



Designation: D8034/D8034M – 24

Standard Test Method for Simulated Service Corrosion Testing of Non-Aqueous Engine Coolants¹

This standard is issued under the fixed designation D8034/D8034M; 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 effect of a circulating engine coolant on metal test specimens and automotive cooling system components under controlled, essentially isothermal laboratory conditions.

1.2 This test method specifies test material, cooling system components, type of coolant, and coolant flow conditions that are considered typical of current automotive use.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined. Some values have only SI units because the inch-pound equivalents are not used in practice.

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.* Specific precautionary statements are given in Section 7.

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.*

2. Referenced Documents

2.1 ASTM Standards:²

D1121 Test Method for Reserve Alkalinity of Engine Coolants and Antirusts

D1123 Test Methods for Water in Engine Coolant Concentrate by the Karl Fischer Reagent Method

D1176 Practice for Sampling and Preparing Aqueous Solutions of Engine Coolants or Antirusts for Testing Purposes

D1193 Specification for Reagent Water

D1287 Test Method for pH of Engine Coolants and Antirusts

D2570 Test Method for Simulated Service Corrosion Testing of Engine Coolants

D4725 Terminology for Engine Coolants and Related Fluids

D7935/D7935M Test Method for Corrosion Test for Non-Aqueous Engine Coolants in Glassware

E203 Test Method for Water Using Volumetric Karl Fischer Titration

2.2 SAE Standard:³

SAE J20e Standard for Coolant System Hoses

2.3 ASTM Adjuncts:

Coolant reservoir (1 drawing)⁴

Framework for test equipment (3 drawings and B/M)⁵

3. Terminology

3.1 *Definitions*—For definitions of general terms used in D15 standards, refer to Terminology **D4725**.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *non-aqueous engine coolant, n*—a glycol, diol, triol, or mixtures thereof, based fluid used to transfer heat from an engine to the radiator containing less than 1.0 % water when formulated and intended for final use without dilution with water.

4. Summary of Test Method

4.1 An engine coolant is circulated for 1064 h at 96.1 °C [205 °F] in a flow loop consisting of a metal reservoir, an

¹ This test method is under the jurisdiction of ASTM Committee D15 on Engine Coolants and Related Fluids and is the direct responsibility of Subcommittee D15.22 on Non-Aqueous Coolants.

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² 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.

³ Available from SAE International (SAE), 400 Commonwealth Dr., Warrendale, PA 15096, <http://www.sae.org>.

⁴ Detail drawings are available from ASTM International Headquarters. Order Adjunct No. **ADJD257001**. Original adjunct produced in 1982. Reservoirs of cast iron or cast aluminum, made in accordance with these drawings may be obtained from Commercial Machine Service, 1099 Touhy Ave., Elk Grove Village, IL 60007.

⁵ Detail and assembly drawings of a suitable framework and arrangement of components thereon are available from ASTM International Headquarters. Order Adjunct No. **ADJD257002**. Original adjunct produced in 1982.