods specify preferred dimensions for the test specimens.

Data obtained using the test methods described are not intended to be used to predict actual end-use performance. The data are not intended for design analysis or prediction of the endurance of materials at elevated temperatures.

This method is commonly known as the HDT test (heat deflection test or heat distortion test), although there is no official document using this designation.

2 Normative references

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

ISO 75-2, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite*

ISO 75-3, *Plastics — Determination of temperature of deflection under load — Part 3: High-strength thermosetting laminates and long-fibre-reinforced plastics*

ISO 291, *Plastics — Standard atmospheres for conditioning and testing*

ISO 20753, *Plastics — Test specimens*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.