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

GB/T 19746-2018

Replacing GB/T 19746-2005

**Corrosion of metals and alloys -- Alternate immersion test in
salt solution**

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2005 edition table 1);

2005 edition 6.2);

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Foreword

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

This standard replaces GB/T 19746-2005 "Periodic Leach Test of Corrosive Salt Solutions of Metals and Alloys". With GB/T 19746-2005

In contrast, the main technical changes are as follows.

- Increased reference standards (see Chapter 2);
- Added terms and definitions (see Chapter 3);
- Increased the purity of the reagents in the formulation process (see 5.1);
- Increased restrictions on other elements in sodium chloride solution (see 5.2.2);
- Deleted "using atomic absorption spectrophotometry and other similar methods to determine the content of copper and nickel in sodium chloride solution (see

2005 edition table 1);

- Removed the requirements for the pH range (see.2005 version 4.2);
- Increased automatic and continuous requirements for test equipment (see 6.1);
- Removed the requirement that "the liquid discharged from a sample cannot directly contact any other sample" (see version 5.3.2 of the.2005 edition);
- Modify the size of the specimen from 90mm 120mm 1mm to 90mm 120mm (1mm ~ 3mm) (see 7.1,

2005 edition 6.2);

- Increased the influence of the roughness to be considered on the corrosion results during sample preparation (see 7.3);
 - Modify the drying conditions of the sample (see 8.1.3,.2005 version 6.1);
 - Increased sample placement requirements (see 8.2.1);
 - Modify the solution replacement time (see 8.2.3,.2005 version 6.3);
 - Removed the chapter "Calibration of test equipment" (see chapter 7 of the.2005 edition);
 - Recommend a suitable sample cleaning method (see Chapter 9);
 - Modify some of the requirements in the "Test Report" (see Chapter 11);
 - Added Appendix A (see Appendix A);
 - Added "Warning" in Appendix B (see Appendix B);
 - Removed "Sodium Chloride Solution Determination by Atomic Absorption Spectrophotometry or Other Similar Sensitivity Analysis Methods" in Appendix B.2.1
- Copper and nickel in the liquid, and the level of purity of sodium chloride that can be used is described (see appendix B of the.2005 edition);
- Modify the concentration and quality of NaOH solution added in Appendix B.2.2 (see B.2.2,.2005 edition A.2.2);
 - Added Figure C.2 (see Appendix C).

This standard uses a redrafted law to amend the use of international standards ISO 11130.2017 "period test of corrosion of salt and metal alloys and alloys

Test.

There is a technical difference between this standard and ISO 11130.2017. The terms involved in these differences have passed through the margins on its outer side.

The vertical single line (|) is marked, and the corresponding technical differences and their causes are given in Appendix A.

This standard is proposed by the China Iron and Steel Industry Association.

This standard is under the jurisdiction of the National Steel Standardization Technical Committee (SAC/TC183).

This standard was drafted by. Jiangyin City Product Quality Supervision and Inspection Institute, Metallurgical Industry Information Standard Institute, and Beijing University of Science and Technology.

Introduction

The results obtained from the test methods described in this standard can be used to characterize the relative corrosion resistance of different metals under actual service conditions, especially in service.

The environment is similar to the selected test solution. This method can also be used to apply a tensile stress metal corrosion test. The corrosion of metal is very

The impact of multiple factors, these factors vary greatly with the environment. Therefore, in this standard, the corrosion resistance of metal in the immersion corrosion test

The description will vary depending on the chosen test solution, the temperature of the immersion and the temperature and humidity of the test drying stage. Therefore, the week dip

The results of the corrosion test do not represent the corrosion resistance of metals in all different service environments.

Corrosion salt and solution immersion test of metals and alloys

1 Scope

This standard specifies a method for assessing the corrosion resistance of metals by means of a periodic immersion test with and without applied stress in salt solutions.

This standard applies to the quality control of metals including aluminum alloys and steel materials in the manufacturing process. It also applies to the development of alloys.

Process assessment.

Based on the chemical composition of the test solution, this standard can simulate the corrosive effects of seawater splash area, deicing fluid and acidic salt environment.

The term "metal" in this standard includes metallic materials with or without coatings.

Peripheral immersion tests are suitable for.

- Metals and their alloys;
- a kind of metal coating (a cathode and anode coating relative to the substrate);
- a conversion film;
- some anodized layer;
- The organic coating on the metal surface.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article

Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 6461 Ratings of specimens and specimens after corrosion tests of metals and other inorganic coatings on metal substrates

(GB/T 6461-2002, ISO 10289.1999, IDT)

GB/T 10123 Basic terms and definitions for corrosion of metals and alloys (GB/T 10123-2001, eqvISO 8044.1999)

GB/T 15970.1 Corrosion stress corrosion tests for metals and alloys. Part 1. General test methods (GB/T 15970.1-

2017, ISO 7539-1.2012(E), IDT)

Corrosion corrosion products on GB/T 16545 metals and alloys on the removal of corrosion products (GB/T 16545-2015, ISO 8407.

2009, IDT)

GB/T 30789 (all parts) evaluation of paint and varnish coating aging [ISO 4628 (all parts)]

3 Terms and Definitions

The terms and definitions defined in GB/T 10123 apply to this document.

4 Principle

Tests include stress (see GB/T 15970.1) or unstressed specimens alternately immersed in the salt solution and taken out and dried.

The immersion and drying cycles are repeated at a given frequency over a given cycle, and the degree of corrosion is then evaluated. For many materials, this method

Provides a more severe corrosion test than continuous immersion.