

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

**Measurement procedures for materials used in photovoltaic modules –
Part 5-1: Edge seals – Suggested test methods for use with edge seal materials**

**Procédures de mesure des matériaux utilisés dans les modules
photovoltaïques –
Partie 5-1: Joints d'étanchéité périphériques – Méthodes d'essai suggérées
pour l'utilisation des matériaux de joints d'étanchéité périphériques**

<https://standards.iteh.ai/catalog/standards/sist/adc0dc4e-699c-48bb-8cbd-caefef0890a4/iec-62788-5-1-2020-amd1-2022>



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2022 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

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

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

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

**Measurement procedures for materials used in photovoltaic modules –
Part 5-1: Edge seals – Suggested test methods for use with edge seal materials**

**Procédures de mesure des matériaux utilisés dans les modules
photovoltaïques –
Partie 5-1: Joints d'étanchéité périphériques – Méthodes d'essai suggérées
pour l'utilisation des matériaux de joints d'étanchéité périphériques**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 27.160

ISBN 978-2-8322-1069-6

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MEASUREMENT PROCEDURES FOR MATERIALS
USED IN PHOTOVOLTAIC MODULES –**

**Part 5-1: Edge seals –
Suggested test methods for use with edge seal materials**

AMENDMENT 1

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 1 to IEC 62788-5-1:2020 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

The text of this Amendment is based on the following documents:

Draft	Report on voting
82/1973/FDIS	82/1991/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 Amendment 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/standardsdev/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,
- withdrawn,
- replaced by a revised edition, or
- amended.

1 Scope

In the third paragraph, add the following new sentence after the first sentence:

The use of tests in this document does not evaluate compatibility with other materials or appropriateness for a given technology.

2 Normative references [IEC 62788-5-1:2020/AMD1:2022](http://standards.iteh.ai/catalog/standards/sist/adc0dc4e-699c-48bb-8cbd-caefef0890a4/iec-62788-5-1-2020-amd1-2022)

For IEC 60243-1 and IEC 60243-2, remove reference to the year 2013.

4.3.1 Dielectric strength of the film

Delete the second paragraph.

In the third paragraph, remove the year 2013, from the references to IEC 60243-1.

In the note, change the phrase "requirements for dielectric testing" to "requirements for the dielectric test".

4.4 Adhesion testing

Change the subclause title as follows:

4.4 Adhesion test

4.4.2 Lap shear strength

In the second line of the first paragraph, replace the word "strain" by the word "pull".

In the note, third sentence, replace:

"between 1 mm min⁻¹ and 3 mm min⁻¹" by "between 0,76 mm min⁻¹ and 4 mm min⁻¹".

Add, between subclause 4.4.4 and 4.4.5, the following new subclause 4.4.6:

4.4.6 180° peel test

The peel test may also be performed with a 180° pull test as recommended by the backsheet standard IEC TS 62788-2:2017, Clause B.1.

4.4.5 Butt joint test

In the second sentence of the first paragraph, replace "Rectangular test specimens" with "Test specimens".

After the second sentence of the first paragraph, add the following new sentence:

The total sample area shall be between 0,5 cm² and 1,5 cm², and the maximum aspect ratio of the largest and smallest dimension shall be less than 1,5. This means that rectangular or even circular samples may be used. But in coring a sample, caution shall be used to ensure the samples are not damaged by torque.

After this new sentence, add to the beginning of what was previously the third sentence:

If cut from a production module, it is recommended that one side...

At the end of the first paragraph, add the following new sentence:

One may also use engineered coupons with pre-cut superstrate and substrate material. If this is done the thermal treatment and material thickness shall be taken.

Number the two formulas as "(1)" and "(2)" respectively.

4.5.2 Dielectric strength degradation

Delete the text of this subclause and replace it with:

Void.

Keep Figure 3.

4.5.3.4 Water immersion testing

Delete the text of this subclause and replace it with:

Void.

4.5.3.5 Adhesion after water immersion

Delete the text of this subclause and replace it with:

Void.

4.5.3.6 Dielectric strength after water immersion

Delete the text of this subclause and replace it with:

Void.

4.7 Coefficient of thermal expansion

Delete the text of this subclause and replace it with:

Void.

4.8.1 Complex shear modulus

Number the formula as "(3)".

4.9 Other data

Delete the text of this subclause and replace it with:

Void.

5 Test report

At the end of the first sentence of the first paragraph, replace the word "agency" with "laboratory".

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[IEC 62788-5-1:2020/AMD1:2022](https://standards.iteh.ai/catalog/standards/sist/adc0dc4e-699c-48bb-8cbd-caefef0890a4/iec-62788-5-1-2020-amd1-2022)

<https://standards.iteh.ai/catalog/standards/sist/adc0dc4e-699c-48bb-8cbd-caefef0890a4/iec-62788-5-1-2020-amd1-2022>