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Building construction — Sealants — Determination of resistance to compression

Construction immobilière — Mastics — Détermination de la résistance à la compression

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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.

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.

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Building construction — Sealants — Determination of resistance to compression

1 Scope

This International Standard specifies a method for the determination of the resistance to compression of sealants used in joints in building construction.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6927:1981, *Building construction — Jointing products — Sealants — Vocabulary.*

3 Definitions

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

4 Principle

Preparation of test specimens in which the sealant to be tested adheres to two parallel contact surfaces. Compression of the test specimens to a defined value under defined conditions and recording the applied force and the resulting stress.

5 Apparatus

5.1 Aluminium supports, for the preparation of test specimens (two supports are required for each specimen), of dimensions as shown in figure 1.

5.2 Spacers, for the preparation of the test specimens, of dimensions 12 mm × 12 mm × 12,5 mm, with non-adherent surface (see figure 1).

NOTE 1 If the spacers are made of a material to which the sealant adheres, their surfaces should be made non-adherent, e.g. by a thin wax coating.

5.3 Non-adherent substrate, for the preparation of test specimens, e.g. polytetrafluoroethylene (PTFE) film or vellum paper, preferably on the advice of the sealant manufacturer.

5.4 Ventilated convection-type oven, capable of being maintained at 70 °C ± 2 °C, and having an air exchange rate of 30 ± 5 times per hour, for conditioning according to method B.

5.5 Container, filled with distilled water, for conditioning according to method B.

5.6 Test machine, with recording device, capable of compressing the test specimens at a rate of 5 mm/min to 6 mm/min.

6 Preparation of test specimens

Three test specimens shall be prepared.

For each test specimen, two supports (5.1) and two spacers (5.2) shall be assembled (see figure 1) and set up on the non-adherent substrate (5.3) which should be wetted by water containing a detergent to facilitate their subsequent removal.

The instructions of the sealant manufacturer shall be followed concerning, for instance, whether a primer is to be used.

The hollow volume formed by the supports and spacers shall be filled with the sealant which has been conditioned for 24 h at 23 °C ± 2 °C. The following precautions shall be taken:

a) avoid the formation of air bubbles;

b) press the sealant to the inner surfaces of the supports;

c) trim the sealant surface so that it is flush with the faces of the supports and spacers.

The test specimens shall be set on edge on one of the supports and the non-adherent substrate shall be removed as soon as possible. The specimens shall remain in this position with the spacers in place for another 48 h to allow curing or optimum drying of the sealant.

Dimensions in millimetres

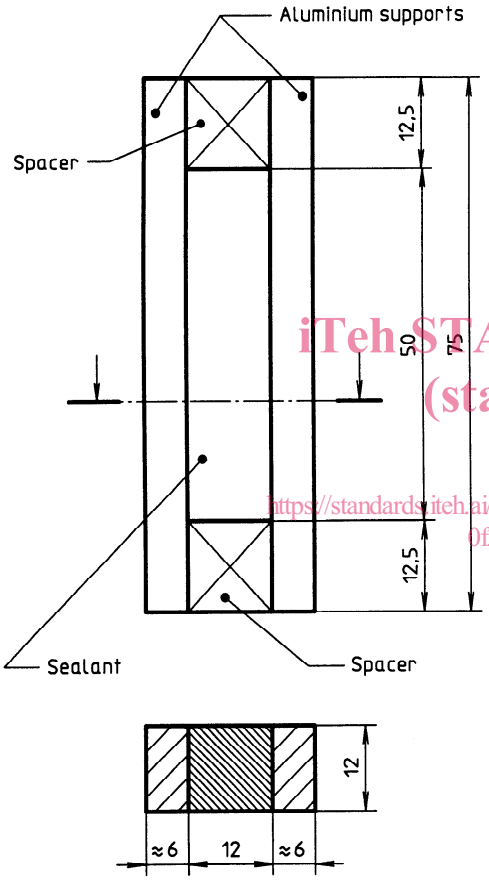

Figure 1 — Test specimen assembly

7 Conditioning

7.1 General

The test specimens shall be conditioned in accordance with either method A or method B, as agreed between the parties concerned.

7.2 Method A

The test specimens shall be conditioned for 28 days at 23 °C ± 2 °C and (50 ± 5) % relative humidity.

7.3 Method B

The test specimens shall be conditioned according to method A and shall then be subjected three times to the following storage cycle:

a) 3 days in the oven (5.4) at 70 °C ± 2 °C;

b) 1 day in a container (5.5) filled with distilled water at a temperature of 23 °C ± 1 °C;

c) 2 days in the oven at 70 °C ± 2 °C;

d) 1 day in distilled water at a temperature of 23 °C ± 1 °C.

Alternatively, this cycle may be performed in the order c) to d) to a) to b).

NOTE 2 Method B is a commonly used conditioning procedure using the influence of heat and water. It is not suitable for giving information on the durability of the sealant.

8 Test procedure

Carry out the test at a temperature of 23 °C ± 2 °C.

Remove the spacers from the test specimens, compress the test specimens in the test machine (5.6) at a rate of 5 mm/min to 6 mm/min to 75 % or 80 % of their original joint width.

Table 1 gives the joint widths, l_1, in millimetres, after compression of the test specimens having an initial width, l_0, of 12 mm.

Table 1 — Joint widths after compression

Ratio l_1/l_0	Final joint width, l_1
%	mm
75	9
80	9,6

Record the force, in newtons, required for the appropriate compression.

9 Test report

The test report shall include the following information:

a) reference to this International Standard;

b) name and type of sealant;

c) batch of sealant from which the test specimens were produced, if possible;

d) the primer used, if applicable;

e) the method of conditioning used (see clause 7);

f) the compression used (see clause 8);

g) the force (in newtons) and the calculated stress (in newtons per square millimetre) for the appropriate compression;

h) any deviations from the specified test conditions.

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