

Plastics - Polyamides - Accelerated conditioning of test specimens (ISO 1110:2019)

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EUROPEAN STANDARD

EN ISO 1110

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English Version

Plastics - Polyamides - Accelerated conditioning of test specimens (ISO 1110:2019)

Plastiques - Polyamides - Conditionnement accéléré d'éprouvettes (ISO 1110:2019)

Kunststoffe - Polyamide - Beschleunigte Konditionierung von Probekörpern (ISO 1110:2019)

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN ISO 1110:2019) 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of an identical text or by endorsement, at the latest by December 2019, and conflicting national standards shall be withdrawn at the latest by December 2019.

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

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Endorsement notice

The text of ISO 1110:2019 has been approved by CEN as EN ISO 1110:2019 without any modification.

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Apparatus	1
6 Procedure	2
7 Reference procedure	2
Bibliography	3

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).

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

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

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

This fourth edition cancels and replaces the third edition (ISO 1110:1995), which has been technically revised. The main changes compared to the previous edition are as follows:

- the symbol of the polyamide has been corrected;
- the references have been changed to undated references.

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.

Introduction

Various properties of polyamides (PA) depend upon their moisture content. Reproducible values of these properties can only be obtained with specimens having a specified moisture content. Such specimens are obtained by conditioning, i.e. by allowing them to reach equilibrium in an atmosphere with a specified temperature and relative humidity.

The rate of moisture absorption and, therefore, the rate of conditioning, is a function of the temperature. This rate is very low at room temperature. For example, a 4 mm thick test specimen of PA66 requires more than a year to attain its equilibrium moisture content in standard atmosphere 23/50 (see ISO 291). A higher temperature is used when conditioning specimens in a short period of time. Such a method for accelerated conditioning is presented in this document.

Plastics — Polyamides — Accelerated conditioning of test specimens

1 Scope

This document describes a method for the accelerated conditioning of test specimens of polyamides and copolyamides. It is applicable to grades containing fillers and other additives, but not grades containing more than a mass fraction of 2 % extractables.

The equilibrium moisture content attained by this method is close to the equilibrium moisture content obtained in standard atmosphere 23 °C/50 %RH. The values of mechanical properties obtained after accelerated conditioning in accordance with this method can differ slightly from those obtained after conditioning in standard atmosphere 23 °C/50 %RH.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 483, *Plastics — Small enclosures for conditioning and testing using aqueous solutions to maintain the humidity at a constant value*

3 Terms and definitions

No terms and definitions are listed in this document.

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/>

4 Principle

The test specimens are stored in an atmosphere of 70 °C ± 1 °C and (62 ± 1) % relative humidity (psychrometric temperature difference of 10 °C ± 0,3 °C) until moisture absorption by the specimen has reached at least 95 % of its equilibrium level.

5 Apparatus

5.1 Cabinet, with closed air circulation by a fan, capable of maintaining temperature of 70 °C within a tolerance of ±1 °C and a psychrometric temperature difference of 10 °C within a tolerance of ±0,3 °C, corresponding to a relative humidity of (62 ± 1) %.

5.2 If a cabinet as described in [5.1](#) is not available:

5.2.1 Oven, capable of maintaining the temperature at 70 °C ± 1 °C.