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STANDARD

2578

Second edition
1993-08-01

Plastics — Determination of time-temperature limits after prolonged exposure to heat

*Plastiques — Détermination des limites temps-températures après
exposition à l'action prolongée de la chaleur*



Reference number
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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.

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 2578 was prepared by Technical Committee ISO/TC 61, *Plastics*, Sub-Committee SC 6, *Ageing, chemical and environmental resistance*.

This second edition cancels and replaces the first edition (ISO 2578:1974), of which it constitutes a technical revision.

Annexes A and B form an integral part of this International Standard. Annex C is for information only.

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Introduction

During the preparation of this International Standard, account was taken of the contents of IEC 216. Accordingly, the terms and definitions in this International Standard, as well as the procedures described, are in line or identical with those specified in IEC 216.

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Plastics — Determination of time-temperature limits after prolonged exposure to heat

1 Scope

1.1 This International Standard specifies the principles and procedures for evaluating the thermal endurance properties of plastics exposed to elevated temperature for long periods.

1.2 The term thermal endurance is used here to refer to tests made in air, excluding any other influence or stress applied to the test specimens. Thermal endurance properties evaluated in different environments and/or with different stresses applied to the test specimens require different test procedures.

1.3 In this International Standard, the study of the thermal ageing of plastics is based solely on the change in certain properties resulting from a period of exposure to elevated temperature. The properties studied are always measured after the temperature has returned to ambient.

The various properties of plastics change at various rates on thermal ageing. To enable comparisons to be made of the thermal ageing of different plastics, the criteria for judgement depend on the type of property to be studied and its acceptable limiting value.

1.4 In the application of this standard it is assumed that a practically linear relationship exists between the logarithm of the time required to cause the predetermined property change and the reciprocal of the corresponding absolute temperature (Arrhenius Law).

For the plastics tested, no transition, in particular a first-order transition, should occur in the temperature range under study.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publi-

cation, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard 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 291:1977, *Plastics — Standard atmospheres for conditioning and testing.*

IEC 216-1:1990, *Guide for the determination of thermal endurance properties of electrical insulating materials — Part 1: General guidelines for ageing procedures and evaluation of test results.*

IEC 216-2:1990, *Guide for the determination of thermal endurance properties of electrical insulating materials — Part 2: Choice of the test criteria.*

IEC 216-3-1:1990, *Guide for the determination of thermal endurance properties of electrical insulating materials — Part 3: Instructions for calculating thermal endurance characteristics — Section 1: Calculations using mean values of normally distributed complete data.*

IEC 216-3-3:—,¹⁾ *Guide for the determination of thermal endurance properties of electrical insulating materials — Part 3: Instructions for calculating thermal endurance characteristics — Section 3: Calculations for incomplete data.*

IEC 216-4-1:1990, *Guide for the determination of thermal endurance properties of electrical insulating materials — Part 4: Ageing ovens — Section 1: Single-chamber ovens.*

IEC 216-5:1990, *Guide for the determination of thermal endurance properties of electrical insulating materials — Part 5: Guidelines for the application of thermal endurance characteristics.*

1) To be published. [15B (B.C.) 82]