International Standard 8340

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Building construction — Jointing products — Sealants — Determination of tensile properties at maintained extension

Construction immobilière — Produits pour joints — Mastics — Détermination des propriétés de déformation sous traction maintenue

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

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Building construction — Jointing products — Sealants — Determination of tensile properties at maintained extension

1 Scope and field of application

This International Standard specifies a method for the determination of the tensile properties at maintained extension of sealants used in joints in building construction.

NOTE — A method for the determination of tensile properties is specified in ISO 8339.

2 References

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

ISO 8339, *Building construction — Jointing products — Sealants — Determination of tensile properties.*

3 Definitions

For the purpose 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. Extension of the test specimens to a defined width and maintaining this extension under defined conditions. Recording of any breaks in adhesion or cohesion.

5 Apparatus

5.1 Concrete and/or aluminium and/or flat glass supports, for the preparation of test specimens (two supports are required for each test specimen), of dimensions as shown in figures 1 and 2.

NOTE — For testing sealants of high modulus with flat glass supports, adequate reinforcement of the flat glass supports shall be provided.

5.2 Spacers, of dimensions 12 mm × 12 mm × 12,5 mm, for the preparation of test specimens (see figures 1 and 2).

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

5.4 Spacers, of appropriate dimensions to hold the test specimens extended to 125, 160 or 200 % of the original width (see the table).

5.5 Tensile test machine, capable of extending the test specimens at a rate of 5 to 6 mm/min.

5.6 Refrigerated container, capable of holding the tensile test machine (5.5) and of operating at (−20 ± 2) °C.

5.7 Convection-type oven, capable of being controlled at (70 ± 2) °C.

5.8 Container, for immersing test specimens in water.

6 Preparation of test specimens

Two supports (5.1) and two spacers (5.2) shall be assembled according to figure 1 or 2 and set up on the anti-adherent substrate (5.3).

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

The volume delimited by supports and spacers shall be filled with sealant, previously conditioned for 24 h at (23 ± 2) °C. The following precautions shall be taken :

a) avoid the formation of air bubbles;

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

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

Then set the test specimens on edge and remove the anti-adherent substrate within 48 h so as to allow reticulation or complete drying of the sealant joint, with the spacers remaining for 28 days.

7 Conditioning

7.1 General

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

After conditioning, the test specimens shall be stored for at least 24 h at (23 ± 2) °C and (50 ± 5) % relative humidity before testing.

7.2 Method A

The test specimens shall be conditioned for 28 days at (23 ± 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 (5.7) at (70 ± 2) °C;

b) 1 day in distilled water at (23 ± 1) °C;

c) 2 days in the oven (5.7) at (70 ± 2) °C;

d) 1 day in distilled water at (23 ± 1) °C.

Alternatively, this cycle may be carried out in the order c) — d) — a) — b).

NOTE — 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 Procedure

The test shall be carried out at temperatures of (23 ± 2) °C and (−20 ± 2) °C.

Three test specimens shall be tested at each temperature. When testing at −20 °C, the test specimens shall be preconditioned at (−20 ± 2) °C for at least 4 h before the start of the test.

Remove the spacers (5.2) for the preparation of the test specimens, place the test specimen in the tensile test machine (5.5) and extend it to 125, 160 or 200 % of the original width as agreed between the parties concerned, at a rate of 5 to 6 mm/min. Maintain this extension for 24 h using the spacers (5.4).

Record any breaks in adhesion or cohesion; where testing at −20 °C, this should be done after the test specimen has been removed from the refrigerated container and thawed.

The following table gives the joint width (l_1), in millimetres, after extension for test specimens of initial width (l_0) 12 mm.

Table — Joint widths after extension

Ratio of final joint width to initial width %	Final joint width l_1 mm
125	15
160	19,2
200	24

9 Test report

The test report shall make reference to this International Standard and shall include the following information :

a) name and type of sealant;

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

c) type or types of support material (see 5.1);

d) the primer used, if applicable;

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

f) the extension used (see clause 8);

g) details of any break in adhesion or cohesion;

h) any deviations from the specified test conditions.

