INTERNATIONAL STANDARD

ISO 2818

Fourth edition
2018-12

Plastics — Preparation of test specimens by machining

Plastiques — Préparation des éprouvettes par usinage

Reference number
ISO 2818:2018(E)

© ISO 2018



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

 © ISO 2018 – All rights reserved

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Test specimens **5**
4.1 Shape and state of the test specimens 5
4.2 Preparation of test specimens 6
5 Machinery and tools **6**
5.1 General 6
5.2 Milling cutters 6
5.3 Slicing or sawing machines 6
5.4 Tubular cutting machines 6
5.5 Lathes 7
5.6 Planing machines 7
5.7 Stamping tools 7
5.8 Broaching tools 7
6 Procedure **7**
6.1 General 7
6.2 Preparation of dumb-bell specimens 7
6.3 Preparation of rectangular test specimens by sawing or cutting with an abrasive disc 7
6.4 Preparation of disc-shaped test specimens 7
6.5 Stamping out test specimens of any shape 8
6.6 Notching finished test specimens by milling or broaching 8
7 Test report **9**
Bibliography **16**

© ISO 2018 – All rights reserved

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Mechanical properties*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

This fourth edition cancels and replaces the third edition (ISO 2818:1994), of which it constitutes a minor revision to update the references in Clause 2. It also incorporates the Technical Corrigendum ISO 2818:1994/Cor 1:2007.

© ISO 2018 – All rights reserved

Introduction

The preparation of test specimens by machining influences the finished surfaces and, in some cases, even the internal structure of the specimens. Since test results are strongly dependent on both of these parameters, exact definitions of tools and machining conditions are required for reproducible test results with machined specimens.

© ISO 2018 – All rights reserved

Plastics — Preparation of test specimens by machining

1 Scope

This document establishes the general principles and procedures to be followed when machining and notching test specimens from compression-moulded and injection-moulded plastics, extruded sheets, plates and partially finished or wholly finished products.

In order to establish a basis for reproducible machining and notching conditions, the following general standardized conditions are applied. It is assumed, however, that the exact procedures used are selected or specified by the relevant material specification or by the standards on the particular test methods. If sufficiently detailed procedures are not thus specified, the interested parties agree upon the conditions to be used.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 Milling

NOTE In this machining operation, the tool has a circular primary motion and the workpiece a suitable feed motion. The axis of rotation of the primary motion retains its position with respect to the tool, independently of the feed motion (see ISO 3855). Complete dumb-bell and rectangular test specimens, as well as notches in finished specimens, may be prepared by milling.

3.1.1 **Geometry** (see ISO 3002-1 and Figure 1)

NOTE Only a few details of the exact geometrical conditions of the milling tool and its position with respect to the workpiece given in ISO 3002-1 are relevant to this document.

3.1.1.1
tool-cutting-edge angle
α_r
angle between the tool-cutting-edge plane, P_s, and the assumed working plane, P_f, measured in the tool back plane, P_r

3.1.1.2
tool back clearance
α_p
angle between the flank, A_α, of the cutter and the tool-cutting-edge plane, P_s, measured in the tool back plane, P_p

© ISO 2018 – All rights reserved