

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 294-1:2000

<https://standards.iteh.ai/catalog/standards/sist/309fc148-4e8a-4c21-b111-1e6ec51ceb30/sist-en-iso-294-1-2000>

EUROPEAN STANDARD
 NORME EUROPÉENNE
 EUROPÄISCHE NORM

EN ISO 294-1

July 1998

ICS 83.080.20

Descriptors: see ISO document

English version

Plastics - Injection moulding of test specimens of thermoplastic materials - Part 1: General principles, and moulding of multipurpose and bar test specimens (ISO 294-1:1996)

Plastiques - Moulage par injection des éprouvettes de matériaux thermoplastiques - Partie 1: Principes généraux, et moulage des éprouvettes à usages multiples et des barreaux (ISO 294-1:1996)

Kunststoffe - Spritzgießen von Probekörpern aus Thermoplasten - Teil 1: Allgemeine Grundlagen und Herstellung von Vielzweckprobekörpern und Stäben (ISO 294-1:1996)

This European Standard was approved by CEN on 12 June 1998.

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.

This European Standard exists 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.

<https://standards.iteh.ai/catalog/standards/sist/309fc148-4e8a-4c21-b111->

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
 COMITÉ EUROPÉEN DE NORMALISATION
 EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Page 2
EN ISO 294-1:1998

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 an 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 January 1999, and conflicting national standards shall be withdrawn at the latest by January 1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

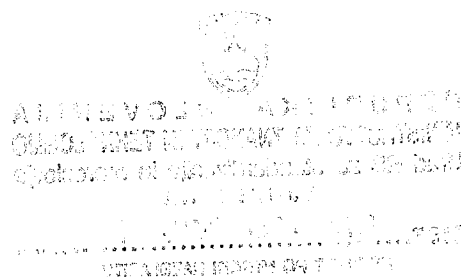
The text of the International Standard ISO 294-1:1996 has been approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 294-1:2000

<https://standards.iteh.ai/catalog/standards/sist/309fc148-4e8a-4c21-b111-1e6ec51ceb30/sist-en-iso-294-1-2000>



Annex ZA (normative)**Normative references to international publications
with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN</u> | <u>Year</u> |
|--------------------|-------------|--|--------------|-------------|
| ISO 179 | 1993 | Plastics - Determination of Charpy impact strength | EN ISO 179 | 1996 |
| ISO 294-2 | 1996 | Plastics - Injection moulding of test specimens of thermoplastic materials - Part 2: Small tensile bars | EN ISO 294-2 | 1998 |
| ISO 294-3 | 1996 | Plastics - Injection moulding of test specimens of thermoplastic materials - Part 3: Small plates | EN ISO 294-3 | 1998 |
| ISO 294-4 | 1997 | Plastics - Injection moulding of test specimens of thermoplastic materials - Part 4: Determination of moulding shrinkage | EN ISO 294-4 | 1998 |
| ISO 3167 | 1993 | Plastics - Multipurpose-test specimens | EN ISO 3167 | 1996 |
| ISO 10350 | 1993 | Plastics - Acquisition and presentation of comparable single-point data | EN ISO 10350 | 1995 |

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 294-1:2000

<https://standards.iteh.ai/catalog/standards/sist/309fc148-4e8a-4c21-b111-1e6ec51ceb30/sist-en-iso-294-1-2000>

INTERNATIONAL
STANDARD

ISO
294-1

First edition
1996-12-15

**Plastics — Injection moulding of test
specimens of thermoplastic materials —**

Part 1:
General principles, and moulding of
multipurpose and bar test specimens

[SIST EN ISO 294-1:2000](https://standards.iteh.ai/catalog/standards/sist/309fc148-4e8a-4c21-b111-1e6ec51ceb30/sist-en-iso-294-1-2000)

[https://standards.iteh.ai/catalog/standards/sist/309fc148-4e8a-4c21-b111-](https://standards.iteh.ai/catalog/standards/sist/309fc148-4e8a-4c21-b111-1e6ec51ceb30/sist-en-iso-294-1-2000)

[1e6ec51ceb30/sist-en-iso-294-1-2000](https://standards.iteh.ai/catalog/standards/sist/309fc148-4e8a-4c21-b111-1e6ec51ceb30/sist-en-iso-294-1-2000)

*Plastiques — Moulage par injection des éprouvettes de matériaux
thermoplastiques —*

*Partie 1: Principes généraux, et moulage des éprouvettes à usages
multiples et des barreaux*



Reference number
ISO 294-1:1996(E)

ISO 294-1:1996(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 294-1 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*.

