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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 28416-2012

**Corrosion tests in artificial atmospheres -- Accelerated
corrosion tests involving alternate exposure to
corrosion-promoting gases, neutral salt-spray and drying**

人工大气中的腐蚀试验 交替暴露在腐蚀性气体、中性盐雾及干燥环境中的加速腐
蚀试验

(English Translation)

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard uses the translation method identical with the international standard ISO 21207:2004 "Corrosion tests in artificial atmosphere are alternately exposed to the corrosive Gases, neutral salt spray and dry environment of accelerated corrosion test. " Correspondence between the consistency of the standards of international documents and normative references of the following documents.

GB/T 10125-1997 Corrosion tests in artificial atmospheres - salt spray test (eqv ISO 9227:1990).

The standard proposed by China Iron and Steel Association.

This standard by the National Steel Standardization Technical Committee (SAC/TC183) centralized.

This standard was drafted. Institute of Metal Research, Metallurgical Industry Information Standards Institute, the national environmental corrosion materials science field Research Center Research Station network.

Introduction

With or without protection, corrosion of metallic materials are influenced by many environmental factors, along with the type of material and the metal is not the type of environment Same, the impact of environmental factors will be different. Purpose design laboratory test is to simulate the most important that can accelerate corrosion of metallic materials Influence factors.

Accelerated corrosion test methods A and B described in this standard, and is designed to simulate and to strengthen exposed to salt contamination conditions and Since the environmental impact of industrial or corrosive gases may promote corrosion traffic environment in outdoor climate. A test method is to simulate lighter of aggressive traffic

environment, Test Method B is to simulate more demanding industrial or transportation environment.

Test Method A test sample is exposed to the following test cycle.

- a) at 35 °C, the mass fraction of 5% sodium chloride solution neutral salt spray test (GB/T 10125) 2h, then the standard Climate Laboratory drying 22h;
- b) in a mixed gas containing nitrogen dioxide and sulfur dioxide of 95% relative humidity, temperature 25 °C environment exposure test 120h, two Nitrogen oxide and sulfur dioxide volume fraction of 1.5×10^{-6} and 0.5×10^{-6} , and then dried in a standard laboratory climate 24h.

Test Test Method B sample test cycle is exposed as follows.

- a) at 35 °C, the mass fraction of 5% NaCl solution of neutral salt spray test (GB/T 10125) 2h, then the standard real Laboratory drying climate 22h;
- b) In the mixed gas containing sulfur dioxide, nitrogen dioxide and relative humidity of 95% and a temperature of 25 °C environment exposure test 48h, dioxo Nitrogen and sulfur dioxide volume fraction of 10×10^{-6} and 5×10^{-6} ;
- c) repeating steps a);
- d) the relative humidity in a mixed gas containing nitrogen dioxide and sulfur dioxide 95%, temperature 25 °C environment exposure test 72h, dioxo Nitrogen and sulfur dioxide volume fraction of 10×10^{-6} and 5×10^{-6} .

The results obtained allowed as an extension of the test product corrosion resistance in all the conclusions of the range of environmental conditions.

Corrosion tests in artificial atmosphere Alternately exposed to corrosive gases, neutral salt spray and Dry environment of accelerated corrosion test

1 Scope

This standard specifies two accelerated corrosion test methods used to evaluate the material containing metal ions and chlorine products in corrosive gases significantly the corrosion resistance, chloride deicing salt from the marine environment of sodium chloride or winter road, corrosive gases under the influence of the environment from Industrial or transport of air pollution.

This standard specifies the accelerated corrosion test equipment and procedures.

These methods are particularly suitable for the evaluation of the corrosion resistance of the corrosion-sensitive material containing metal products, such as serving in transportation or industrial environment Electronic components.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 6461-2002 metal base metal and other inorganic coatings by etching after the test specimens and ratings (ISO 10289:1999, IDT) 16545-1996 corrosion test specimens of metals and alloys Clear GB/T corrosion products (ISO 8407:1991, IDT) GB/T 19745-2005 artificial low concentrations of pollution in the atmosphere corrosion test (ISO 10062:1991, IDT) ISO 1337. 1980 refined copper (minimum copper content of 99.85%) of refined products, chemical composition and shape (Wroughtcoppers (Havingminimumcoppercontentsof99.85%) Chemicalcompositionandformsofwroughtproducts) ISO 9227:1990 Corrosion tests in artificial atmospheres - salt spray test (Corrosiontestsinartificialatmospheres-Salt spraytests)

3 Instruments and reagents

3.1

Test samples were exposed to 95% relative humidity and a temperature of 25 °C of sulfur dioxide and nitrogen dioxide mixed gas environment Chamber having an inner casing and a gas flow system should be consistent with GB/T 19745-2005 requirements of.

Test manufacturing equipment must meet the following requirements.

- a) chamber and airflow inside the cabinet system consists of polytetrafluoroethylene (PTFE) or glass and other inert material to avoid or minimize Less harmful gases adsorbed on the surface of the sample and the internal surface of the housing.
- b) design airflow and corrosive gas injection system to ensure that in the case or internal test space is at a uniform test conditions.

NOTE: The most common test equipment is designed, the amount of corrosive gas is mixed with the moist air to achieve the required test concentration, continuously introduced into the test space to obtain the desired test gas. External gas mixing process is completed in the test apparatus. Air control temperature and humidity inside the cabinet from the outside of the chamber. injection Test gas stream and recycle corrosive gas after mixed, then the mixed gas into the internal chamber of the housing or work area, through the internal housing Approximately half of the test gas can enter the recycling process.

In order to ensure a uniform area test conditions, the test gas is usually introduced into the work area from the bottom and from the top of the export. The porous plate is placed the front of the entrance, to ensure that the air flow through the work area is uniform.