



Standard Test Method for Weight and Composition of Coating on Terne Sheet by the Triple-Spot Test¹

This standard is issued under the fixed designation A309; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

This test method replaces Method 511.1 of Federal Test Method Standard No. 151b.

1. Scope

1.1 This test method covers the determination of the weight and composition of coating on terne sheet by the triple-spot method. The following three procedures are described:

1.1.1 *Procedure A*—Stripping with sulfuric acid.

1.1.2 *Procedure D*—Stripping with hydrochloric acid and antimony trichloride.

1.1.3 *Procedure E*—Stripping with hydrobromic acid-bromine solution.

NOTE 1—Procedure B (Electrolytic Stripping) and Procedure C (Stripping with Silver Nitrate Solution), formerly in this test method, were discontinued because lack of usage. The designation for Procedure D and Procedure E are retained to avoid future confusion when reference is made only to the procedure designation.

1.2 If the percent of tin in the coating is required, stripping with hydrobromic acid-bromine is the preferred procedure. Steel with a predeposited electrolytic nickel coating requires a two-stage stripping method to determine total tin content. If both the tin and lead percentage are required, stripping with sulfuric acid is recommended, but caution is advised since the sulfuric acid procedure has been found to produce high tin results (see Section 11).

1.3 *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.* For specific hazards statements, see Section 5, Note 2, and Section 17.

¹ This is under the jurisdiction of ASTM Committee A05 on Metallic-Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.07 on Methods of Testing.

Current edition approved Sept. 1, 2012. Published October 2012. Originally approved in 1947. Last previous edition approved in 2007 as A309 - 01(2007). DOI: 10.1520/A0309-01R07.

2. Referenced Documents

2.1 *ASTM Standards*:²

A308/A308M Specification for Steel Sheet, Terne (Lead-Tin Alloy) Coated by the Hot-Dip Process

E50 Practices for Apparatus, Reagents, and Safety Considerations for Chemical Analysis of Metals, Ores, and Related Materials

E57 Methods for Chemical Analysis of White Metal Bearing Alloys (Withdrawn 1986)³

E173 Practice for Conducting Interlaboratory Studies of Methods for Chemical Analysis of Metals (Withdrawn 1998)³

3. Significance and Use

3.1 A coating of terne metal on iron or steel articles is intended to provide drawability, solderability, or corrosion resistance, or combination thereof, which can require different amounts of coating. Specifications for terne-coated sheets frequently provide for these different classes (weights) of coating so that purchasers can select that most suitable for their needs. This test method provides a means of determining the weight of coating for comparison with the material specification requirements.

4. Reagents

4.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society,

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.

³ The last approved version of this historical standard is referenced on www.astm.org.