GDT 47

A. Scope

For a complete list of GDTs, see the Table of Contents.

Use this test method to measure recovery of preformed elastic joint sealer.

B. Apparatus

The apparatus consists of the following:

1. Compression Clamp: Use a compression clamp made of two or more flat steel plates as described in ASTM D 395, Method B, or any basic device by which uniform deflection can be applied to a specimen. The device should be able to measure a 5 in (127 mm) long specimen.
2. Steel Spacers: Use steel spacer bars with the compression clamps to allow the proper spacing of the steel plates.
3. Air Oven: Use a forced draft convection oven with proper temperature control to maintain the specified temperature within ± 2 °F (1 °C).
4. Low Temperature Box: Use a refrigerated box capable of maintaining the temperature within ± 2 °F (1 °C) on temperature settings within the range of 45 °F to -30 °F (7 °C to -34 °C).
5. Measuring Device: Use a dial gage, vernier caliper, or micrometer graduated in 0.001 in (0.0001 mm) (WM-03).

C. Sample Size and Preparation

1. Select samples of the fabricated joint sealer at random from the furnished sealers.
2. Each test specimen is approximately 5 in (127 mm) long and must be the full cross-section of the sealer.
3. Thoroughly wash and dry the specimens prior to testing.
4. Dust talc on the outside surfaces of specimens for the high-temperature test.
5. Lightly dust talc on the inside and outside surfaces of specimens for the two low-temperature tests.
6. Make all recovery tests on two specimens at the same time.

D. Procedures

1. Place the specimen horizontally in the compression clamps so that the plane between lip tips is perpendicular to the compressing plates. Do not pre-dust or pre-cool the clamps.
2. As the sample is compressed, ensure that the V section of the specimen top is folded so that it projects inwards towards the inner web section.
3. Compress the specimen until it has deflected to 50 percent of original top width.
4. Measure the width in the center of the 5 in (127 mm) length.
5. After completing the deflection test, visually examine each test specimen.
6. If any of the webs are cracked or have any adhesion between them, the material fails the deflection test. Reject the material.
    a. High Temperature Test
        1) Expose the clamp assembly and compressed specimen in an oven for the time and temperature specified in Section 833 of the Standard Specifications.
        2) After aging, remove the clamp assembly and immediately unclamp the test specimen.
        3) Cool the test specimen at 73 °F (23 °C) on a wooden surface for 1 hour.
        4) Measure the heat-aged recovery width. Take the measurement at the same place as the original measurement.
    b. Low Temperature Test
        1) Expose the clamp assembly and compressed specimen in a low-temperature box for the time and temperature specified in Section 833 of the Standard Specifications.
        2) After aging, unclamp the test specimen at the test temperature.

3) Allow the specimen to recover in a free state at the test temperature for one hour.

4) Measure the recovery width at the test temperature. Take the measurement at the same place as the original measurement.

E. Calculations

Calculate the recovery, expressed as a percentage of the original deflection, as follows:

$$\% \text{ Recovery} = \frac{\text{Recovered Width}}{\text{Original Width}} \times 100$$

F. Report

1. The average value of the recovery results of the two specimens must meet the specification value. The lower value cannot be more than 3 percent below the specification value for the material to meet requirements.
2. Report values for each specimen to the nearest whole percent on Form 168.