

# INTERNATIONAL STANDARD

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**Solar thermal electric plants -  
Part 3-6: Durability of silvered-glass reflectors - Laboratory test methods and  
assessment**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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and assessment**

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The text of this International Standard is based on the following documents:

Draft	Report on voting
117/238/FDIS	117/245/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

A list of all parts in the IEC 62862 series, published under the general title *Solar thermal electric plants*, can be found on the IEC website.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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## 1 Scope

This document specifies laboratory test methods to assess the durability of silvered-glass reflectors with high technical performance to be used in concentrating solar technologies. The reflectors within the scope of this document are composed of a float-glass substrate and a reflecting silver layer on its back-side, which is protected by a thin copper layer and an anticorrosive paint system composed of a primer and a top coating, and an optional intermediate coating.

This document defines multiple accelerated aging tests on reflector samples of size of 10 cm × 10 cm or larger. It defines the measurement methods to determine the degradation parameters used for assessment and the acceptance criteria of the accelerated aging tests.

**Annex A** of this document outlines the procedure to apply this document to reflector types of different composition than that of the silvered float-glass reflectors described above.

**Annex B** provides information on how to approximately correlate the measured degradation of selected accelerated aging tests with outdoor exposure in different environments. These correlations are limited to silvered float-glass reflector types with the abovementioned layer stack, since differing coating types are likely to introduce unforeseen degradation modes, which possibly will not be triggered under the proposed testing conditions.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 6270-2, *Paints and varnishes — Determination of resistance to humidity — Part 2: Condensation (in-cabinet exposure with heated water reservoir)*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 9488, *Solar energy — Vocabulary*

ISO 16474-3, *Paints and varnishes — Methods of exposure to laboratory light sources - Part 3: Fluorescent UV lamps*

IEC 60904-3:2016, *Photovoltaic devices - Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data*

IEC 60904-3, *Photovoltaic devices - Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data*

IEC 62108, *Concentrator photovoltaic (CPV) modules and assemblies - Design qualification and type approval*

IEC TS 62862-1-1, *Solar thermal electric plants - Part 1-1: Terminology*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9488, IEC TS 62862-1-1 and the following apply.