



Standard Test Method for Determination of Corrosiveness to Silver by Automotive Spark-Ignition Engine Fuel—Thin Silver Strip Method¹

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 (ϵ) 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 material that can cause central nervous system, kidney and liver damage. Mercury, or its vapor, may be hazardous to health and corrosive to materials. Caution should be taken when handling mercury and mercury containing products. See the applicable product Material Safety Data Sheet (MSDS) for details and EPA's website—<http://www.epa.gov/mercury/faq.htm>—for additional information. Users should be aware that selling mercury and/or mercury containing products into your state or country may be prohibited by law.

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

2. Referenced Documents

2.1 *ASTM Standards*:²

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

¹ 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 **D02.05.0C** on Color and Reactivity.

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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.

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*:³

IP 227 Determination of Corrosiveness to Silver of Aviation Turbine Fuels - Silver Strip Method

2.3 *ASTM Adjuncts*:⁴

Color standard for tube deposit rating (5 aluminum strips)

3. Terminology

3.1 *Abbreviations*:

PTFE = polytetrafluoroethylene

PV = pressure vessel

PVP = pressure vessel procedure

SSCD = silver strip centering device

TSMD = temperature sensing and monitoring device

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, washed, and the color and tarnish level assessed against the Silver Strip Classifications in **Table 1**.

5. Significance and Use

5.1 Crude petroleum contains sulfur compounds, most of which are removed during refining. However, of the sulfur compounds remaining in the petroleum product or introduced into the fuel during storage and distribution, some can have a

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

⁴ Available from ASTM International Headquarters. Order Adjunct No. **ADJD3241**. Original adjunct produced in 1986.