



# Standard Practice for Total Immersion Corrosion Test for Aircraft Maintenance Chemicals<sup>1</sup>

This standard is issued under the fixed designation F483; 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 practice covers the determination of the corrosiveness of aircraft maintenance chemicals on aircraft metals with time under conditions of total immersion by a combination of weight change measurements and visual qualitative determination of change.

1.2 The values stated in SI units are to be regarded as standard. The values in parentheses are for information only.

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.*

## 2. Referenced Documents

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

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

**D329** Specification for Acetone

**D1193** Specification for Reagent Water

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

## 3. Significance and Use

3.1 Many aircraft maintenance chemicals are used on components and structures which would be adversely affected by excessive dimensional change. This practice screens these chemicals to ensure compliance with specified weight change criteria.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee F07 on Aerospace and Aircraft and is the direct responsibility of Subcommittee F07.07 on Qualification Testing of Aircraft Cleaning Materials.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

## 4. Apparatus

4.1 *Wide-Mouth Sealable Glass Jar or Stoppered Flask of Suitable Size*—The glass jar or flask should be so chosen so that the specimens will remain fully immersed in a vertical position during testing and the ratio of area of immersed metal to volume of solution will be in accordance with 8.1.

4.1.1 **Warning**—Some aircraft maintenance chemicals when heated have high vapor pressures or may produce gases during testing. Suitable precautions should be taken to prevent the containing vessel from exploding or the vessel should be so chosen as to withstand the resulting pressure.

4.2 *Specimen-Supporting Device*—A glass or fluorocarbon plastic supporting system designed to keep the specimen fully immersed while ensuring free contact with the solution, and designed to isolate the specimens from each other physically.

4.3 For materials containing low boiling point solvents, a means of preventing evaporation losses shall be used.

4.4 *Constant-Temperature Device*—Any suitable regulated heating device (mantle, hot plate, or bath) may be used to maintain the solution at the required temperature.

4.5 *Thermometer*, having a range from 95 to 155°C (203 to 311°F) and conforming to requirements for Thermometers S67C or S67F in accordance with Specification E2251.

4.6 *Oven*, low temperature explosion-proof, capable of maintaining  $38 \pm 3^\circ\text{C}$  ( $100 \pm 5^\circ\text{F}$ ) through  $120 \pm 5^\circ\text{C}$  ( $248 \pm 5^\circ\text{F}$ ).

## 5. Reagents and Materials

5.1 *Acetone*—conforming to Specification D329.

5.2 *Methyl n-Propyl Ketone (MPK)*.<sup>3</sup>

5.3 *Mineral Spirits, Type II*—conforming to Specification D235.

<sup>3</sup> The sole source of supply of Methyl n-propyl ketone (MPK) known to the committee at this time is Eastman Chemical Company, Kingsport, TN, USA. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,<sup>1</sup> which you may attend.