Together with the other parts, this part of ISO 294 cancels and replaces the second edition of ISO 294 (ISO 294:1995) which has been revised to improve the definition of the injection-moulding parameters and has been restructured to specify four types of ISO mould for the production of the basic specimen types required for the acquisition of comparable test data.

Care has been taken to ensure that the ISO moulds described can all be fitted in existing injection-moulding equipment and have interchangeable cavity plates.

ISO 294 consists of the following parts, under the general title *Plastics — Injection moulding of test specimens of thermoplastic materials*:

- *Part 1: General principles, and moulding of multipurpose and bar test specimens*
- *Part 2: Small tensile bars*
- *Part 3: Small plates*
- *Part 4: Determination of moulding shrinkage*

Annexes A to C of this part of ISO 294 are for information only.

© ISO 1996

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Introduction

Many factors in the injection-moulding process may influence the properties of moulded test specimens and hence the measured values obtained when the specimens are used in a test method. The mechanical properties of such specimens are in fact strongly dependent on the conditions of the moulding process used to prepare the specimens. Exact definition of each of the main parameters of the moulding process is a basic requirement for reproducible and comparable operating conditions.

It is important in defining moulding conditions to consider any influence the conditions may have on the properties to be determined. Thermoplastics may show differences in molecular orientation (important mainly with amorphous polymers), in crystallization morphology (for crystalline and semicrystalline polymers), in phase morphology (for heterogeneous thermoplastics) as well as in the orientation of anisotropic fillers such as short fibres. Residual ("frozen-in") stresses in the moulded test specimens and thermal degradation of the polymer during moulding may also influence properties. Each of these phenomena must be controlled to avoid fluctuation of the numerical values of the properties measured.

<https://standards.iteh.ai/catalog/standards/sist/309fc148-4e8a-4c21-b111-1e6ec51ceb30/sist-en-iso-294-1-2000>

iTeh STANDARD PREVIEW
This page intentionally left blank
(standards.iteh.ai)

SIST EN ISO 294-1:2000

<https://standards.iteh.ai/catalog/standards/sist/309fc148-4e8a-4c21-b111-1e6ec51ceb30/sist-en-iso-294-1-2000>

Plastics — Injection moulding of test specimens of thermoplastic materials —

Part 1:

General principles, and moulding of multipurpose and bar test specimens

1 Scope

This part of ISO 294 specifies the general principles to be followed when injection moulding test specimens of thermoplastic materials and gives details of mould designs for preparing two types of specimen for use in acquiring reference data, i.e. multipurpose test specimens as specified in ISO 3167 and 80 mm × 10 mm × 4 mm bars. It provides a basis for establishing reproducible moulding conditions. Its purpose is to promote uniformity in describing the main parameters of the moulding process and also to establish uniform practice in reporting moulding conditions. The particular conditions required for the reproducible preparation of test specimens which will give comparable results will vary for each material used. These conditions are given in the International Standard for the relevant material or are to be agreed upon between the interested parties.

NOTE — ISO round-robin tests with acrylonitrile/butadiene/styrene (ABS), styrene/butadiene (SB) and poly(methyl methacrylate) (PMMA) have shown that mould design is an important factor in the reproducible preparation of test specimens.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 294. 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 294 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 179:1993, *Plastics — Determination of Charpy impact strength.*

ISO 294-2:1996, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 2: Small tensile bars.*

ISO 294-3:1996, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 3: Small plates.*

ISO 294-4:—¹⁾, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 4: Determination of moulding shrinkage.*

1) To be published. (Revision in part of ISO 294:1995)