



Standard Test Method for Burst Testing of Flexible Package Seals Using Internal Air Pressurization Within Restraining Plates¹

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1. Scope

1.1 These test methods cover the procedure for determining the minimum burst strength of a seal placed around the perimeter of a flexible package as it is internally pressurized and enclosed within restraining plates.

1.2 The test methods described herein are functionally similar to Test Methods **F1140** with the exception of the use of restraining plates. Test Methods **F1140** describes methods of burst testing that do not include the use of restraining plates and are suitable to determine a packages general ability to withstand pressurization stresses. Under Test Methods **F1140** the stresses are not distributed uniformly to all areas of the package seal. Under unrestrained conditions the stress on the package is highest at the middle of the pouch where it inflates to the packages maximum diameter; therefore, Test Methods **F1140** may not reliably detect the weakest area of the seal.

1.3 The burst test internally and increasingly pressurizes a package until an area of the package seal around the perimeter “bursts” open in response to pressurization. By placing the package within restraining plates during pressurization, the dimensional stability of the package is maintained in a manner that results in stresses applied more uniformly along the perimeter of the package, where seals are normally placed. This allows the test to have a higher probability of detecting the weakest area of the seal and provide a measurement of the pressure required to “burst” open the package.

1.4 This test only applies to flexible packages with seals placed around the perimeter of a flexible package (often referred to as a pouch). In particular it is intended as applicable to packages with seals that have a peelable seal feature (peeled open by end user to remove contents of package).

1.4.1 Porous barrier materials’ failure to reach adequate pressure to burst the package seals may be due to insufficient volume flow. See **Appendix X4** for information.

1.5 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Particular caution is advised where users of this procedure may be required to design and fabricate restraining plate fixtures. Reference **Appendix X3** for further information regarding calculation of stress factors and structural design considerations.

2. Referenced Documents

2.1 ASTM Standards:²

- E171 Practice for Conditioning and Testing Flexible Barrier Packaging**
- E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method**
- F17 Terminology Relating to Flexible Barrier Packaging**
- F88 Test Method for Seal Strength of Flexible Barrier Materials**
- F1140 Test Methods for Internal Pressurization Failure Resistance of Unrestrained Packages**

3. Terminology

3.1 *Definitions*—For definitions and terms used in this test method, refer to Terminology **F17** for standardized terminology for flexible barrier packaging.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *restraining plates, n*—refers to plates that are rigid in nature and configured to contact and limit the packages expandable surface area as the package is pressurized.

¹ This test method is under the jurisdiction of ASTM Committee **F02** on Flexible Barrier Packaging and is the direct responsibility of Subcommittee **F02.20** on Physical Properties.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.