INTERNATIONAL STANDARD

ISO 9046

Second edition
2002-05-01

Building construction — Jointing products — Determination of adhesion/cohesion properties of sealants at constant temperature

Construction immobilière — Produits pour joints — Détermination des propriétés d'adhésivité/cohésion des mastics à température constante

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 9046:2002
https://standards.iteh.ai/catalog/standards/sist/07a6a808-e291-4076-b184-
eaa7c8474a84/iso-9046-2002

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 9046 was prepared by Technical Committee ISO/TC 59, *Building construction*, Subcommittee SC 8, *Jointing products*.

This second edition cancels and replaces the first edition (ISO 9046:1987), which has been technically revised.

iTeh STANDARD PREVIEW

(standards.iteh.ai)

ISO 9046:2002
https://standards.iteh.ai/catalog/standards/sist/07a6a808-e291-4076-b184-
eaa7c8474a84/iso-9046-2002

iii

ISO 9046:2002
https://standards.iteh.ai/catalog/standards/sist/07a6a808-e291-4076-b184-
eaa7c8474a84/iso-9046-2002

Building construction — Jointing products — Determination of adhesion/cohesion properties of sealants at constant temperature

1 Scope

This International Standard specifies a method for the determination of the adhesion/cohesion properties of sealants with predominantly plastic behaviour which are used in joints in building construction.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 6927, *Building construction — Jointing products — Sealants — Vocabulary*

ISO 13640, *Building construction — Jointing products — Specifications for test substrates*

3 Terms and definitions

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

4 Principle

Test specimens are prepared in which the sealant to be tested adheres to two parallel surfaces. After submission to cycles of compression and extension, the test specimens are examined for evidence of loss of adhesion or cohesion.

5 Apparatus

5.1 Substrate materials, mortar or anodized aluminium or glass, used for the preparation of test specimens are defined in ISO 13640. Other substrate materials may be used as agreed by the parties concerned.

For each test specimen, two substrate pieces of the same material are required with dimensions as shown in Figures 1 and 2. Test substrates of other dimensions may be used, but the dimensions of the sealant bead and the area of adhesion shall be the same as those shown in Figures 1 and 2.

5.2 Spacers, for the preparation of the test specimens, of dimensions 12 mm $\times$ 12 mm $\times \approx$ 12,5 mm with anti-adherent surface (see Figures 1 and 2).

5.3 Anti-adherent substrate, for the preparation of test specimens, e.g. polyethylene (PE) film, preferably according to the advice of the sealant manufacturer.

5.4 Ventilated convection-type oven, capable of being maintained at (70 ± 2) °C.

5.5 Container for water immersion of the specimen, for conditioning according to method B.

Dimensions in millimetres
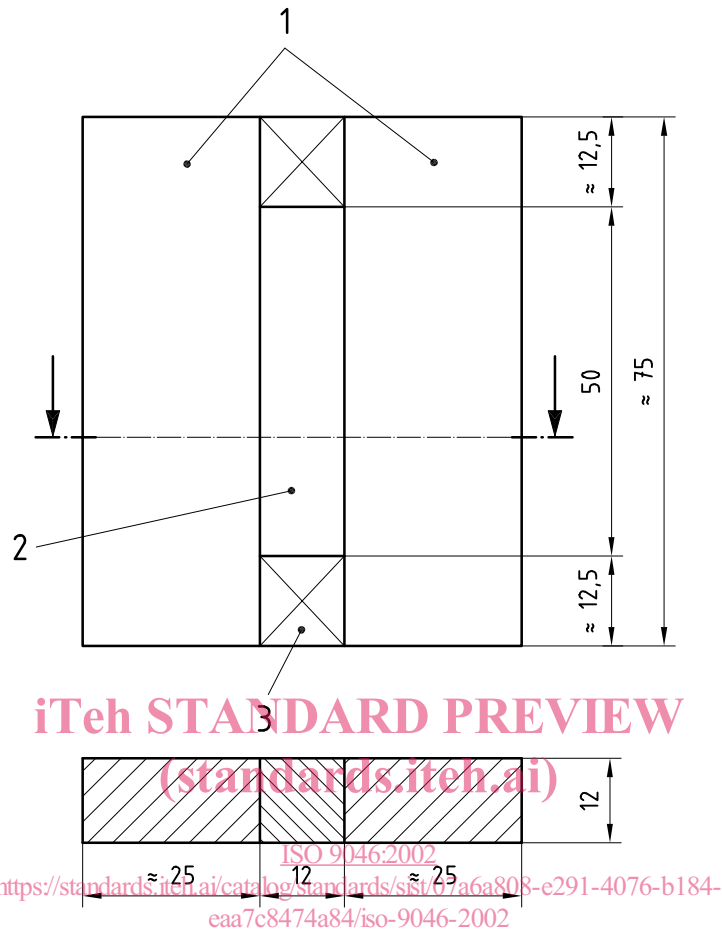
Key

1   Mortar substrates
2   Sealant
3   Spacer

Figure 1 — Test specimen with mortar substrates

5.6   Test machine, capable of carrying out extension/compression cycles at a rate of $(1 \pm 0{,}2)$ mm/min.

**5.7   Measuring device**, scaled in 0,5 mm.

6   Preparation of test specimens

The sealant and the substrate shall be brought to (23 ± 2) °C. For each substrate material selected, three test specimens shall be prepared.

