



Designation: D2251 – 10 (Reapproved 2020)

# Standard Test Method for Metal Corrosion by Halogenated Organic Solvents and Their Admixtures<sup>1</sup>

This standard is issued under the fixed designation D2251; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

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

## 1. Scope

1.1 This test method covers the evaluation of the corrosiveness to metals by halogenated organic solvents and their admixtures for cold cleaning applications.

NOTE 1—The test method described herein is an adaptation of Test Method D130.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

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

1.4 *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.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

D130 Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test

D235 Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)

E2251 Specification for Liquid-in-Glass ASTM Thermometers with Low-Hazard Precision Liquids

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D26 on Halogenated Organic Solvents and Fire Extinguishing Agents and is the direct responsibility of Subcommittee D26.04 on Test Methods.

Current edition approved Jan. 1, 2020. Published January 2020. Originally approved in 1964 as D2251–64 T. Last previous edition approved in 2015 as D2251–10(2015). DOI: 10.1520/D2251–10R20.

<sup>2</sup> 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. Summary of Test Method

3.1 Polished metal strips are immersed in a given quantity of sample and heated at reflux temperature for 60 min. At the end of this period, the metal strips are removed and examined for evidence of corrosion. Similar metal strips are immersed in a given quantity of sample in closed containers and held at room temperature for 10 days. At the end of this period, the strips are removed and examined.

## 4. Significance and Use

4.1 These tests are to be used as a guide in selecting or eliminating certain solvents or grades of solvents used for cleaning or degreasing metal parts.

## 5. Apparatus

5.1 *Flask*—Erlenmeyer flask, borosilicate glass, 125 mL capacity, with a 24/40 standard-taper joint.

5.2 *Reflux Condenser*—Condenser with a 24/40 standard-taper joint, 650 mm in length.

5.3 *Bath*—Oil or water bath, for maintaining a temperature slightly higher than the initial boiling point of the sample. A support shall be provided to hold the flask upright.

5.4 *Thermometer*—An ASTM High Distillation Thermometer having a range from 30 °F to 760 °F and conforming to the requirements for Thermometer 8F or a range from –2 °C to 400 °C conforming to the requirements for Thermometer 8C as prescribed in Specification E2251 or other thermometer of suitable design and range.

5.5 *Test Tubes*, 150 mm in length, 19 mm in diameter, with standard-taper, ground-glass stopped.

## 6. Materials

6.1 *Metal Strips*—Strips of various metals about ½ in. (12 mm) in width and about 3 in. (76 mm) in length. A suggested selection of metals includes copper, brass, aluminum, steel, and galvanized iron. Other metals likely to be encountered may also be used for this test.

6.2 *Polishing Materials*—Silicon carbide or alumina-grit paper of varying degrees of fineness including 240-grit silicon