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Rubber, vulcanized or thermoplastic — Resistance to weathering

*Caoutchouc vulcanisé ou thermoplastique — Résistance aux
intempéries*



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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 4665 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

This second edition cancels and replaces the first edition (ISO 4665:1998), which has been technically revised.

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Introduction

A number of different exposure techniques can be used to provide information on the effects of environmental stresses such as light, heat and water on rubbers. Each of these has its own particular application and relevance. Explanation of, and guidance on, methods for exposure to natural and artificial weathering is given in the introduction to ISO 877:1994 and in ISO 4892-1. Particular guidance on exposure to determine resistance to ozone is given in ISO 1431-1. The methods for exposure to weathering standardized for plastic materials are essentially suitable for rubbers and hence this standard refers to the relevant ISO standards for plastics for the apparatus and procedures.

It is desirable that the procedures for the determination of changes in properties should be the same whatever exposure is used and that the results should be expressed in a uniform manner. Such procedures are specified in this standard.

Exposure to weathering alters the properties of the material, particularly in the surface layer. The test method used to determine changes in properties should be selected after consideration of the properties of the material which are important in its proposed application and taking into account the fact that degradation may be concentrated at the surface layer. The methods chosen should be capable of measuring change in properties with sufficient precision within the ranges which are important in practice, so as to provide significant criteria of change.

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Rubber, vulcanized or thermoplastic — Resistance to weathering

1 Scope

This International Standard specifies methods for the exposure of vulcanized or thermoplastic rubbers to natural or artificial weathering and methods for the determination of changes in colour, appearance and physical properties resulting from exposure.

2 Normative references

The following referenced documents are indispensable for the application 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 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 877:1994, *Plastics — Methods of exposure to direct weathering, to weathering using glass-filtered daylight, and to intensified weathering by daylight using Fresnel mirrors*

ISO 1431-1, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 1: Static and dynamic strain testing*

ISO 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance*

ISO 4892-2, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps*

ISO 4892-3, *Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps*

ISO 4892-4, *Plastics — Methods of exposure to laboratory light sources — Part 4: Open-flame carbon-arc lamps*

ISO 7724-1, *Paints and varnishes — Colorimetry — Part 1: Principles*

ISO 7724-2, *Paints and varnishes — Colorimetry — Part 2: Colour measurement*

ISO 7724-3, *Paints and varnishes — Colorimetry — Part 3: Calculation of colour differences*

ISO 23529, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*