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

GB/T 17897-2026

Replacing GB/T 17897-2016, GB/T 32550-2016

**Corrosion of metals and alloys - Corrosion test for pitting
corrosion**

金属和合金的腐蚀 点腐蚀试验方法

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Industrial Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document replaces GB/T 17897-2016 "Corrosion of Metals and Alloys - Test Method for Pitting Corrosion of Stainless Steel with Ferric Chloride" and GB/T 32550-2016 "Determination of Critical Pitting Temperature under Potential Constant Control for Corrosion of Metals and Alloys", this document is based on GB/T 17897-Based primarily on 2016, this version integrates the content of GB/T 32550-2016. Compared to GB/T 17897-2016, aside from structural adjustments and editorial changes, the main technical changes are as follows.

- a) The scope of application has been expanded (see Chapter 1);
- b) Added terms and definitions (see Chapter 3);
- c) The requirements for test water have been changed (see 4.2.1, 4.2.2, 4.1 and 4.2 of GB/T 17897-2016 edition);
- d) The scope of application of the pitting corrosion evaluation method has been changed (see 4.5, Chapter 7 of GB/T 17897-2016 edition);
- e) The expression of corrosion rate has been changed (see 4.5, Chapter 7 of GB/T 17897-2016 edition);
- f) The content that the test report should include has been changed (see 4.6, Chapter 8 of GB/T 17897-2016).

This document is modified to adopt ISO 17864:2005 "Corrosion of metals and alloys - Determination of critical pitting temperature under constant potential control".

Compared with ISO 17864:2005, this document has undergone many structural adjustments. A table comparing the changes in structural numbering between the two documents is provided.

See Appendix A.

This document differs significantly from ISO 17864:2005 in several technical aspects. The relevant clauses are indicated in vertical margins.

Single lines (|) are indicated. A summary of these technical differences and their causes can be found in Appendix B.

The following editorial changes have been made to this document.

---The file name has been changed.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Iron and Steel Association.

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

1 Scope

This document specifies two test methods for evaluating the pitting corrosion resistance of stainless steel, including the ferric chloride pitting corrosion test method and the constant potential control method.

The method for determining the critical pitting temperature under the established conditions covers sample preparation, test instruments and equipment, test methods, test procedures, and test results.

Judgment and test report.

This document applies to the testing of pitting corrosion properties of austenitic stainless steel, ferritic stainless steel, and ferritic-austenitic duplex stainless steel.

---Method A. Ferric chloride pitting test method, suitable for testing various stainless steels in different ferric chloride solutions and temperature environments.

For improved pitting resistance, duplex stainless steel and Cr-Ni stainless steel are recommended.

---Method B. Determination of critical pitting temperature under constant potential control, applicable to the determination of critical pitting temperature of stainless steel under constant potential control conditions.

temperature.

Note: The critical pitting temperature defined in this document can be used as a relative indicator of performance, for example, to compare the relative properties of different grades of stainless steel.

The tests in this document were not intended to measure the temperature at which pitting occurs.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 622 Chemical Reagents - Hydrochloric Acid (GB/T 622-2006, ISO 6353-2:1983, NEQ) GB/T 2481.1 Determination and marking of abrasive grain size composition for bonded abrasives - Part 1: Coarse abrasive grains F4~F220 (GB/T 2481.1-2025, ISO 8486-1:1996, MOD) GB/T 6682-2008 Specifications and test methods for water used in analytical laboratories (GB/T 6682-2008, ISO 3696:1987, MOD) GB/T 8170 Rules for rounding off numerical values and the representation and determination of limiting values GB/T 10123 Corrosion terminology for metals and alloys (GB/T 10123-2022, ISO 8044:2020, IDT) GB/T 16545 Corrosion of metals and alloys - Removal of corrosion products from corroded specimens (GB/T 16545-2025, ISO 8407.

2021, IDT)

GB/T 18590 Guidelines for the assessment of pitting corrosion in metals and alloys (GB/T 18590-2025, ISO 11463:2020, MOD) HG/T 3474 Chemical reagent ferric chloride hexahydrate (ferric chloride)

3 Terms and Definitions

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

The lowest temperature at which steady-state pitting corrosion begins and develops on the surface of a sample under specific test conditions.

temperatureramp rate

The rate at which the surface temperature of the sample increases during the experiment.

Note: The heating rate is expressed in degrees Celsius per second ($^{\circ}\text{C}\cdot\text{s}^{-1}$).