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Fourth edition
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Plastics — Determination of changes in colour and variations in properties after exposure to glass-filtered solar radiation, natural weathering or laboratory radiation sources

Plastiques — Détermination des changements de coloration et des variations de propriétés après exposition au rayonnement solaire sous verre, aux agents atmosphériques ou aux sources de rayonnement de laboratoire



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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 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 6, *Ageing, chemical and environmental resistance*.

This fourth edition cancels and replaces the third edition (ISO 4582:2007), which has been technically revised. The main changes compared to the previous edition are as follows:

- due to the withdrawal of all parts of ISO 7724, the colour measurement procedure has been 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 simulated solar radiation, heat and water on plastics [see ISO 877 (all parts) and ISO 4892 (all parts)]. Each exposure test has its own particular application and relevance. When determining changes in a particular property or attribute of a material subjected to different exposures, the same evaluation methods should be used after all exposures to ensure meaningful results.

Results for plastics subjected to exposure tests are strongly dependent on the type of exposure conditions used, the type of plastic being tested and the property being evaluated. A result obtained for one property may not be the same as that for a different property of the same material, even if the same exposure test is used. This document is not intended to establish a fixed procedure for conducting the exposure test, but is intended to provide a set of specific procedures used to express the results for change in a characteristic property of the material after it has been exposed. It is up to the user to determine which exposure conditions are most relevant to the specific material and the service conditions being used.

Test methods should be selected to determine changes in appearance and properties of the exposed material with its proposed application in mind. The exposure test used should be devised to discriminate among materials based on such changes. This document suggests typical properties that can be used to determine changes in plastics which have been subjected to exposure tests.

NOTE Because of large differences in the spectral distribution of the radiation sources used, there can be large differences in results for the same plastics exposed in the various devices described in ISO 4892 (all parts). Therefore, comparisons between plastics are intended to be made only based on results from exposures in the same type of device and under the same conditions. For optimum comparisons, plastics are expected to be exposed at the same time in the same device.