

# TEST METHOD AS PER STANDARDS

## ISO 9227

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

## TEST SOLUTIONS

NSS- The sodium chloride concentration in the sprayed solution (distilled water) shall be 50 g/l  $\pm$  5 g/l and PH within the range of 6.5 to 7.2.

AASS- Add a sufficient amount of glacial acetic acid to the salt solution (50 +/- 5 g/l NACL in water) so that PH of the solution falls within the range of 3.0 to 3.1.

CASS - Dissolve a sufficient mass of copper(II) chloride dihydrate (CuCl<sub>2</sub> 2H<sub>2</sub>O) in the salt solution (50 +/- 5 g/l NACL in water) to produce a concentration of 0.26 g/l  $\pm$  0.02 g/l [equivalent to (0.205  $\pm$  0.015) g of CuCl<sub>2</sub> per litre]

## TEMPERATURE RANGE FOR NSS, AASS & CASS

| Test method Item   | Neutral salt spray (NSS) | Acetic acid salt spray (AASS) | Copper-accelerated acetic acid salt spray (CASS) |
|--|--------------------------|-------------------------------|--|
| Temperature  | 35 °C $\pm$ 2 °C         | 35 °C $\pm$ 2 °C              | 50 °C $\pm$ 2 °C                                 |
| Average collection rate for a horizontal collecting area of 80 cm <sup>2</sup> | 1,5 ml/h $\pm$ 0,5 ml/h  |                               |  |
| Concentration of sodium chloride (collected solution)                          | 50 g/l $\pm$ 5 g/l       |                               |  |
| pH (collected solution)  | 6,5 to 7,2               | 3,1 to 3,3                    | 3,1 to 3,3                                       |



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## INSTRUMENTATION

Material of construction shall be such that it will not affect the corrosiveness of the fog.

The upper Cover of the chamber shall be designed so that condensed water drops of sprayed solution do not fall on the specimens being tested.

An apparatus that maintains the cabinet and its contents at the specified temperature within the tolerance of  $\pm 2$  degree c . The temperature shall be measured at least 100 mm from the walls. , it is necessary to ensure that the conditions of homogeneity and distribution of the spray are met

The device for spraying the salt solution comprises a supply of clean air, of controlled pressure and humidity, a reservoir to contain the solution to be sprayed, and one or more atomizers In order to prevent evaporation of water from the sprayed droplets, the air shall be humidified before entering the atomizer, by passage through a saturation tower containing hot distilled water or deionized water at a temperature  $10^{\circ}\text{C}$  above that of the cabinet.

The atomizers shall be made of inert material. Baffles may be used to prevent direct impact of spray on the test specimens, and the use of adjustable baffles is helpful in obtaining uniform distribution of the spray within the cabinet.

Fog collection funnels with the stems inserted through stoppers into graduated cylinders having collecting surface area of  $80\text{ cm}^2$  are suitable.

The specimens shall be supported or suspended at an angle of  $20^{\circ} \pm 5^{\circ}$  from the vertical. The temperature within the exposure zone of the closed cabinet, fog collection rate , temperature in atomizing tower , PH of the test solution shall be recorded.

