



Designation: ~~E2427—18~~ E2427 – 22

Standard Test Method for Acceptance by Performance Testing for Test Sieves¹

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1. ~~Scope~~ Scope*

1.1 This test method is a performance test for acceptance of test sieves.

1.2 This test method compares the performance of ~~a~~ an E11 test sieve against an inspection or calibration test sieve using a known quantity of reference material such that the long-term stability of test sieves can be measured.

1.3 This is a test method for checking the accuracy and long-term reliability of test sieves. Since it is not possible to adjust the measuring capability of a test sieve, the test method is designed to offer a verification procedure based on sieving performance by comparison to a standard reference. This test method is not proposed as an alternative to the inspection methods in accordance with Specification **E11** or the procedures in **MNL 32**.

1.4 *Units*—The values stated in SI units are to be regarded as standard. The additional values given are included for information only and are not considered standard.

1.5 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This test method is under the jurisdiction of ASTM Committee **E29** on Particle and Spray Characterization and is the direct responsibility of Subcommittee **E29.01** on Sieves, Sieving Methods, and Screening Media.

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*A Summary of Changes section appears at the end of this standard

2. Referenced Documents

2.1 ASTM Standards:²

- E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves
- E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods
- E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method
- E1638 Terminology Relating to Sieves, Sieving Methods, and Screening Media
- MNL 32 Manual on Test Sieving Methods Guidelines for Establishing Sieve Analysis Procedures

3. Terminology

3.1 *Definitions*—For definitions of related terms, refer to Terminology E1638.

3.2 *Definitions of Terms Specific to This Standard*:—For terms relating to sieve analysis, refer to Terminology E1638:

3.2.1 *calibration test sieve, n*—a test sieve manufactured using sieve cloth which has been inspected after being mounted in the sieve frame, and that meets the requirements of Table 1 of Specification E11 in part based on the standard deviation of the required number of sample openings in the test sieve (Column 11) not exceeding the maximum allowable for a confidence level of 99.73 % (Column 12). **E11**

3.2.2 *candidate test sieve, n*—the test sieve to be performance tested.

3.2.3 *compliance test sieve, n*—a test sieve manufactured using sieve cloth which has been inspected prior to being mounted in the sieve frame; and that meets the requirements of Table 1 in part based on the standard deviation of the required number of sample openings per 100 square feet of sieve cloth (Column 7) not exceeding the maximum allowable for a confidence level of 66 % (Column 8). **E11**

3.2.4 *endpoint, n*—point at which no material falls through the sieve concluding the sieving, taking into account sample degradation.

3.2.5 *inspection test sieve, n*—a test sieve manufactured using sieve cloth which has been inspected after being mounted in the sieve frame, and that meets the requirements of Table 1 of Specification E11 in part based on the standard deviation of the required number of sample openings in the test sieve (Column 9) not exceeding the maximum allowable for a confidence level of 99 % (Column 10). **E11**

3.2.6 *percent retained, n*—mass fraction percentage of material that is left upon or retained by the sieve after the test has been performed.

3.1.5 *sieve, n*—an apparatus consisting of a medium with regularly spaced apertures of uniform size, mounted in a suitable frame or holder, for use in separating material according to size.

3.2.7 *sieve shaker, n*—the device used to agitate the sieves, excluding hand sieving.

3.2.8 *test sieve (sieve cloth), n*—an apparatus manufactured by mounting E11 sieve cloth in a frame, designed for use in particle size analysis by sieving. **E11**

4. Significance and Use

4.1 This test method may be used by producers, users, and general interest parties for research and development or production quality control work, and is useful for the comparison of test sieves.

4.2 Because the reference material's particle size distribution will affect the acceptance tolerance, the user should determine an acceptance tolerance based on their specific reference material.

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.