For each test specimen, two substrates (5.1) and two spacers (5.2) shall be assembled (see Figures 1 and 2) and set up on the anti-adherent substrate (5.3).

The instructions of the sealant manufacturer concerning, for instance, whether a primer is to be used and the mixing procedure for multi-component sealants shall be followed. The hollow formed by the substrates shall be filled with the sealant.

Dimensions in millimetres
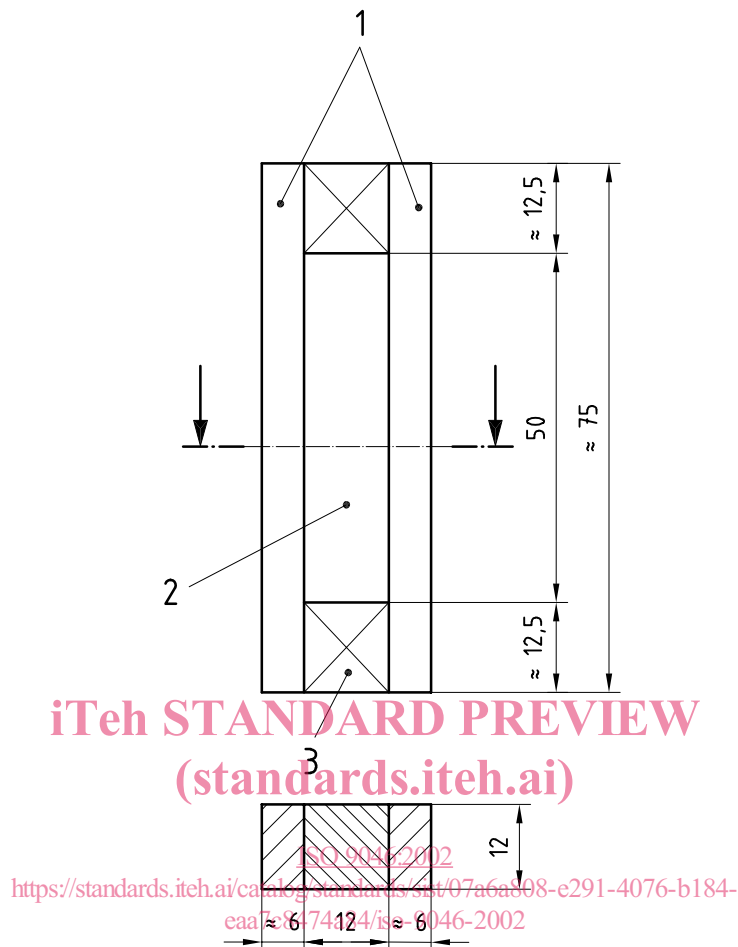
Key

1   Anodized aluminium or glass substrates

2   Sealant

3   Spacer

Figure 2 — Test specimen with anodized aluminium or glass substrates

The following precautions shall be taken:

a)   the formation of air bubbles shall be avoided;

b)   the sealant shall be pressed to the contact surfaces of the substrates;

c)   the sealant surface shall be trimmed so that it is flush with the faces of the substrates and the spacers.

The specimens shall be set on the edge of one of the substrates. The anti-adherent substrate shall be removed as soon as possible. The specimens shall rest in this position to allow curing or optimum drying of the sealant.

The spacers shall be maintained in place during conditioning.

7 Conditioning of test specimens

7.1 Preconditioning

After preparation, the test specimens shall be preconditioned for 28 days at (23 ± 2) °C and (50 ± 5) % relative humidity.

7.2 Specific conditioning

After preconditioning according to 7.1, all test specimens shall be conditioned for 14 days in the oven (5.4) at (70 ± 2) °C plus one day at (23 ± 2) °C and (50 ± 5) % relative humidity.

8 Procedure

Following the conditioning according to clause 7, the spacers shall be removed and the test specimens shall be subjected to extension/compression cycles by use of the test machine (5.6) at a test temperature of (23 ± 2) °C. The number of cycles shall be 100, carried out at a speed of 1 mm/min.

The extension/compression amplitude shall be $\pm 12,5$ % or $\pm 7,5$ %, or any amplitude agreed by the parties concerned.

Table 1 gives the correspondence between the percent of elongation and the final width after extension for a test specimen of initial width 12 mm.

Table 1 — Correspondence of amplitude and width values

Amplitude	Width after extension	Width after compression
%	mm[a]	mm[a]
$\pm 12,5$	13,5	10,5
$\pm 7,5$	12,9	11,1
[a] Initial width 12 mm.		

After the test specimens have been submitted to cycling, they shall be allowed to relax for one hour, before being examined for loss of adhesion or cohesion. The depth of adhesive or cohesive failures shall be measured using a suitable measuring device capable of reading to 0,5 mm.

9 Test report

The test report shall contain the following information:

a) name of laboratory and date of test;

b) a reference to this International Standard;

c) name, type (chemical family) and colour of sealant;

d) batch of sealant from which the test specimens were produced;

e) the substrates used (see 5.1);

f) the primer(s) used, if applicable;

g) the amplitude of the extension/compression cycling (see clause 8);

h) the depth and location of the loss of adhesion and/or cohesion for each test specimen;

i) any deviation from this International Standard.