

Plastics - Polypropylene and propylene-copolymers -
Determination of thermal oxidative stability in air -
Oven method (ISO 4577:2019)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 4577:2019 sisaldab Euroopa standardi EN ISO 4577:2019 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 4577:2019 consists of the English text of the European standard EN ISO 4577:2019.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

Plastics - Polypropylene and propylene-copolymers -
Determination of thermal oxidative stability in air - Oven
method (ISO 4577:2019)

Plastiques - Polypropylène et copolymères de
propylène - Détermination de la stabilité à l'oxydation
à chaud dans l'air - Méthode à l'étuve (ISO 4577:2019)

Kunststoffe - Polypropylen und Propylen-Copolymere -
Bestimmung der thermischen Oxidationsstabilität in
Luft - Ofen-Verfahren (ISO 4577:2019)

This European Standard was approved by CEN on 25 July 2019.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 4577:2019) has been prepared by Technical Committee 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of an identical text or by endorsement, at the latest by March 2020, and conflicting national standards shall be withdrawn at the latest by March 2020.

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 4577:2019 has been approved by CEN as EN ISO 4577:2019 without any modification.

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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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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, *Thermoplastic materials*.

This second edition cancels and replaces the first edition (ISO 4577:1983), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- the normative references have been updated;
- the mandatory [Clause 3](#) "Terms and definitions" has been added the subsequent clauses have been renumbered.

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.

Plastics — Polypropylene and propylene-copolymers — Determination of thermal oxidative stability in air — Oven method

1 Scope

This document specifies a method for the determination of the resistance of moulded test specimens of polypropylene and propylene-copolymers to accelerated ageing by heat in the presence of air using a forced draught oven.

The method represents an attempt to estimate the service life of parts fabricated from propylene plastics.

The stability determined by this method is not directly related to the suitability of the material for use when different environmental conditions prevail.

NOTE The specified thermal levels are considered sufficiently severe to cause failure of commercial grades of heat-stable propylene plastics within a reasonable period of time. If desired, lower temperatures can be applied to estimate the performance of propylene plastics with lower heat stabilities.

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

ISO 19069-2, *Plastics — Polypropylene (PP) moulding and extrusion materials — Part 2: Preparation of test specimens and determination of properties*

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

Accelerated ageing of test specimens is performed by heat in the presence of air using a forced draught oven. Visual examination and determination of the time to failure is done.

Under the severe conditions of this test, the specimens undergo degradation at a rate dependent upon the thermal endurance of the propylene plastic under examination.

For the purpose of this document, the time to failure of the material is taken as the number of days after which the specimen shows localized crazing, crumbling and/or discoloration.

If a more reliable estimate of the life-temperature relationship of propylene plastics is required, the test may be conducted at several temperatures and the data interpreted through use of the Arrhenius