



Standard Practice for Conducting Mixed Flowing Gas (MFG) Environmental Tests¹

This standard is issued under the fixed designation B827; 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 practice provides procedures for conducting environmental tests involving exposures to controlled quantities of corrosive gas mixtures.

1.2 This practice provides for the required equipment and methods for gas, temperature, and humidity control which enable tests to be conducted in a reproducible manner. Reproducibility is measured through the use of control coupons whose corrosion films are evaluated by mass gain, coulometry, or by various electron and X-ray beam analysis techniques. Reproducibility can also be measured by in situ corrosion rate monitors using electrical resistance or mass/frequency change methods.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

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 become familiar with all hazards including those identified in the appropriate Material Safety Data Sheet (MSDS) for this product/material as provided by the manufacturer, to establish appropriate safety and health practices, and determine the applicability of regulatory limitations prior to use. See 5.1.2.4.*

2. Referenced Documents

2.1 ASTM Standards:²

B542 Terminology Relating to Electrical Contacts and Their Use

B765 Guide for Selection of Porosity and Gross Defect Tests for Electrodeposits and Related Metallic Coatings

B808 Test Method for Monitoring of Atmospheric Corrosion Chambers by Quartz Crystal Microbalances

¹ This practice is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.11 on Electrical Contact Test Methods.

Current edition approved Oct. 1, 2014. Published October 2014. Originally approved in 1992. Last previous edition approved in 2009 as B827 – 05 (2009)^{ε2}. DOI: 10.1520/B0827-05R14.

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.

B810 Test Method for Calibration of Atmospheric Corrosion

Test Chambers by Change in Mass of Copper Coupons

B825 Test Method for Coulometric Reduction of Surface Films on Metallic Test Samples

B826 Test Method for Monitoring Atmospheric Corrosion Tests by Electrical Resistance Probes

B845 Guide for Mixed Flowing Gas (MFG) Tests for Electrical Contacts

D1193 Specification for Reagent Water

D2912 Test Method for Oxidant Content of the Atmosphere (Neutral Ki) (Withdrawn 1990)³

D2914 Test Methods for Sulfur Dioxide Content of the Atmosphere (West-Gaeke Method)

D3449 Test Method for Sulfur Dioxide in Workplace Atmospheres (Barium Perchlorate Method) (Withdrawn 1989)³

D3464 Test Method for Average Velocity in a Duct Using a Thermal Anemometer

D3609 Practice for Calibration Techniques Using Permeation Tubes

D3824 Test Methods for Continuous Measurement of Oxides of Nitrogen in the Ambient or Workplace Atmosphere by the Chemiluminescent Method

D4230 Test Method of Measuring Humidity with Cooled-Surface Condensation (Dew-Point) Hygrometer

E902 Practice for Checking the Operating Characteristics of X-Ray Photoelectron Spectrometers (Withdrawn 2011)³

G91 Practice for Monitoring Atmospheric SO₂ Deposition Rate for Atmospheric Corrosivity Evaluation

3. Terminology

3.1 Definitions relating to electrical contacts are in accordance with Terminology **B542**.

4. Significance and Use

4.1 Mixed flowing gas (MFG) tests are used to simulate or amplify exposure to environmental conditions which electrical contacts or connectors can be expected to experience in various application environments (**1, 2**).⁴

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

⁴ The boldface numbers in parentheses refer to the list of references at the end of this standard.