



Designation: D7667 – 21

# Standard Test Method for Determination of Corrosiveness to Silver by Automotive Spark-Ignition Engine Fuel—Thin Silver Strip Method<sup>1</sup>

This standard is issued under the fixed designation D7667; 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.

## 1. Scope\*

1.1 This test method covers the determination of the corrosiveness to silver by automotive spark-ignition engine fuel (for example, gasoline), as defined by Specification [D4814](#) or similar specifications in other jurisdictions, having a vapor pressure no greater than 124 kPa (18 psi) at 37.8 °C (100 °F) by one of two procedures.

1.1.1 *Procedure A*—Involves the use of a pressure vessel.

1.1.2 *Procedure B*—Involves the use of a vented test tube.

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

1.3 **WARNING**—Mercury has been designated by many regulatory agencies as a hazardous substance that can cause serious medical issues. Mercury, or its vapor, has been demonstrated to be hazardous to health and corrosive to materials. Use caution when handling mercury and mercury-containing products. See the applicable product Safety Data Sheet (SDS) for additional information. The potential exists that selling mercury or mercury-containing products, or both, is prohibited by local or national law. Users must determine legality of sales in their location.

1.4 *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.*

1.5 *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.*

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee [D02](#) on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee [D02.05](#) on Properties of Fuels, Petroleum Coke and Carbon Material.

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## 2. Referenced Documents

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

[D130](#) Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test

[D3241](#) Test Method for Thermal Oxidation Stability of Aviation Turbine Fuels

[D4057](#) Practice for Manual Sampling of Petroleum and Petroleum Products

[D4177](#) Practice for Automatic Sampling of Petroleum and Petroleum Products

[D4814](#) Specification for Automotive Spark-Ignition Engine Fuel

[E1](#) Specification for ASTM Liquid-in-Glass Thermometers

### 2.2 *Energy Institute Standards*:<sup>3</sup>

[IP 227](#) Determination of Corrosiveness to Silver of Aviation Turbine Fuels - Silver Strip Method

### 2.3 *ASTM Adjuncts*:<sup>4</sup>

Color standard for tube deposit rating (5 aluminum strips)

## 3. Terminology

### 3.1 *Abbreviations*:

3.1.1 *PTFE*—polytetrafluoroethylene

3.1.2 *PV*—pressure vessel

3.1.3 *PVP*—pressure vessel procedure

3.1.4 *SSCD*—silver strip centering device

3.1.5 *TSMD*—temperature sensing and monitoring device

3.1.6 *VTTP*—vented test tube procedure

## 4. Summary of Test Method

4.1 A polished, thin silver strip is immersed in 30 mL of the sample being tested, and heated at 50 °C (122 °F) for 2 h. At the end of the heating period, the silver strip is removed,

<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.

<sup>3</sup> Available from Energy Institute, 61 New Cavendish St., London, WIG 7AR, U.K., <http://www.energyinst.org.uk>.

<sup>4</sup> Available from ASTM International Headquarters. Order Adjunct No. [ADJD3241](#). Original adjunct produced in 1986.

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