

ICS 77.060  
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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 24513.1-2026**

Replacing GB/T 24513.1-2009

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**Corrosion of metals and alloys - Classification of low  
corrosivity of indoor atmospheres - Part 1: Determination and  
estimation of indoor corrosivity**

金属和合金的腐蚀 室内大气低腐蚀性分类 第1部分：室内大气腐蚀性的测定与评价

**(English Translation)**

**Issued on: May 25, 2026**

**Implemented on: December 1, 2026**

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**Issued by: State Administration for Market Regulation**

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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 Part 1 of GB/T 24513 "Corrosion Classification of Metals and Alloys by Indoor Atmosphere (Low Corrosion)". GB/T 24513 the following sections have been released.

---Part 1: Determination and Evaluation of Indoor Atmospheric Corrosivity;

---Part 2: Determination of Indoor Atmospheric Corrosivity;

---Part 3: Determination of environmental parameters affecting indoor atmospheric corrosivity.

This document replaces GB/T 24513.1-2009 "Corrosion of Metals and Alloys - Classification of Low Corrosion in Indoor Atmospheres - Part 1: Indoor Atmospheres".

"Determination and Evaluation of Atmospheric Corrosivity" differs from GB/T 24513.1-2009 in that, apart from structural adjustments and editorial changes, the main technical changes are as follows.

as follows.

- a) The standard metal quantities have been changed (see Chapter 6, Chapter 6 in the 2009 edition), and regulations regarding exposure time have been added (see Chapter 6);
- b) Added provisions regarding the steady-state indoor/outdoor relationship of various gaseous pollutants within buildings (see 7.1);
- c) Added provisions for the indoor atmospheric corrosivity classification test of standard specimens with lead as the standard metal (see Tables 2 and 3).

This document is equivalent to ISO 11844-1:2020 "Corrosion of metals and alloys -

Classification of indoor atmospheres for low corrosivity - Part 1: Indoor atmospheres".

Determination and evaluation of atmospheric corrosivity.

The following minimal editorial changes have been made to this document.

---In sections 3.8 and 3.9, ISO 8044:2024 is used instead of ISO 8044:2020.

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

GB/T 24513 "Corrosion of Metals and Alloys - Classification of Low Corrosion in Indoor Atmosphere" consists of three parts.

---Part 1: Determination and Evaluation of Indoor Atmospheric Corrosivity. The aim is to establish a classification system for low-corrosivity indoor atmospheres and define the basic...

The low-corrosiveness indoor atmospheric corrosion rating is determined by referencing the degree of corrosion of the metal after the exposure period, and a rating that can be used as a measure of indoor corrosivity is provided.

The key indoor atmospheric parameters used as the basis for evaluation.

---Part 2: Determination of Indoor Atmospheric Corrosion. The purpose is to specify the methods for determining the degree of corrosion, the description of standard specimens, and the exposure conditions.

Components and evaluation methods.

---Part 3: Determination of Environmental Parameters Affecting Indoor Atmospheric Corrosivity. The purpose is to specify the environmental parameters affecting indoor corrosivity.

Measurement methods.

Metals, alloys, and metal coatings, under the influence of air humidity, especially the synergistic effect of gaseous and solid substances in air pollution.

Atmospheric corrosion can occur. Corrosion data is crucial for developing appropriate protective measures or assessing the service life of metal components in a product.

ISO 9223 classifies atmospheric environments into six corrosivity levels.

Low-corrosion indoor environments refer to indoor environments with a corrosion rating of C1 (very low) or C2 (low) according to ISO 9223.

For certain low-corrosion indoor environments, such as those storing electronic equipment, precision technology products, works of art, and historical artifacts.

Therefore, the classification of ISO 9223 may seem too broad.

In this case, it is necessary to further subdivide the corrosion grades C1 (very low) and C2 (low) in ISO 9223 according to this document and determine the corresponding...

Indoor corrosivity rating.

The assessment of low-corrosion indoor environments can be performed by directly measuring the degree of corrosion of selected metals (see ISO 11844-2) or by measuring the effects on the metals.

The environmental parameters that cause corrosion of the alloy (see ISO 11844-3) are used to determine this.

This document describes a general procedure for determining and evaluating indoor corrosivity levels.

This document aims to characterize the effects of low-corrosion indoor atmospheric conditions on metals and their coatings during storage, transportation, installation, or operation.

The document establishes a unified classification method for indoor corrosivity and specifies the procedures for determining and evaluating indoor corrosivity levels.

The scheme shown in Figure 1 provides the general rules for classifying indoor atmospheric corrosivity.

The relationship between the ISO, IEC and ISA classification systems is shown in Appendix A.

Figure 1 Indoor Atmospheric Low Corrosivity Classification Scheme

Corrosion of Metals and Alloys. Classification of Low Corrosion in Indoor Atmosphere Part 1: Determination and Evaluation of Indoor Atmospheric Corrosivity

## 1 Scope

This document establishes a classification system for low-corrosiveness indoor atmospheres.

This document specifies the determination of low-corrosiveness indoor atmospheric corrosion ratings based on the degree of corrosion of a reference metal after the exposure period.

This document establishes an indoor atmospheric corrosivity rating based on corrosion damage to standard specimens.

This document provides key indoor atmospheric parameters that can be used as a basis for evaluating indoor corrosivity.

Methods for determining the degree of corrosion, description of standard specimens, exposure conditions, and evaluation methods are given in ISO 11844-2. The environment affecting indoor corrosivity...

The measurement methods for environmental parameters are described in ISO 11844-3.

## 2 Normative references

This document has no normative references.

## 3 Terms and Definitions

The following terms and definitions apply to this document.

environment climate

Climate statistics are obtained from long-term observations of meteorological elements such as temperature, humidity, air pressure, wind conditions, and precipitation at a specific location.

[Source. EN15759-1:2011, 3.1] 3.2 Atmosphere A mixture of gases, aerosols, and particulate matter that comes into contact with a material, object, or structure.

Indoor atmosphere

The environment inside a container, room, or building [the combined effect of environment (3.1) and atmosphere (3.2)].

microclimate

The environment of a specific small area (such as a specific room, part of a building, etc.) (3.1) may differ from the environment of the overall area.

Temperature-humidity complex the combined effects of temperature and relative humidity on atmospheric corrosivity (3.10).

[Source. ISO 9223:2012, 3.4] 3.6 Time of wetness the duration for which adsorbates and/or electrolyte films that can cause atmospheric corrosion cover the metal surface.

[Source. ISO 9223:2012, 3.5]