



Designation: D7935 – 20

Standard Test Method for Corrosion Test for Non-Aqueous Engine Coolants in Glassware¹

This standard is issued under the fixed designation D7935; 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 a simple beaker-type procedure for evaluating the effects of non-aqueous engine coolants on metal specimens under controlled laboratory conditions (see [Appendix X1](#)).

NOTE 1—For more information on aqueous and non-aqueous engine coolants, see (Refs [1-9](#)).²

1.2 The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered 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.* Some specific hazards statements are given in [10.1.7.2](#), [10.1.7.3](#), and [10.1.7.4](#).

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

[B32](#) Specification for Solder Metal

[B36/B36M](#) Specification for Brass Plate, Sheet, Strip, And Rolled Bar

[D1176](#) Practice for Sampling and Preparing Aqueous Solu-

[tions of Engine Coolants or Antirusts for Testing Purposes](#)
[D1384](#) Test Method for Corrosion Test for Engine Coolants in Glassware

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

[E178](#) Practice for Dealing With Outlying Observations

[E230/E230M](#) Specification for Temperature-Electromotive Force (emf) Tables for Standardized Thermocouples

2.2 *ASTM Adjunct*.⁴

[All-glass apparatus for corrosion test \(2 drawings\)](#)

3. Summary of Test Method

3.1 In this test method, specimens of metals typical of those present in engine cooling systems are totally immersed in aerated engine coolant solutions for 336 h at 96 °C (205 °F). The corrosion-inhibitive properties of the test solution are evaluated on the basis of the weight changes incurred by the specimens. Each test is run in triplicate, and the average weight change is determined for each metal. A single test may occasionally be completely out of line (see [11.3](#)).

4. Significance and Use

4.1 This test method will generally distinguish between non-aqueous coolants that are definitely deleterious from the corrosion standpoint and those that are suitable for further evaluation. However, the results of this test method cannot stand alone as evidence of satisfactory corrosion inhibition. The actual service value of an engine coolant formulation can be determined only by more comprehensive bench, dynamometer, and field tests.

5. Apparatus

5.1 *Container*, a 1000 mL, tall-form, spoutless beaker, made of heat-resistant glass, for containing the non-aqueous engine coolant solution and test specimens. The beaker shall be tightly closed with a No. 15 rubber stopper, having drill holes to accommodate a water condenser, an aerator tube, and a temperature measuring instrument as shown in [Fig. 1](#). Optionally, an all-glass apparatus may be used.⁴

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 The boldface numbers in parentheses refer to the list of references at the end of this standard.

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 Available from ASTM International Headquarters. Order Adjunct No. [ADJD1384](#). Original adjunct produced in 1980.