International Standard

ISO 11431

Building and civil engineering sealants — Determination of adhesion and cohesion properties of sealants after exposure to heat, water and artificial light through glass

Mastics pour le bâtiment et le génie civil — Détermination des propriétés d'adhésivité et de cohésion des mastics après exposition à la chaleur, à l'eau et à la lumière artificielle à travers le verre

Third edition
2025-08

Reference number
ISO 11431:2025(en)

© ISO 2025



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword ..... **iv**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Principle **1**

5 Apparatus **2**
5.1 Glass supports 2
5.2 Spacers 2
5.3 Anti-adherent substrate 3
5.4 Ventilated convection-type oven 3
5.5 Container 3
5.6 Test chamber with an artificial light source 3
5.7 Artificial light source with suitable filters 3
5.8 Black standard thermometer 3
5.9 Extension machine 4
5.10 Separators 4
5.11 Measuring device 4

6 Preparation of specimens **4**

7 Conditioning **4**
7.1 General 4
7.2 Method A 4
7.3 Method B 4

8 Test procedures **5**
8.1 General 5
8.2 Exposure conditions 5
8.2.1 General 5
8.2.2 Automatic cycling 5
8.2.3 Manual cycling 5
8.3 Elongation of the specimens 5

9 Test report **6**

© ISO 2025 – All rights reserved

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 59, *Buildings and civil engineering works*, Subcommittee SC 8, *Sealants*,in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/BT Technical Board, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 11431:2002), which has been technically revised.

The main changes are as follows:

— the title has been revised from *Building construction — Jointing products — Determination of adhesion/cohesion properties of sealants after exposure to heat, water and artificial light through glass*;

— normative references have been updated;

— a normative reference to ISO 4892-2 has been added in 5.6;

— 5.7 has been revised;

— in 5.8, the subclause of referenced document has been revised and the preferred device for measuring the maximum surface temperature has been added;

— the tolerance for relative humidity has been revised in 7.2 and 8.3.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2025 – All rights reserved

Building and civil engineering sealants — Determination of adhesion and cohesion properties of sealants after exposure to heat, water and artificial light through glass

1 Scope

This document specifies a method for the determination of the adhesion and cohesion properties of sealants after cyclic exposure to heat and artificial light followed by a period of exposure to water at a defined temperature.

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 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance and requirements*

ISO 4892-2:2013, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps*

ISO 6927, *Building and civil engineering sealants — Vocabulary*

ISO 13640, *Building and civil engineering sealants — Specifications for test substrates*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6927 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Principle

Specimens are prepared in which the sealant to be tested adheres to two parallel glass surfaces. After submitting the specimens to a cyclic exposure to artificial light at elevated temperature and to water, the specimens are extended to a defined width. After maintenance of the extension for a defined time, the specimens are examined for evidence of loss of adhesion or cohesion.

NOTE The cyclic exposure of the test specimens to water and to radiation and heat is meant to simulate the exposure of sealants in service to natural weather conditions. The acceleration factor in comparison with the real situation is unknown. The intention is not to receive durability data for the sealants under evaluation but to ensure a minimum performance in glazing applications.

© ISO 2025 – All rights reserved

5 Apparatus

5.1 Glass supports

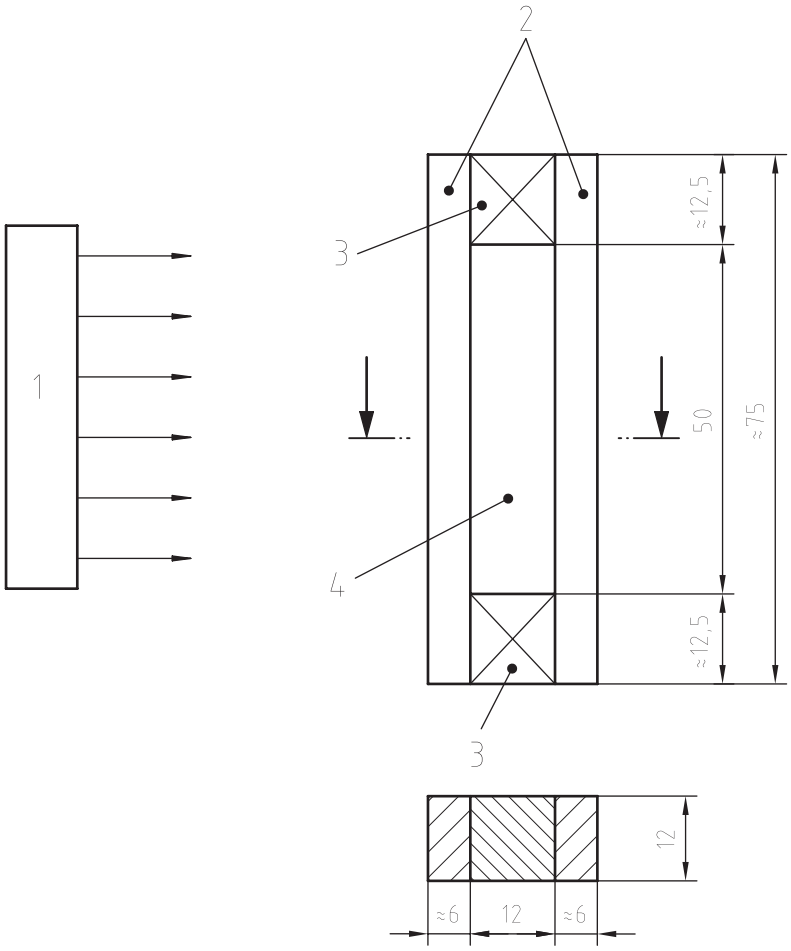
Glass supports shall be used for the preparation of the specimens.

The glass supports shall be as defined in ISO 13640. For each test specimen, two glass supports shall be used with a cross-section of dimensions as shown in Figure 1. Test substrates of other dimensions may be used, but the dimensions of the sealant bead, the thickness of the glass and the area of adhesion shall be the same as those shown in Figure 1.

5.2 Spacers

Spacers of cross-section with anti-adherent surface, e.g. by a thin wax coating or a polyethylene film shall be used for the preparation of the specimens. The dimensions of spacers are 12 mm × 12 mm × 12,5 mm (see Figure 1).

Dimensions in millimetres



Key

1	light
2	glass supports
3	spacers
4	sealant

Figure 1 — Assembly and dimensions of a specimen and direction of light exposure

© ISO 2025 – All rights reserved