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

GB/T 46066-2025

**Corrosion of metals and alloys - Measurement of critical crevice
temperature for cylindrical crevice geometries in ferric chloride
solution**

金属和合金的腐蚀 在三氯化铁溶液中圆柱形试样临界缝隙腐蚀温度的测量
(English Translation)

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Foreword

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

Drafting.

This document is equivalent to ISO 19280:2017 "Corrosion of metals and alloys - Critical crevice corrosion of cylindrical specimens in ferric chloride solution".

Measurement of corrosion temperature.

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 describes a method for evaluating the crevice corrosion resistance of stainless steel and its alloys in oxidizing chlorine-containing solutions.

This document applies to the measurement of critical crevice corrosion in pipe/rod specimens, or plate specimens of the same composition, caused by crevice corrosion due to chemical reactions.

Temperature, but different from the electrochemical method in ISO 18070.

This document specifies the apparatus and procedures for measuring the crevice corrosion temperature of cylindrical tubular specimens.

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 10123-2022 Corrosion terminology for metals and alloys (ISO 8044:2020, IDT)

3 Terms and Definitions

The following terms and definitions apply to this document.

The exposed surface of the sample, under the crevice configuration (3.2), neglecting edge erosion, reaches the lowest temperature at which the crevice corrosion depth reaches 0.025 mm.

Note: The unit is degrees Celsius.

Creviceformer

Components of a crevice corrosion testing apparatus. By applying a certain load, crevice corrosion can be induced in the sample in contact with it.

4.1 Purpose

This document describes laboratory measurements of cylindrical (including arc-shaped) and flat stainless steel or high-resistance stainless steel samples in oxidizing chlorine-containing solutions.

Testing of CCT-corroded alloys. Cylindrical slotted specimens simulate tubes/tube sheets, pipes/tube supports, flanges/joints in industrial equipment heat exchangers.

Gaps in components such as shafts, bolts/nuts, etc. Differences in CCT exist between flat and cylindrical specimens of the same material, requiring measurement in-service applications.

Or the CCT of a portion of the actual pipe being manufactured. The purpose of this document is to exclude geometric shapes (pipes, rods, or...) in oxidizing, chlorine-containing solutions.

The effects of plate size and dimensions (radius of curvature) are used to rate the crevice corrosion resistance of stainless steel and alloys.

4.2.1 General Rules

Chloride ion solutions, such as ferric chloride solution or acidified ferric chloride solution, can be used to determine the rate of localized corrosion. The test method involves...