

TESTS AND RESULTS

Test Conducted:

ISO 9227:2012 Corrosion Tests in Artificial Atmospheres — Salt Spray Tests

Scope:

This International Standard specifies the apparatus, the reagents and the procedure to be used in conducting the neutral salt spray (NSS), acetic acid salt spray (AASS) and copper accelerated acetic acid salt spray (CASS) tests for assessment of the corrosion resistance of metallic materials, with or without permanent or temporary corrosion protection.

It also describes the method employed to evaluate the corrosivity of the test cabinet environment.

It does not specify the dimensions of test specimens, the exposure period to be used for a particular product, or the interpretation of results. Such details are provided in the appropriate product specifications.

The salt spray tests are particularly useful for detecting discontinuities, such as pores and other defects in certain metallic, organic, anodic oxide and conversion coatings.

The neutral salt spray test is the test method in which a 5 % sodium chloride solution in the pH range from 6.5 to 7.2 is atomized under a controlled environment. It particularly applies to:

- metals and their alloys,
- metallic coatings (anodic and cathodic),
- conversion coatings,
- anodic oxide coatings, and
- organic coatings on metallic materials.

The acetic acid salt spray test is the test method in which a 5 % sodium chloride solution with the addition of glacial acetic acid in the pH range from 3.1 to 3.3 is atomized under a controlled environment. It is especially useful for testing decorative coatings of copper + nickel + chromium, or nickel + chromium. It has also been found suitable for testing anodic coatings on aluminum.

The copper accelerated acetic acid salt spray test is the test method in which a 5 % sodium chloride solution with the addition of copper chloride and glacial acetic acid in the pH range from 3.1 to 3.3 is atomized under a controlled environment. It is useful for testing decorative coatings of copper + nickel + chromium, or nickel + chromium. It has also been found suitable for testing anodic coatings on aluminum.

The salt spray methods are all suitable for checking that the comparative quality of a metallic material, with or without corrosion protection, is maintained. They are not intended to be used for comparative testing as a means of ranking different materials relative to each other with respect to corrosion resistance.

General Test Condition:

The following test program was conducted in a laboratory environment maintained at 15°C to 25°C and 50%±5 RH. The sample was individually tested after conditioning in the test environment for at least 24 hours prior to conducting the test.

The complete detailed procedures may be found in the referenced specification and are only summarized herein. The results obtained for each of the applicable tests are presented in their respective section describing the procedures below.

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