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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 13477.10-2017

**Test method for building sealants - Part 10: Determination of
tensile properties at maintained extension**
(English Translation)

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Foreword

GB/T 13477 Test Method for Building Sealants is divided into 20 parts:

- Part 1: Specifications for Test Substrates;
- Part 2: Determination of Density;
- Part 3: Determination of Extrudability of Sealants Using Standardized Apparatus;
- Part 4: Determination of Extrudability of One-component Sealants;
- Part 5: Determination for Tack-free Time;
- Part 6: Determination of Flow;
- Part 7: Determination of Low-temperature Flexibility;
- Part 8: Determination of Tensile Properties;
- Part 9: Determination of Adhesion / Cohesion Properties after Immersion in Water;
- Part 10: Determination of Tensile Properties at Maintained Extension;
- Part 11: Determination of Tensile Properties at Maintained Extension after Immersion in Water;
- Part 12: Determination of Adhesion / Cohesion Properties at Constant Temperature;
- Part 13: Determination of Adhesion / Cohesion Properties at Variable Temperatures;

- Part 14: Determination of Resistance to Prolonged Exposure to Water;
- Part 15: Determination of Adhesion / Cohesion Properties after Exposure to Heat and Artificial Light through Glass and to Water;
- Part 16: Determination of Resistance to Compression;
- Part 17: Determination of Elastic Recovery;
- Part 18: Determination of Adhesion-in-peel;
- Part 19: Determination of Change in Mass and Volume;
- Part 20: Determination of Staining.

This is Part 10 of GB/T 13477.

This Part was drafted in accordance with the rules provided in GB/T 1.1-2009.

Test Method for Building Sealants - Part 10: Determination
of Tensile Properties at Maintained Extension

1 Scope

This Part of GB/T 13477 specifies the method for the determination of tensile properties at maintained extension of building sealants.

This Part is applicable to the determination of tensile adhesion properties of building sealants
at maintained extension.

2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 13477.1 Test Method for Building Sealants - Part 1: Specifications for Test Substrates (GB/T 13477.1-2002, ISO 13640:1999, MOD)

GB/T 14682 Building Sealing Material Vocabulary (GB/T 14682-2006, ISO 6927:1981, NEQ)

3 Terms and Definitions

The terms and definitions defined in GB/T 14682 are applicable to this document.

4 Principle

Adhere the sealant to be tested between the surfaces of two parallel substrates to prepare a test

piece. Stretch the test piece to a specified width and maintain it in this stretched state under the

specified conditions. Record the failure mode of the sealant's adhesion or cohesion.

5 Standard Test Conditions

The standard test conditions of the laboratory are: temperature $(23 \pm 2) ^\circ\text{C}$ and relative humidity

$(50 \pm 5)\%$.

6.1 Adhesion substrate: cement mortar board, glass plate or aluminum plate that complies with

the stipulations of GB/T 13477.1; used to prepare test pieces. The shapes and dimensions of the

substrate are shown in Figure 1 and Figure 2. For each test piece, two substrates of the same

material shall be used. Alternatively, substrates of other materials and dimensions can also be

selected as agreed upon by all parties, but the adhesion size and area of the embedded sealant

specimen shall be the same as shown in Figure 1 and Figure 2.

6.2 Isolation pad: the surface shall be anti-adhesive; used to prepare test pieces with a sealant

cross-section of 12 mm x 12 mm (as shown in Figure 1 and Figure 2).

6.3 Anti-adhesive material: anti-adhesive film or anti-adhesive paper, for example, polyethylene (PE) film, which should be selected in accordance with the recommendations of

the sealant manufacturer. It is used to prepare test pieces.

6.4 Positioning pad: used to control the width of the stretched test piece, allowing the test piece

to maintain an elongation rate of 25%, 60% and 100% of the initial width or the width agreed

upon by all parties.

6.5 Tensile testing machine: capable of stretching the test piece at a speed of (5.5 ± 0.7) mm/min.

6.6 Low-temperature test chamber: capable of accommodating the test piece for tensile test at

$(-20 \pm 2) ^\circ\text{C}$.

6.7 Air blast drying oven: the temperature can be adjusted to $(70 \pm 2) ^\circ\text{C}$; used to handle test

pieces in accordance with Method B (see 8.3).

6.8 Container: used to hold distilled water and soak test pieces in accordance with Method B

(see 8.3).

7 Preparation of Test Piece

Use a degreasing gauze to remove floating dust from the surface of the cement mortar board.

Use solvents, for example, acetone, to clean the aluminum plate and glass plate, then, dry them.

In accordance with the sealant manufacturer's instructions (for example, whether to use primer

and the mixing procedures for multi-component sealants), prepare the test pieces.

Maintain the sealant and substrate at $(23 \pm 2) ^\circ\text{C}$. For each type of substrate and each test temperature, prepare 3 test pieces.

As shown in Figure 1 and Figure 2, assemble two pieces of adhesion substrate and two pieces

of isolation pad on the anti-adhesive material to form a cavity. Then, embed the sealant