Plastid. Polüpropüleen ja polüpropüleeni kopolümeerid. Termilise oksüdatsioonikindluse määramine õhu käes. Ahju kasutamisega meetod

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

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN ISO 4577:2000 sisaldab Euroopa standardi EN ISO 4577:1999 ingliskeelset teksti. Käesolev dokument on jõustatud 11.01.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 4577:2000 consists of the English text of the European standard EN ISO 4577:1999. This document is endorsed on 11.01.2000 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This standard specifies a method for the determination of the resistance of moulded test speciments fo polypropylene and propylene-copolymers to accelereted ageing by heat in the presence of air using a forced draught oven	**Scope:** This standard specifies a method for the determination of the resistance of moulded test speciments fo polypropylene and propylene-copolymers to accelereted ageing by heat in the presence of air using a forced draught oven

ICS 83.080.20

Võtmesõnad: ageing test (materials), high temperature tests, oxidation tests, plastics, polypropylene, stability tests, thermal stability

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 4577

June 1999

ICS 83.080.20

English version

Plastics

Polypropylene and propylene-copolymers

Determination of thermal oxidative stability in air – Oven method
(ISO 4577 : 1983)

Plastiques – Polypropylène et copolymères de propylène – Détermination de la stabilité à l'oxydation à chaud dans l'air – Méthode à l'étuve (ISO 4577 : 1983)

Kunststoffe – Polypropylen und Propylen-Copolymere – Bestimmung der thermischen Oxidationsstabilität in Luft – Ofen-Verfahren
(ISO 4577 : 1983)

This European Standard was approved by CEN on 1999-05-06.

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.

The European Standards exist 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.

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

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

Foreword

International Standard

ISO 4577 : 1983 Plastics – Polypropylene and propylene-copolymers – Determination of thermal oxidative stability in air – Oven method,

which was prepared by ISO/TC 61 'Plastics' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 249 'Plastics', the Secretariat of which is held by IBN, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by December 1999 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 4577 : 1983 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to international publications are listed in Annex ZA (normative).

1 Scope and field of application

This International Standard 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 References

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

ISO 1133, *Plastics — Determination of the melt flow rate of thermoplastics.*

ISO 1191, *Plastics — Polyethylenes and polypropylenes in dilute solution — Determination of viscosity number and of limiting viscosity number.*

ISO 1873, *Plastics — Polypropylene and propylene-copolymer thermoplastics —*

Part 1: Designation.

Part 2: Determination of properties.[1)]

1) At present at the stage of draft.

3 Principle

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

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 International Standard, 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 relation, by plotting the logarithms of times to failure against the reciprocals of the temperatures in kelvins. Temperatures in the range from 100 to 150 °C, with intervals of 10 °C, are suggested for this purpose.

4 Apparatus

4.1 Oven, mechanical convection type, capable of controlled circulation of air, with adjustable air intake and exhaust, equipped with a specimen holder and a temperature control system capable of adjustment to meet the following conditions:

a) exhaust rate: at least one oven-chamber volume in 10 min;

b) air velocity: from 0,75 to 1 m/s at any oven position occupied by the test specimens;

c) temperature control: range up to 200 °C and with control throughout the working range to the nearest 1 °C. The temperature control shall include a device to prevent temperature overrides. It is recommended that a device be used for recording the temperature inside the oven.