IEC 62788-1-1

Edition 1.0 2024-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Measurement procedures for materials used in photovoltaic modules – Part 1-1: Encapsulants – Polymeric materials used for encapsulation

Procédures de mesure des matériaux utilisés dans les modules photovoltaïques – Partie 1-1: Encapsulants – Matériaux polymères utilisés pour l'encapsulation

IEC 62788-1-1:2024-09 (en-fr)

IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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IEC 62788-1-1 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems. It is an International Standard.

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

Draft	Report on voting
82/2239/FDIS	82/2261/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.

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. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62788 series, published under the general title *Measurement procedures for materials used in photovoltaic modules*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
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- revised.

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MEASUREMENT PROCEDURES FOR MATERIALS USED IN PHOTOVOLTAIC MODULES –

Part 1-1: Encapsulants – Polymeric materials used for encapsulation

1 Scope

The encapsulant fulfils the purposes of optically coupling the cell to external radiation; mechanically attaching and holding module components in their relative positions; electrically isolating module components; thermally coupling module components; and chemically protecting module components (e.g., by limiting the concentration and transport of water and/or oxygen). This part of IEC 62788 defines test methods and reporting requirements for characteristics (optical, mechanical, electrical, thermal, and chemical) of non-rigid polymeric materials (e.g., poly(ethylene-co-vinyl acetate), EVA) intended for use in terrestrial photovoltaic (PV) modules as polymeric encapsulants.

Typically, encapsulants are considered functional insulators, i.e., they provide electrical insulation when present, but may not meet the requirements of relied upon insulation. Requirements related to relied upon insulation are identified in IEC 61730-1 and IEC 62788-2-1.

The test methods in this document define how to characterize encapsulant materials in a manner representative of how they will be used in the module, which includes combination with other components such as frontsheets, backsheets, adhesives, edge seals, or glass. The methods described in this document support and supplement the safety- and performance-related tests defined on the PV module level, as defined in IEC 61730-2 and IEC 61215-2. This document also defines test methods for general assessment of material characteristics of polymeric encapsulants.

The test methods described in this document may be used for the purposes of: datasheet reporting (aiding module design or material research and development); process and manufacturing control (e.g., incoming or outgoing inspection); application in module safety and design type qualification protocols or reliability and durability study/standards development.

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.

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 61215-2, *Terrestrial photovoltaic (PV) modules – Design qualification and type approval – Part 2: Test procedures*

IEC 61730-1:2023, *Photovoltaic (PV) module safety qualification – Part 1: Requirements for construction*

IEC 61730-2, *Photovoltaic (PV) module safety qualification – Part 2: Requirements for testing*