



Designation: D6795 – 26

Standard Test Method for Measuring the Effect on Filterability of Engine Oils After Treatment with Water and Dry Ice and a Short (30 min) Heating Time¹

This standard is issued under the fixed designation D6795; 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.

INTRODUCTION

Portions of this test method are written for use by laboratories that make use of ASTM Test Monitoring Center (TMC)² services (see [Annex A1](#)).

The TMC provides reference oils, and engineering and statistical services to laboratories that desire to produce test results that are statistically similar to those produced by laboratories previously calibrated by the TMC.

In general, the Test Purchaser decides if a calibrated test stand is to be used. Organizations such as the American Chemistry Council require that a laboratory utilize the TMC services as part of their test registration process. In addition, the American Petroleum Institute and the Gear Lubricant Review Committee of the Lubricant Review Institute (SAE International) require that a laboratory use the TMC services in seeking qualification of oils against their specifications.

The advantage of using the TMC services to calibrate test stands is that the test laboratory (and hence the Test Purchaser) has an assurance that the test stand was operating at the proper level of test severity. It should also be borne in mind that results obtained in a non-calibrated test stand may not be the same as those obtained in a test stand participating in the ASTM TMC services process.

Laboratories that choose not to use the TMC services may simply disregard these portions.

1. Scope*

1.1 This test method covers the determination of the tendency of an oil to form a precipitate that can plug an oil filter. It simulates a problem that may be encountered in a new engine run for a short period of time, followed by a long period of storage with some water in the oil.

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:³

- [D1193 Specification for Reagent Water](#)
- [D4057 Practice for Manual Sampling of Petroleum and Petroleum Products](#)
- [D4175 Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants](#)
- [D4485 Specification for Performance of Active API Service](#)

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.B0.07 on Development and Surveillance of Bench Tests Methods.

Current edition approved June 1, 2026. Published June 2026. Originally approved in 2002. Last previous edition approved in 2025 as D6795 – 25. DOI: 10.1520/D6795-26.

² ASTM Test Monitoring Center, 203 Armstrong Drive, Freeport, PA 16229. This test method is supplemented by Information Letters and Memoranda issued by the ASTM Test Monitoring Center. This edition includes all information letters through No. 26-1. Users of this test method can contact the ASTM Test Monitoring Center to obtain the most recent of these.

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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

Category Engine Oils

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this test method, refer to Terminology **D4175**.

3.1.2 *calibrate, v*—to determine the indication or output of a device (e.g., thermometer, manometer, engine) with respect to that of a standard.

3.1.3 *calibration test, n*—a test, using a coded reference oil, conducted as specified in the test method.

3.1.3.1 *Discussion*—The test result is used to determine the suitability of the testing facility/laboratory to conduct such tests on non-reference oils.

3.1.4 *candidate oil, n*—an oil that is intended to have the performance characteristics necessary to satisfy a specification and is tested against that specification.

3.1.5 *engine oil, n*—a liquid that reduces friction or wear, or both, between the moving parts within an engine; removes heat, particularly from the underside of pistons; and serves as a combustion gas sealant for the piston rings.

3.1.5.1 *Discussion*—It may contain additives to enhance certain properties. Inhibition of engine rusting, deposit formation, valve train wear, oil oxidation, and foaming are examples.

3.1.6 *non-reference oil, n*—any oil other than a reference oil—such as a research formulation, commercial oil, or candidate oil.

3.1.7 *reference oil, n*—an oil of known performance characteristics, used as a basis for comparison.

3.1.7.1 *Discussion*—Reference oils are used to calibrate testing facilities, to compare the performance of other oils, or to evaluate other materials (such as seals) that interact with oils.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *effective filter area, n*—that surface of a test filter that can receive the material to be filtered.

3.2.2 *new oil, n*—an unused oil having the identical formulation and base stock as the test oil.

3.2.3 *test oil, n*—the new oil with water added and dry ice added.

3.2.3.1 *Discussion*—A potential precipitate in the test oil is induced by heating the oil and aging.

4. Summary of Test Method

4.1 The test oil is treated with deionized water and dry ice. The sample is heated to 70 °C for 30 min, followed by storage at room temperature. The sample is filtered and the flow rate is calculated determining the engine oil filterability characteristics.

5. Significance and Use

5.1 It is normal for some of the combustion products of an internal combustion engine to penetrate into the engine lubricant and be retained in it.

5.2 When an engine is run for a period of time and then stored over a long period of time, the by-products of combustion might be retained in the oil in a liquefied state.

5.3 Under these circumstances, precipitates can form that impair the filterability of the oil the next time the engine is run.

5.4 This test method subjects the test oil and the new oil to the same treatments such that the loss of filterability can be determined.

5.5 Reference oils, on which the data obtained by this test method is known, are available.

5.6 This test method requires that a reference oil also be tested and results reported. Two oils are available, one known to give a low and one known to give a high data value for this test method.

NOTE 1—When the new oil test results are to be offered as candidate oil test results for a specification, such as Specification **D4485**, the specification will state maximum allowable loss of filterability (flow reduction) of the test oil as compared to the new oil.

6. Apparatus

6.1 The apparatus consists of a 25 mL burette, a filter holder with 25 µm automotive oil filter paper, and a source of 69 kPa ± 2 kPa air pressure. Discs of filter paper are cut to fit the holder and installed (see **Fig. 1**).

6.1.1 *Burette (glass or plastic)*, 25 mL, with polytetrafluoroethylene (PTFE) stopcock and 1.8 mm ± 0.1 mm burette tip opening.

6.1.2 *Air Regulator*, capable of regulating air to a pressure of 69 kPa ± 2 kPa.

6.1.3 *Filter Holder*, with effective filter area approximately 0.8 cm².

6.1.4 *Automotive Oil Filter Paper*, 25 mm, (25 µm porosity).⁴

6.2 *Blender*, capable of 18 000 r/min ± 10 % without the container.

NOTE 2—Dispersing type tools, though readily available, were not part of the precision study.

6.3 *Container*, 250 mL, with blade compatible with the blender.

6.4 *Timer*, capable of timing 30 s ± 1 s.

6.5 *Syringe*, 1000 µL.

6.6 *Dry Ice (solid carbon dioxide)*.

6.7 *Mechanical Convection Oven*, capable of maintaining 70 °C ± 1 °C.

6.8 *Sensors (or equivalent timing devices)*, capable of measuring sequential events to 1 s resolution.

6.9 *Glass Jars*, 60 mL, wide-mouth, with inert lined lids.

NOTE 3—Paperbacked lids may detach from lid and are not suggested for use.

⁴ The sole source of supply of the automotive oil filter paper known to the committee at this time is The Central Parts Distributor, OH Technologies Inc., P.O. Box 5039, Mentor, OH 44061-5039. 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,¹ which you may attend.