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Plastics — Instrumental determination of radiant exposure in weathering tests — General guidance and basic test method

*Plastiques — Détermination au moyen d'instruments de l'exposition
énergétique lors d'essais d'exposition aux intempéries — Lignes
directrices générales et méthode d'essai fondamentale*



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Foreword

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 6, *Ageing, chemical and environmental resistance*.

This third edition cancels and replaces the second edition (ISO 9370:2009), which has been technically revised.

The main changes compared to the previous edition are as follows:

- the calibration procedure of selective (UV) radiometers is described more precisely;
- [Annex B](#) has been introduced to give more explanation of a possible spectral mismatch of selective filter radiometers (systematic error).

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Introduction

Defining periods of natural weathering, accelerated natural weathering, artificial accelerated weathering or artificial accelerated irradiation exposure solely in terms of time ignores the effects caused by variation in the spectral irradiance of the light source and the effects of moisture and/or temperature differences between different exposure tests. Defining periods of natural weathering exposure in terms of total solar radiant exposure has been shown to be useful for comparing results for these exposures conducted at different times at the same location. However, it is also important to monitor solar ultraviolet radiant exposure for natural weathering exposures and the ultraviolet radiant exposure in artificial accelerated weathering or artificial accelerated irradiation exposures.

Two approaches to the measurement of ultraviolet radiation are commonly used. The first is to use a physical standard, i.e. to expose a reference material that shows a change in property in proportion to the dose of incident UV radiation. The preferred approach is to use a radiometer that responds to the ultraviolet. This document deals with this approach. It recommends important characteristics for the instruments used and provides guidance for the selection and use of these radiometers.