

ICS 77.060
CCS H 25



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

GB/T 19292.3-2018

Replacing GB/T 19292.3-2003

**Corrosion of metals and alloys -- Corrosivity of atmospheres --
Part 3: Measurement of environmental parameters affecting
corrosivity of atmospheres**

Issued on: May 14, 2018

Implemented on: February 1, 2019

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

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Foreword

GB/T 19292 "Corrosion of Atmospheric Corrosion of Metals and Alloys" has been or is planned to be released as follows.

- Part 1. Classification, determination and evaluation;
- Part 2. Guidance values for corrosion levels;
- Part 3. Measurement of environmental parameters affecting atmospheric corrosivity;
- Part 4. Determination of corrosion rate of standard samples for evaluation of corrosivity.

This part is the third part of GB/T 19292.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 19292.3-2003 "Corrosion of metals and alloys - Part 3. Measurement of contaminants",

The main technical changes compared with GB/T 19292.3-2003 are as follows.

- Modified the title;
- Revised the scope of application (see Chapter 1);
- Added normative citations (see Chapter 2);
- Increased the principle of measuring atmospheric corrosive environmental parameters (see Chapter 3);
- Added provisions for temperature and relative humidity testing (see Chapter 4);
- Added provisions for the testing of atmospheric pollutant concentrations and settlements (see Chapter 5);
- Amend the provisions of the original standard for SO₂ and Cl-deposition rate testing to a normative appendix (see Appendix A, Appendix C and Appendix)

Record D, Chapter 2, Chapter 3, Chapter 4 of the.2003 edition);

--- Increased the determination of SO₂ deposition rate on a lead dioxide sulphation column (see Appendix B);

--- Increased method for determination of Cl-deposition rate - dry film method (see Appendix E);

--- Added a comparison between the Cl- and SO₂ deposition rates obtained by different test methods (see Appendix F).

This section uses the translation method equivalent to the international standard ISO 9225.2012 "Metal and alloy corrosion corrosive atmospheric impact

Measurement of gas corrosive environmental parameters.

The documents of our country that have a consistent correspondence with the international documents referenced in this part are as follows.

--- GB/T 19292.1-2003 Corrosion of metals and alloys - Part 2. Classification, determination and evaluation

(ISO 9223.1992, IDT);

--- GB/T 24513.3-2012 Corrosion of metals and alloys - Classification of low-corrosion of indoor atmosphere - Part 3

Gas corrosive environmental parameter determination (ISO 11844-3.2006, IDT).

This section has made the following editorial changes.

--- Modified the standard name.

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

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

This section was drafted by. Qingdao Institute of Marine Corrosion, Institute of Metallurgical Industry Information Standards, Institute of Iron and Steel Research, Metals of Chinese Academy of Sciences

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Introduction

The main controlling factors that cause atmospheric corrosion of metals and alloys. the combined effects of temperature and humidity, as well as contaminants. Atmospheric corrosivity

The basic requirement for evaluation is a standardized measurement of important parameters describing the correlation of corrosion and its environmental characteristics.

Since the method is simple to operate and the results are highly contrasted, the methods in this standard have been adopted. It should be emphasized that GB/T 19292.1 gives

The atmospheric corrosion evaluation method is based on the test method described in this standard.

Warnings - some of the hazardous chemicals involved in some of the steps included in this section, therefore emphasizing the necessary safety

Protective measures.

Corrosion of metals and alloys

Part 3. Affecting the corrosive environment of the atmosphere

Parameter measurement

1 Scope

This part of GB/T 19292 specifies the method for the determination of environmental parameters for corrosion evaluation, using these parameters for GB/T 19292.1

Classification of atmospheric corrosivity.

The method for determining the environmental parameters specified in this section applies to.

--- Based on the normative corrosion evaluation of the corrosion rate of the first year of the standard sample;

--- Informational corrosion assessment based on exposed environmental characteristics.

This section does not describe the analytical methods commonly used in environmental parameter testing because they are derived from available analytical techniques in the laboratory.

The relationship between the specific test methods for SO₂ and Cl-sedimentation rates and different test methods is in Appendix A, Appendix B, Appendix C, and

It is introduced in Record D, Appendix E, and Appendix F.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this

document.

Classification of corrosion and atmospheric corrosivity of ISO 9223 metals and alloys
(Corrosion of metals and alloys - Corrosivity

of atmospheres - Classification, determination and estimation)

ISO 11844-3 Corrosion of metals and alloys - Classification of atmospheric corrosion - Part
3

Environmental parameter determination

(Corrosion of metals and alloys - Classification of flow corrosivity of indoor atmospheres -

Part 3. Measurement of environmental parameters affecting indoor corrosivity)

3 Principle

Environmental parameters and the different combinations between them can affect the
corrosiveness of the atmosphere. Corrosion assessment (normative and information) is
specified in ISO 9223

Two methods of test.

In general, for standard procedures for corrosion evaluation, two sets of parameters need to
be obtained or determined.

--- Humidity and temperature;

--- Air pollutants.

The standardized evaluation of corrosion is based on the information level of the main
environmental parameters. temperature-humidity combined action, SO₂ and airborne salt
particle contamination

dye. The primary purpose of testing these environmental parameters is to perform corrosion
evaluation.

In addition to SO₂ and Cl⁻ in air pollutants, others such as NO_x, O₃, H₂S, and HNO₃ also
affect the corrosion rate. Active role of sediment

The etch components (SO₂-4, NO₃-, Cl⁻) react with metals in a humid environment and
these factors are considered to be concomitant factors (see ISO 9223).

These environmental parameters that affect the corrosion of standard metal coupons under
specific conditions are not the primary reference for ISO 9223 for atmospheric corrosion
assessment.

number. However, the level of these parameter information contributes to the data corrosion
assessment.