Dimensions in millimetres

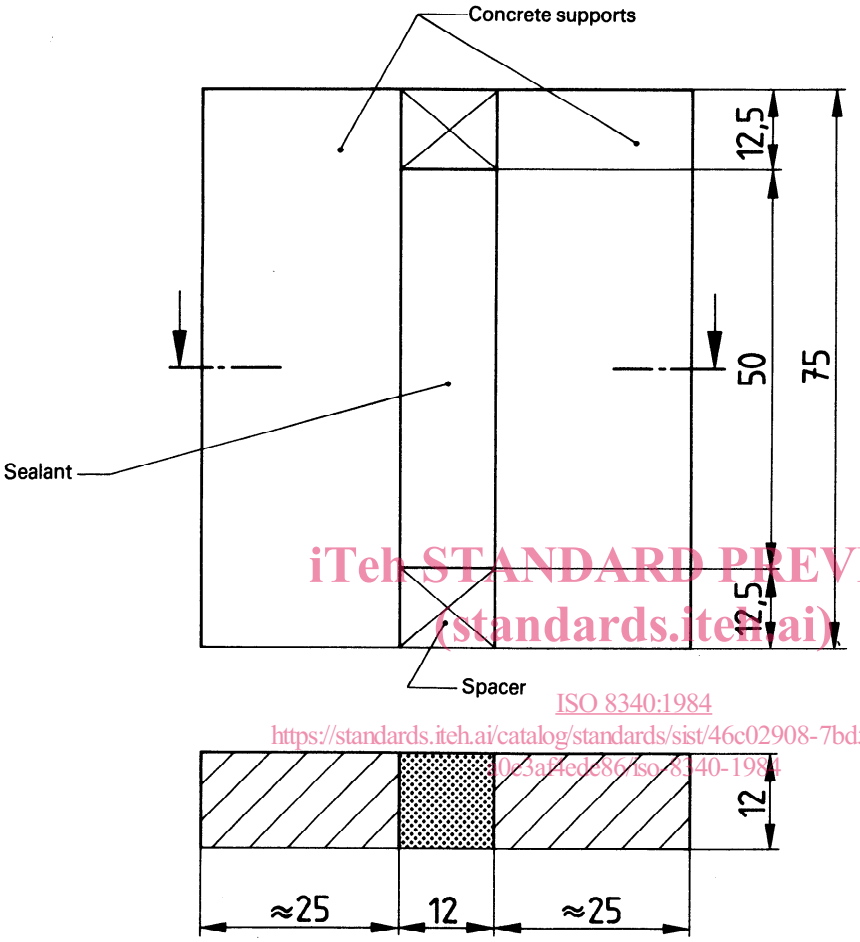

Figure 1 — Test specimen with concrete supports

Dimensions in millimetres

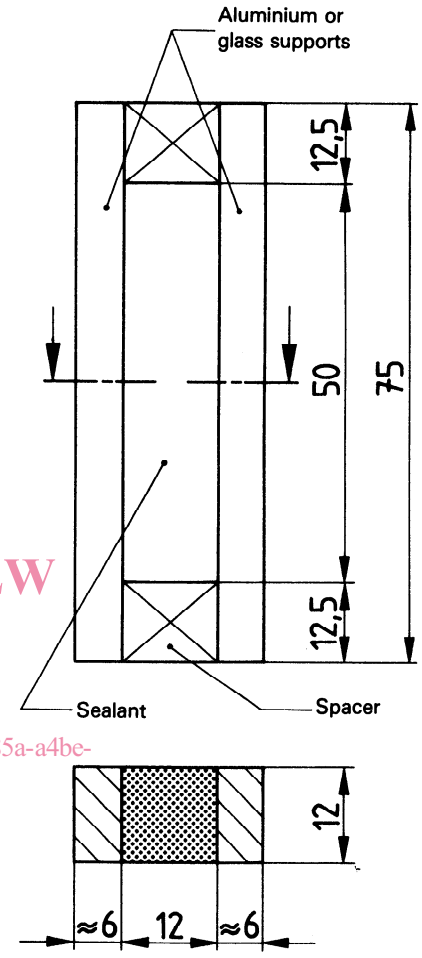

Figure 2 — Test specimen with aluminium or glass supports