



Designation: G215 – 17

Standard Guide for Electrode Potential Measurement¹

This standard is issued under the fixed designation G215; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This guide provides guidance on the measurement of electrode potentials in laboratory and field studies both for corrosion potentials and polarized potentials.

1.2 The values stated in SI units are to be regarded as standard. Any other units of measurements included in this standard are present because of their wide usage and acceptance.

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.*

2. Referenced Documents

2.1 ASTM Standards:²

- C876** Test Method for Corrosion Potentials of Uncoated Reinforcing Steel in Concrete
- F746** Test Method for Pitting or Crevice Corrosion of Metallic Surgical Implant Materials
- F2129** Test Method for Conducting Cyclic Potentiodynamic Polarization Measurements to Determine the Corrosion Susceptibility of Small Implant Devices
- F3044** Test Method for Test Method for Evaluating the Potential for Galvanic Corrosion for Medical Implants
- G3** Practice for Conventions Applicable to Electrochemical Measurements in Corrosion Testing
- G5** Reference Test Method for Making Potentiodynamic Anodic Polarization Measurements
- G59** Test Method for Conducting Potentiodynamic Polarization Resistance Measurements
- G61** Test Method for Conducting Cyclic Potentiodynamic Polarization Measurements for Localized Corrosion Sus-

- ceptibility of Iron-, Nickel-, or Cobalt-Based Alloys
- G69** Test Method for Measurement of Corrosion Potentials of Aluminum Alloys
- G71** Guide for Conducting and Evaluating Galvanic Corrosion Tests in Electrolytes
- G82** Guide for Development and Use of a Galvanic Series for Predicting Galvanic Corrosion Performance
- G96** Guide for Online Monitoring of Corrosion in Plant Equipment (Electrical and Electrochemical Methods)
- G97** Test Method for Laboratory Evaluation of Magnesium Sacrificial Anode Test Specimens for Underground Applications
- G102** Practice for Calculation of Corrosion Rates and Related Information from Electrochemical Measurements
- G106** Practice for Verification of Algorithm and Equipment for Electrochemical Impedance Measurements
- G150** Test Method for Electrochemical Critical Pitting Temperature Testing of Stainless Steels
- G193** Terminology and Acronyms Relating to Corrosion
- 2.2 NACE Standards:³
- TM0497–2012** Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Piping Systems
- TM0101–2012** Measurement Techniques Related to Criteria for Cathodic Protection of Underground Storage Tank Systems
- TM0108–2012** Testing of Catalyzed Titanium Anodes for Use in Soils or Natural Waters
- TM0109–2009** Aboveground Survey Techniques for the Evaluation of Underground Pipeline Coating Condition
- TM0190–2012** Impressed Current Laboratory Testing of Aluminum Alloy Anodes
- TM0211–2011** Durability Test for Copper/Copper Sulfate Permanent Reference Electrodes for Direct Burial Applications
- TM0113–2013** Evaluating the Accuracy of Field Grade Reference Electrode

¹ This guide is under the jurisdiction of ASTM Committee G01 on Corrosion of Metals and is the direct responsibility of Subcommittee G01.11 on Electrochemical Measurements in Corrosion Testing.

Current edition approved Jan. 1, 2017. Published January 2017. Originally approved in 2016. Last previous edition approved in 2016 as G215 – 16. DOI: 10.1520/G0215-17.

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.

3. Terminology

3.1 *Definitions*—The terminology used herein shall be in accordance with Terminology **G193**.

³ Available from NACE International (NACE), 15835 Park Ten Pl., Houston, TX 77084, <http://www.nace.org>.