



Standard Practice for Preparing, Cleaning, and Evaluating Corrosion Test Specimens¹

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1. Scope

1.1 This practice covers suggested procedures for preparing bare, solid metal specimens for tests, for removing corrosion products after the test has been completed, and for evaluating the corrosion damage that has occurred. Emphasis is placed on procedures related to the evaluation of corrosion by mass loss and pitting measurements. (**Warning**—In many cases the corrosion product on the reactive metals titanium and zirconium is a hard and tightly bonded oxide that defies removal by chemical or ordinary mechanical means. In many such cases, corrosion rates are established by mass gain rather than mass loss.)

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 and health practices and determine the applicability of regulatory limitations prior to use.* For specific warning statements, see 1.1 and 7.2.

2. Referenced Documents

2.1 ASTM Standards:²

- A262 Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels
- D1193 Specification for Reagent Water
- D1384 Test Method for Corrosion Test for Engine Coolants in Glassware

¹ This practice is under the jurisdiction of ASTM Committee G01 on Corrosion of Metals and is the direct responsibility of Subcommittee G01.05 on Laboratory Corrosion Tests.

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² 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.

D2776 Methods of Test for Corrosivity of Water in the Absence of Heat Transfer (Electrical Methods) (Withdrawn 1991)³

G15 Terminology Relating to Corrosion and Corrosion Testing (Withdrawn 2010)³

G16 Guide for Applying Statistics to Analysis of Corrosion Data

G31 Practice for Laboratory Immersion Corrosion Testing of Metals

G33 Practice for Recording Data from Atmospheric Corrosion Tests of Metallic-Coated Steel Specimens

G46 Guide for Examination and Evaluation of Pitting Corrosion

G50 Practice for Conducting Atmospheric Corrosion Tests on Metals

G78 Guide for Crevice Corrosion Testing of Iron-Base and Nickel-Base Stainless Alloys in Seawater and Other Chloride-Containing Aqueous Environments

3. Terminology

3.1 See Terminology G15 for terms used in this practice.

4. Significance and Use

4.1 The procedures given are designed to remove corrosion products without significant removal of base metal. This allows an accurate determination of the mass loss of the metal or alloy that occurred during exposure to the corrosive environment.

4.2 These procedures, in some cases, may apply to metal coatings. However, possible effects from the substrate must be considered.

5. Reagents and Materials

5.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society where

³ The last approved version of this historical standard is referenced on www.astm.org.