

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
METHODS OF TEST FOR METALLIC AND RELATED COATINGS

PART 3 — CORROSION AND RELATED PROPERTY TESTS

AS 2331.3.3—1980

COPPER ACCELERATED ACETIC ACID SALT SPRAY TEST (CASS TEST)

1 SCOPE. This standard sets out the method for the copper accelerated acetic acid salt spray test for the assessment of inorganic and organic coatings on metallic products.

NOTES:

1. The method does not specify the type of test item, the exposure period or the assessment criteria. Such details are normally specified in the relevant product standard or determined by agreement between the purchaser and the supplier.

2. Results obtained from the test should not be regarded as having a direct correlation with all environments in which items may be exposed or the relative corrosion resistance of different coatings.

2 APPLICATION. The method is suitable for the testing coatings on metallic items.

3 PRINCIPLE. Coatings are exposed to a corrosive atmosphere under controlled conditions for different durations of time.

Resistance to corrosive attack is used to assess the quality of the coating against the conditions of the test.

4 APPARATUS. The following apparatus is required:

- (a) *Spray cabinet.* The spray cabinet shall be made of, or lined with, material resistant to corrosion by the test solution. The cabinet shall have a volume of not less than 0.2 m³ and preferably not less than 0.4 m³ since, with smaller volumes, difficulties are experienced in ensuring an even distribution of spray.

The size and shape of the cabinet shall be such that the quantity of solution collected in the cabinet is within the limits stated in Clause 5. The upper parts of the cabinet shall be so shaped that drops of accumulated test solution do not drip onto test pieces.

- (b) *Test piece supports.* Test piece supports shall be made of inert non-metallic material such as ceramic, glass, plastics, or suitably coated wood.

Material used for suspending test pieces shall be made of synthetic fibre, cotton thread or other inert insulating material. Metallic supports shall not be used.

- (c) *Atomizing equipment.* The cabinet shall be equipped with means to spray the test solution and shall include —

- (i) a supply of clean air of controlled pressure and humidity;
- (ii) a reservoir to contain the stock of test solution; and
- (iii) one or more atomizers made of chemically inert material.

The compressed air supply to the atomizers shall be passed through a filter to remove all traces of oil and solid matter and shall be at a pressure of 70 kPa to 170 kPa.

To prevent evaporation of water from sprayed droplets of test solution, the air shall be humidified before entering the atomizer by way of a saturation tower. The saturation tower shall contain water at a temperature several degrees higher than that of the cabinet. The actual temperature to be used depends on the air pressure and on the type of atomizer nozzle and shall be adjusted so that the rate of collection and the concentration of collected spray are maintained within limits specified in Clause 7.1.

NOTES:

1. The reservoir to contain the stock of test solution shall be constructed of material resistant to attack by the test solution, and shall be provided with a constant levelling device to maintain a constant level of solution.
 2. Adjustable baffles may be used to prevent direct impingement of spray on test pieces and to assist uniform distribution of spray throughout the cabinet.
- (d) *Collecting devices.* At least two devices to collect sprayed test solution shall be used. Devices shall be made of glass or other chemically inert material with the stems inserted through stoppers into graduated glass cylinders or other containers of the same type.

NOTE: Funnels with a diameter of 100 mm have a collecting area of approximately 80 cm².

The collecting devices shall be placed in the zone of the cabinet where the test pieces are placed, one close to and one remote from a spray inlet. They shall be so placed that only spray and not droplets of condensed spray from test pieces or from any part of the test cabinet is collected. The equipment shall be thoroughly cleaned before use, especially when a different test solution is to be used.