

**LIGHT INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

QB/T 3826-1999

**Corrosion-resistant testing method of the metal deposits and
conversion coatings for the light industrial products - Neutral
salt spraying test (NSS)**

轻工产品金属镀层和化学处理层的耐腐蚀试验方法 中性盐雾试验(NSS)法
(English Translation)

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Foreword

This Standard is the same as national standard GB 5938-1986 Corrosion-resistant testing method of the metal deposits and conversion coatings for the light industrial products - Neutral salt spraying test (NSS); its number was changed to QB/T 3826-1999 by document GQX (1999) No. 112, while its content remained unchanged.

This Standard was proposed by the Industry Management Division of State Bureau of Light Industry.

This Standard shall be under the jurisdiction of National Center for Standardization of Daily Hardware.

Drafting organizations of this Standard: Shanghai Research Institute of Daily Hardware Industry, and Shanghai Light Industry Research Institute.

Introduction

This Standard is applicable to the inspection of the corrosion resistance of metal deposits and conversion coatings.

This Standard refers to ISO 3768-1976 Metallic coatings - Neutral salt spray test (NSS test).

1 Equipment

1.1

The test equipment consists of salt spray chamber, saltwater container, compressed air supply (including purifying) system, nozzle, sample frame, heating and other necessary controls. If the conditions obtained satisfy the requirements of this Method, the dimensions and structure of the equipment are not restricted.

1.2

The structural materials of the test equipment shall not affect the corrosiveness of the salt mist, and shall themselves be resistant to salt mist corrosion.

1.3

No condensed droplets on the top of the salt spray chamber are allowed to drop onto the sample.

1.4

A baffle is fitted in the salt spray chamber to prevent the salt mist from jetting directly onto the sample.

1.5

At least two clean collectors are placed in the exposure zone of the salt spray chamber. One collector is close to the nozzle, while the other shall be placed at the point farthest from the nozzle. The collectors shall be positioned so that only salt mist is collected, not liquid dripping from the samples or from other parts of the chamber. A suitable collector is a funnel of 10 cm diameter inserted into a graduated cylinder, giving a collecting area of 80 cm².

1.6

If the equipment has been used for a test with a solution different from that of this test, it must be adequately cleaned before use.

2 Test solution

2.1

Dissolve 50±5 g of chemically pure sodium chloride in distilled water to make 1 liter of solution.

2.2

The pH value of the solution can be adjusted within the range of 6 to 7 with chemically pure hydrochloric acid or sodium hydroxide, and measured with a pH meter. Calibrated precision pH test paper may also be used for routine inspection. To remove dissolved carbon dioxide, the distilled water shall first be boiled for 30 s during preparation and used after cooling.

2.3

To remove any substance that could clog the nozzle of the spray equipment, the solution must be filtered before it is put into the reservoir.

2.4

Solution that has dripped from the specimens shall not be reused for spraying.

3 Test conditions

3.1

The temperature within the chamber shall be 35 ± 2 °C; the humidity shall be greater than 95%.

3.2

The amount of salt mist deposited shall be judged on the average over 8 h of continuous spraying; it shall be 1 mL to 2 mL per 80 cm² per hour.

4 Test methods

4.1

Salt spray mode

Continuous salt spray, which shall not be interrupted within the specified test time.

4.2

Salt spray duration

Counted in hours; the specific requirement depends on the product, and is chosen from 2 h, 4 h, 6 h, 8 h, 12 h, 18 h, 24 h, 30 h, 36 h, 42 h, 48 h, 72 h, 96 h, 120 h, etc.

4.4

The specimen surface shall not be damaged during the test; any observable changes shall be checked and recorded, and the chamber shall be kept open for as short a time as possible.

5 Specimen

5.1

Specimen preparation

The specimen must be adequately cleaned. The cleaning method depends on the condition of the specimen surface and the nature of the contamination, for instance ethanol or acetone; abrasives and solvents that may attack the specimen surface shall not be used. After cleaning, care shall be taken not to touch the specimen so as to avoid recontamination.

5.3

Precautions during the test

Specimens shall not touch each other, nor contact other metals, water-absorbent materials or the chamber wall; the specimen shall be kept 50 mm away from the chamber wall.

5.4

Cut edges of the specimen, and places where identification marks have been made, shall be protected with a suitable corrosion-resistant coating (such as paint, paraffin or adhesive tape).

5.5

The specimen shall be put into the chamber only when the temperature in the chamber has reached the test temperature.

6 Specimen cleaning and inspection

After completion of the test, carefully take the specimen out of the salt spray chamber, gently wash it with flowing cold water (below 35 °C) or remove the salt deposits from the surface with a sponge, then immediately dry it for 30 min at 80 °C to 100 °C, and promptly inspect the degree of corrosion and other defects.

7 Assessment of test results

7.1

The degree of corrosion of metal deposits and conversion coatings after the salt spray test shall be assessed in accordance with GB 5944-86 Evaluation of the corrosion test results of the metal deposits for the light industrial products.