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

GB/T 46052-2025

**Corrosion of metals and alloys - Sulfur dioxide test in a humid
atmosphere (fixed gas method)**

金属和合金的腐蚀 潮湿大气中的二氧化硫试验（固定气体法）

(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 22479:2019 "Corrosion of metals and alloys - Sulfur dioxide test in moist atmosphere (fixed gas)".

Law)".

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).

Introduction

Moist air containing sulfur dioxide can cause corrosion of many metals.

The results obtained in this document should not be considered a direct guide to the corrosion resistance of tested materials in all permissible environments.

Therefore, the properties of different materials in this document should not be regarded as a direct guide to the relative corrosion resistance of these materials in practical applications.

Because interactions between different samples are difficult to avoid, only the same type of corrosion protection system is tested in a single testing procedure. The tests have different...

When designing corrosion protection systems for materials, the effects of sulfur dioxide may vary.

The term "fixed gas method" refers to introducing a fixed volume of gas into a test chamber of a fixed volume at the start of the test.

Corrosion of metals and alloys in humid atmospheres Sulfur dioxide test (stationary gas method) Warning---This document is not intended to address all security issues (if any) associated with its use. Users of this document are responsible for taking appropriate action.

Appropriate measures should be taken to ensure safety and health.

1 Scope

This document specifies a method for assessing the tolerance of materials or products in humid atmospheres containing sulfur dioxide.

This document applies to the testing of metals and alloys, metal coatings, inorganic coatings, and organic coatings.

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.

Note: GB/T 9271-2008 Standard test panels for paints and varnishes (ISO 1514:2004, MOD) ness)
Note. GB/T 13452.2-2008 Determination of film thickness of paints and varnishes (ISO 2808:2007, IDT) tions) Note. GB/T 10123-2022 Corrosion terminology for metals and alloys (ISO 8044:2020, IDT)

3 Terms and Definitions

The terms and definitions defined in ISO 8044 apply to this document.

4 Principles

The sample was exposed to a humid atmosphere containing sulfur dioxide. The sulfur dioxide dissolved in the moisture condensed on the sample surface, causing corrosion.

5.1 Component Protection

All components that come into contact with sulfur dioxide in humid atmospheres should be made of corrosion-resistant materials and should not themselves release any potentially harmful substances.

Gases or vapors that cause corrosion of the sample.

5.2 Test Chamber

The recommended volume of the test chamber is (300 ± 10) L. Other volumes may be used upon negotiation between the supplier and the buyer; in this case, the volume of the test chamber should be considered.