

Plastics - Test specimens (ISO 20753:2008)

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NATIONAL FOREWORD

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English Version

Plastics - Test specimens (ISO 20753:2008)

Plastiques - Éprouvettes (ISO 20753:2008)

Kunststoffe - Probekörper (ISO 20753:2008)

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of ISO 20753:2008 has been prepared by Technical Committee ISO/TC 61 "Plastics" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 20753:2014 by 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of an identical text or by endorsement, at the latest by November 2014, and conflicting national standards shall be withdrawn at the latest by November 2014.

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The text of ISO 20753:2008 has been approved by CEN as EN ISO 20753:2014 without any modification.

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Introduction

Up to now, information on plastics test specimens has been specified in several different locations: in test method standards (e.g. ISO 527-2), in ISO 3167 (for multipurpose test specimens) and in ISO 294-1, ISO 294-2, ISO 294-3 and ISO 294-5 (for moulding conditions). The aim of this International Standard is to give the designations and dimensions of test specimens used for the acquisition of comparable data, and also other frequently used specimens, in one document for ease of reference. This will be followed by a revision of the ISO 294 series, which will define only the injection-moulding conditions and will refer to this International Standard for the dimensions of the specimens. Other International Standards that have hitherto used different designations for the same specimen type will also be revised to bring the designations into line with those in this International Standard.

Plastics — Test specimens

1 Scope

1.1 This International Standard specifies dimensional requirements relating to test specimens prepared from plastics materials intended for processing by moulding, as well as to test specimens prepared by machining from sheets or shaped articles. It gives, in one document, the designations and dimensions of test specimens used for the acquisition of comparable data and also other frequently used specimens.

The following types of test specimen are specified:

- a) Type A1 and type A2 specimens (1 = injection moulded, 2 = machined from a sheet or shaped article)

These are tensile test specimens from which, with simple machining, specimens for a variety of other tests can be taken (see Annex A).

The type A1 specimen corresponds to the ISO 3167:2002 type A multipurpose test specimen. The principal advantage of a multipurpose test specimen is that it allows all the test methods mentioned in Annex A to be carried out by all test laboratories on the basis of comparable mouldings. Consequently, the properties measured are coherent as all are measured using similar specimens prepared in the same way. In other words, it can be expected that test results for a given set of specimens will not vary appreciably due to unintentionally different moulding conditions. On the other hand, if desired, the influence of moulding conditions and/or different states of the specimens can be assessed without difficulty for all of the properties measured.

Also described are reduced-scale test specimens designated type A_{xy}, where *x* is the number indicating the method of specimen preparation (1 = injection moulded, 2 = machined from a sheet or shaped article) and *y* is a number indicating the scale factor (1:*y*). These can be used e.g. when full-sized test specimens are not convenient or when sample material exists in small quantities only.

- b) Type B specimens

These are bar specimens which can be directly moulded or can be machined from the central section of type A1 specimens or from sheets or shaped articles.

- c) Type C specimens

These are small tensile test specimens which can be directly moulded or machined, e.g. from plates (Type D specimens), from the central section of type A1 specimens or from sheets or shaped articles.

- d) Type D1 and type D2 specimens

These are square plates of thickness 1 mm and 2 mm, respectively.

If a particular type of test specimen is not mentioned in this International Standard, this does not mean that there is any intention to exclude the use of the specimen. Additional specimen types may be added in future if they are commonly used.

2 Normative references

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

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 295, *Plastics — Compression moulding of test specimens of thermosetting materials*

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

ISO 10350-1, *Plastics — Acquisition and presentation of comparable single-point data — Part 1: Moulding materials*

ISO 10350-2, *Plastics — Acquisition and presentation of comparable single-point data — Part 2: Long-fibre-reinforced plastics*

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 11403-1, *Plastics — Acquisition and presentation of comparable multipoint data — Part 1: Mechanical properties*

ISO 11403-2, *Plastics — Acquisition and presentation of comparable multipoint data — Part 2: Thermal and processing properties*

ISO 11403-3, *Plastics — Acquisition and presentation of comparable multipoint data — Part 3: Environmental influences on properties*

3 Terms and definitions

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

3.1
multipurpose test specimen
type A1 or type A2 tensile test specimen as shown in Figure 1 and specified in Table 1 and Table 2, respectively

NOTE 1 Although ISO 3167:2002 refers to both the type A and type B specimens, defined in that International Standard, as multipurpose test specimens, for the purposes of this International Standard it is the type A1 specimen which is the preferred specimen for the acquisition of comparable data and hence the true multipurpose test specimen.

NOTE 2 The type A1 specimen can be made suitable for a variety of tests by simple cutting, because the length l_1 of the narrow parallel-sided section is $80 \text{ mm} \pm 2 \text{ mm}$.

3.2
 l_1
length of the narrow parallel-sided section (central section) of the type A and type CP tensile test specimens, the length of the type B bar specimen and the length of the side of the type D plate specimen

3.3
 l_2
distance between the broad parallel-sided sections (tabs) of the type A and type CP tensile test specimens