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

GB/T 32550-2016

**Corrosion of metals and alloys -- Determination of the critical
pitting temperature under potentiostatic control**

金属和合金的腐蚀 恒电位控制下的临界点蚀温度测定

(English Translation)

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Foreword

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

This standard uses redrafted Law Amendment uses ISO 17864:2005 "Corrosion of metals and alloys constant critical pitting temperature measured at the potential of the control." this standard and ISO 17864:2005 technical differences and for the following reasons.

--- Non-equivalent to international standards of GB/T 10123 replaced by ISO 8044:1999 (see Chapter 2);

--- Respectively 06Cr17NiMo2,015Cr20Ni18Mo6CuN replaced X5CrNiMo17-12-2, X1CrNiMoCuN20-18-7 (see A.5.3).

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. Iron and Steel Research Institute, Qingdao Marine Corrosion Institute of Metallurgical Industry Information Standards Institute, Qingdao Iron and Steel Research ng Detection Protection Technology Co., Ltd.

1 Scope

This standard specifies the method for rapid determination of the critical pitting temperature of stainless steel with a single sample, steps and requirements.

This standard applies to the determination of stainless steel (austenitic, ferritic/austenitic, ferritic) critical pitting temperature under potentiostatic control.

Note: This standard defines the critical pitting temperature can be used as a relative indicator of the performance, for example, to compare the relative performance of different grades of stainless steel. The standard test for measuring the temperature of the service environment is not pitting occurs.

2 Normative references

The following documents for the application of this document is essential. For cited documents with dates, only the dated edition applies to this document. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 10123 Corrosion of metals and alloys - Basic terms and definitions (GB/T 10123-2001, eqv ISO 8044:1999)

3 Terms and Definitions

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

critical pitting temperature CPT Under certain experimental conditions, the steady-state sample surface pitting initiation, the lowest temperature during development.

temperature ramp rate During the test, the sample rate of increase of the surface temperature.

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

Principle 4

4.1 The sample was exposed to the specific test environment and maintain the potential of the sample in a specified value, by heating the solution at a specific rate increase the surface temperature of the specimen.

4.2 critical pitting temperature is defined as the current density exceeds a specified sample temperature of the sample corresponding to the value of the 60s. 60s delay is to ensure that the observed increase in the current short-term peak current from the steady state pitting initiation, development, rather than metastable pitting caused.

4.3 sample holder designed to ensure that the seal between the sample and the sample holder does not occur crevice corrosion.

4.4 will be between the bulk solution and the sample temperature gradient, its magnitude depending on the shape and size of the sample, it is given in Chapter 7 of the surface temperature of the sample with respect to the solution temperature calibration methods.

4.5 heating rate, the test environment, and given the potential varies with the material, austenitic stainless steel, and other test parameters Selection Guide Appendix A.

4.6 Test method defines critical pitting temperature, just as the relatively performance indicators.