



Tear Strip (Pull Cord) Testing

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This standard describes the methods to measure the force required to remove the tear strip (pull cord) from an extruded weatherstrip and to measure the ultimate force and elongation of the tear strip (pull cord).

1.2 Applicability. This test method is applicable to all body seals with tear strips (pull cords).

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ISO 7500-1 ISO 9513

2.2 GM Standards/Specifications.

None

3 Resources

3.1 Facilities.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment.

3.2.1 Test Machine. The test machine shall fulfill the following requirements: The force-measuring device of the test machine shall correspond to ISO 7500-1, Class 1; the deflection measuring device shall correspond to ISO 9513, Class 0.2. The test machine shall be such that the required test velocity can be maintained.

3.2.2 A 45 degree angle flange fixture (see Appendix A, Figure A1).

3.2.3 A sharp razor knife.

3.3 Test Vehicle/Test Piece.

3.3.1 Test Specimens.

3.3.1.1 Method A. Three (3) test specimens, each 150 mm $\pm$ 1 mm in length, shall be cut from one (1) continuous weatherstrip extrusion.

3.3.1.2 Method B. A weatherstrip extrusion, approximately 1 m in length, is required for testing the ultimate force and elongation at break of the tear strip (pull cord).

3.4 Test Time. Reference the lab test procedure(s) in Section 4 for timing details.

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Per laboratory accreditation requirements.

4 Procedure

4.1 Preparation. Not applicable.

4.2 Conditions.

4.2.1 Environmental Conditions. The minimum time between manufacturing and testing shall be 72 h. The test pieces shall be maintained at a temperature of $+23\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ and $50\% \pm 5\%$ relative humidity for at least 24 h prior to test and shall be free from strain during this period.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

4.3 Instructions.

4.3.1 Method A: 45 Degree Pull Test.

4.3.1.1 Using the three (3) $150\text{ mm} \pm 1\text{ mm}$ specimens, pull the tear strip (pull cord) approximately 50 mm from one end of each specimen.

4.3.1.2 Mount the weatherstrip on the 45 degree angle flange fixture. Place the pulled tear strip (pull cord) end into the upper grips of the tensile machine. Place the other end of the weatherstrip (fixture) in the lower grips. Run the pull test at a speed of $250\text{ mm/minute} \pm 5\text{ mm/minute}$.

4.3.2 Method B: Ultimate Force and Elongation of Tear Strip. Required for non-reinforced cords only.

4.3.2.1 Remove the tear strip (pull cord) by hand from the 1 m long weatherstrip extrusion.

4.3.2.2 Cut the tear strip (pull cord) into six (6) sections, each approximately 150 mm in length. Place each end of the section into the upper and lower grips of the tensile machine. Place an extensometer in the middle of the section to measure the percent elongation (see Appendix A, Figure A2). Pull each section at a speed of $500\text{ mm/minute} \pm 5\text{ mm/minute}$.

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results. Not applicable.

5.3 Test Documentation. With reference to this test procedure, the results shall be represented in a test report. The report shall include the following:

- Complete identification of the specimen.
- Conditioning of the test specimen.
- Test conditions.
- Any deviations to the test method.
- Peak values for the 45 degree angle pull (Method A).
- Ultimate Force Newton (N).
- Percent (%) elongation of each sample.

6 Safety

This Engineering Standard may involve safety requirements for hazardous materials, the method of operations and equipment. This standard does not propose to address all the safety issues associated with its use. It is the responsibility of the user of this standard to ensure compliance with all appropriate safety and health practices. This would include any specific training that may be required. The safety and health standards include site specific rules and procedures, company rules and procedures, and Government Standards. Contact shall be made with the appropriate site Safety and Health personnel for further direction and guidance in these matters.