

Safety qualification for front and back sheets – IEC 62788-2-1:2023-08

Measurement procedures for materials used in photovoltaic modules
– Part 2-1: Polymeric materials – Frontsheet and backsheet – Safety requirements | Edition 1.0

In September 2023, the new editions of the IEC 61730-1 and -2 standards were published. These address the safety requirements that PV modules must meet in their design. These include the prevention of electric shock, fire hazards, and personal injury from mechanical and environmental stresses.

A significant change in these new editions is the inclusion of front and back sheets at component level.

For module certification, future module certification will require that the front and back sheets used comply with the IEC 62788-2-1:2023-08 safety standard.

IEC 62788-2-1:2023-08

The key points in brief:

- This document provides definitions of front and backsheet construction types and associated test requirements and additional environmental impact tests referred to in IEC 61730-1. The separation of the component-level tests in this document has been considered to reduce the complexity of the IEC 61730 series of standards.

„This document focusses on the safety-relevant properties of front and backsheets as required by IEC 61730“.

- This document specifies the safety requirements for flexible polymeric front- and backsheet constructions intended for use as reliable insulation in photovoltaic (PV) in photovoltaic (PV) modules.

The specifications in this document define the specific requirements for polymeric front or backsheet constructions at the component level and mechanical, electrical, visual, and thermal characterization in unexposed condition and/or after aging.

“For qualification to IEC 61730-1 of a PV module using a polymeric front or backsheet, the sheet must pass the requirements in this document for the specified module’s safety class, rated system voltage, and module temperature rating.”



The scope of this document includes Class II and Class 0 modules as defined in IEC 61730-1. Class III modules are out of scope.

CHALLENGES FOR MANUFACTURERS

One challenge in the testing of front and backsheets in accordance with 62788-2-1:2023-08 is the sometimes long test duration. It is therefore crucial for manufacturers to understand and comply with this new standard and to start testing the front and back sheets at an early stage of the project. Below you can find an overview of the required tests. For time-sensitive tests, you will also find information on the test duration.

IEC 62788-2-1:2023-08 TESTS AT A GLANCE

FBST No.	FBST 07 Damp heat: 1 000 h	FBST 08 UV: 4 000 h: sun-facing side 2 000 h: air-side backsheet
FBST 01	Visual Inspection	
FBST 02	Tensile properties	
FBST 03	Breakdown voltage	

FBST 04	Distance through insulation
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FBST 05	Material group (CTI)
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FBST No.	FBST 06 Thermal endurance	
	TI or RTE (RTI): min. 5000h	Thermal failsafe: 2000h
FBST 02	Tensile properties	
FBST 03	Breakdown voltage	—

GET IN TOUCH WITH US!

TÜV Rheinland's testing laboratories are qualified to perform tests in accordance with the new standard and offer certification services according to the latest edition of the IEC 62788-2-1:2023-08.

We will be happy to answer your questions, create a customized test plan, and provide you with a quote.

[CONTACT US!](#) 

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