



Standard Test Method for Determining Effects of Chemical Admixtures on Corrosion of Embedded Steel Reinforcement in Concrete Exposed to Chloride Environments¹

This standard is issued under the fixed designation G109; 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 procedure for determining the effects of chemical admixtures on the corrosion of metals in concrete. This test method can be used to evaluate materials intended to inhibit chloride-induced corrosion of steel in concrete. It can also be used to evaluate the corrosivity of admixtures in a chloride environment.

1.2 The values stated in SI units are to be regarded as standard. The values given in parentheses are 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.*

2. Referenced Documents

2.1 ASTM Standards:²

- A615/A615M Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- C33 Specification for Concrete Aggregates
- C143/C143M Test Method for Slump of Hydraulic-Cement Concrete
- C150 Specification for Portland Cement
- C173/C173M Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
- C192/C192M Practice for Making and Curing Concrete Test Specimens in the Laboratory
- C231 Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

¹ This test method is under the jurisdiction of ASTM Committee G01 on Corrosion of Metals and is the direct responsibility of Subcommittee G01.14 on Corrosion of Metals in Construction Materials.

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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.

- C511 Specification for Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
 - C876 Test Method for Corrosion Potentials of Uncoated Reinforcing Steel in Concrete
 - C881/C881M Specification for Epoxy-Resin-Base Bonding Systems for Concrete
 - C1152/C1152M Test Method for Acid-Soluble Chloride in Mortar and Concrete
 - D448 Classification for Sizes of Aggregate for Road and Bridge Construction
 - D632 Specification for Sodium Chloride
 - E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods
 - E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method
 - G3 Practice for Conventions Applicable to Electrochemical Measurements in Corrosion Testing
 - G15 Terminology Relating to Corrosion and Corrosion Testing (Withdrawn 2010)³
 - G33 Practice for Recording Data from Atmospheric Corrosion Tests of Metallic-Coated Steel Specimens
 - G46 Guide for Examination and Evaluation of Pitting Corrosion
- 2.2 NACE Standards:⁴
- SSPC-SP 5/NACE No. 1 White Metal Blast Cleaning

3. Significance and Use

3.1 This test method provides a reliable means for predicting the inhibiting or corrosive properties of admixtures to be used in concrete.

3.2 This test method is useful for development studies of corrosion inhibitors to be used in concrete.

3.3 This test method has been used elsewhere with good agreement between corrosion as measured by this test method

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

⁴ Available from The Society for Protective Coatings (SSPC), 40 24th St., 6th Floor, Pittsburgh, PA 15222-4656.