



Designation: D7154 – 15 (Reapproved 2021)^{ε1}

Standard Test Method for Freezing Point of Aviation Fuels (Automatic Fiber Optical Method)¹

This standard is issued under the fixed designation D7154; 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.

^{ε1} NOTE—Editorially removed logo for IP 528, which was withdrawn by the EI, in November 2021.

INTRODUCTION

This test method is nearly identical to Test Method **D5901**. The difference in this test method is the version of software (version V.22) that is utilized in the apparatus. This version of software is intended to better identify samples that are contaminated. Since the algorithm in this version of software is different than previous versions utilized in this apparatus, the subcommittee determined to publish a separate test method with a different standard designation.

1. Scope

1.1 This test method covers the determination of the temperature below which solid hydrocarbon crystals may form in aviation turbine fuels.

NOTE 1—This test method describes an alternative procedure and automatic apparatus which closely mimics the apparatus and procedure described in Test Method **D2386**.

1.2 The measuring range of the apparatus is from –70 °C to 0 °C, however the precision statements were derived only from samples with freezing point temperatures from –60 °C to –42 °C.

NOTE 2—Typical aviation fuel has freezing point temperatures in the –60 °C to –40 °C range.

1.3 Some results from this test method (14 % of samples included in the 2003 round robin²) incorrectly identified sample contamination where no contaminants were present in the samples (see research report² for further information).

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

1.5 *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. For specific hazard statements, see Section 7.

1.6 *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:*³

D2386 Test Method for Freezing Point of Aviation Fuels
D4057 Practice for Manual Sampling of Petroleum and Petroleum Products
D4177 Practice for Automatic Sampling of Petroleum and Petroleum Products
D5901 Test Method for Freezing Point of Aviation Fuels (Automated Optical Method) (Withdrawn 2010)⁴
D6708 Practice for Statistical Assessment and Improvement of Expected Agreement Between Two Test Methods that Purport to Measure the Same Property of a Material
E1 Specification for ASTM Liquid-in-Glass Thermometers

2.2 *Energy Institute Standard:*

IP 16 Determination Freezing Point of Aviation Fuels

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 **D02.07** on Flow Properties.

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² Supporting data (2003 Interlaboratory Cooperative Test Program) have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR:D02-1572. Contact ASTM Customer Service at service@astm.org.

³ 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.

⁴ The last approved version of this historical standard is referenced on www.astm.org.