



Designation: D 1176 – 98 (Reapproved 2002)

## Standard Practice for Sampling and Preparing Aqueous Solutions of Engine Coolants or Antirusts for Testing Purposes<sup>1</sup>

This standard is issued under the fixed designation D 1176; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

### 1. Scope

1.1 This practice covers information on sampling and preparing solutions of engine coolants and antirusts (Notes 1 and 2).

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are approximate equivalents given for information only.

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

NOTE 1—Antirust as referred to in this practice covers products intended for use in automotive/light-duty and heavy-duty applications in which water is used as the cooling medium.

NOTE 2—Antirust products are available in liquid and solid form. Solids should be handled as outlined in Annex A1.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

- D 1122 Test Method for Relative Density of Engine Coolant Concentrates and Engine Coolants By the Hydrometer<sup>2</sup>
- D 1193 Specification for Reagent Water<sup>3</sup>
- D 5931 Test Method for Density and Relative Density of Engine Coolant Concentrates and Aqueous Engine Coolants by Digital Density Meter<sup>2</sup>

### 3. Significance and Use

3.1 This practice is used commonly by vehicle service or laboratory personnel for sampling and preparing aqueous solutions of engine coolants or antirust for further evaluation and testing.

3.2 This practice shall be followed when sampling and preparing aqueous solutions of products for evaluation in ASTM test methods.

3.3 Care must be taken to ensure that a representative sample of product is taken.

3.4 This practice describes several different test methods. The methods to be followed should be agreed to by the supplier and the customer.

### 4. Sampling Concentrated Liquid Products

4.1 When received, the material will preferably be in a sealed, marked container. Allow the container to stand at room temperature (not below 20°C) before attempting to obtain a sample. The container and its contents shall be shaken well before sampling (see Note 3). Any signs of solution separation should be noted and appropriate samples obtained by using a decanting or pipeting technique. Some samples that contain multiple phases may require the use of a separatory funnel to isolate a particular liquid layer or solids.

NOTE 3—In the case of larger containers such as those with a nominal volume of 20 or 200 L (5 or 55 gal), the contents should be mixed thoroughly with a stirrer for at least 5 min to ensure a homogeneous mixture. The stirrer should be capable of dispersing any separated solids and supernatant phases without drawing air into the mixture.

4.2 Remove a representative sample by pipeting or siphoning.

### 5. Separation of Multiphase Products

5.1 If the product contains separated solids or liquids, place a representative sample obtained as described in Section 4 in a separatory funnel. Stopper the funnel and allow to stand for at least 16 h. Separate the various phases as follows:

5.1.1 Remove settled liquids or solids, if present, by allowing them to drain out together with a minimum amount of the major liquid phase.

5.1.2 Then drain the major liquid phase into a suitable container, taking care not to include any supernatant liquid phase.

5.1.3 Finally, drain the supernatant phase into a separate container.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee D15 on Engine Coolants and is the direct responsibility of Subcommittee D15.06 on Glassware Performance Tests.

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<sup>2</sup> Annual Book of ASTM Standards, Vol 15.05.

<sup>3</sup> Annual Book of ASTM Standards, Vol 11.01.