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

GB/T 19292.2-2018

Replacing GB/T 19292.2-2003

**Corrosion of metals and alloys -- Corrosivity of atmospheres --
Part 2: Guiding values for the corrosivity categories**

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Foreword

GB/T 19292 "Corrosive atmospheric corrosion of metals and alloys" has or plans to issue the following.

- Part 1. Classification, Measurement and Evaluation;
- Part 2. Guidance values for corrosion rating;
- Part 3. Measurement of environmental parameters that affect atmospheric corrosivity;
- Part 4 . Determination of the corrosion rate of standard specimens for the evaluation of corrosivity .

This part is part 2 of GB/T 19292.

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

This Part replaces GB/T 19292.2-2003 "Corrosion Atmospheric Corrosive Corrosion Ratings for Metals and Alloys". versus

The main technical changes compared to GB/T 19292.2-2003 are as follows.

- Increased guidance values for the corrosion rates of carbon steel, zinc and copper in the CX class atmosphere (see Appendix A);
- Revised guidelines for the corrosion rates of carbon steels, zinc and copper in the C1-C5 atmosphere (see Appendix A, Table 1, Chapter 4,.2003 Edition);
- Removed the guideline values for corrosion rates of weathering steels and aluminum in the atmosphere at different corrosion levels (see Table 1 in Chapter 4 of the.2003 edition);
- Increased metal corrosion rate and exposure time (see Chapter 4 and Chapter 6).

This section uses the redrafted method to modify the use of ISO 9224.2012 "Corrosive atmospheric corrosion of metals and alloys

Guideline value.

Compared with ISO 9224.2012, this part replaces the order of Chapter 6 and Chapter 7 structurally, and the order of tables and the reference table

The order is completely adjusted. That is, Table 1, Table 2, Table 3, and Table 4 are respectively changed to Table 4, Table 1, Table 2, and Table 3, respectively.

The technical differences between this part and ISO 9224.2012 and its reasons are as follows.

--- On the normative reference documents, this section made adjustments with technical differences to adapt to China's technical conditions, adjust the situation

The focus is reflected in Chapter 2, "Normative References," and the specific adjustments are as follows.

Replace ISO 8044 with GB/T 10123 equivalent to international standards (see Chapter 3);

- Replaced ISO 9223 with GB/T 19292.1 that is equivalent to the international standard (see Chapter 1, Chapter 4, Chapter 5, and 6)

chapter);

* Replaced ISO 14713-1 with the revised international standard GB/T 19355.1 (see 7.2);

This section made the following editorial changes.

--- Modified standard name.

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

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

This section was drafted by. Institute of Metal Research, Chinese Academy of Sciences, Metallurgical Industry Information Standard Institute, and Iron and Steel Research Institute Qingdao Ocean Corrosion

Institute, Beijing University of Science and Technology.

Introduction

The general term "corrosion grade" in GB/T 19292.1 is universally applicable to engineering applications. The term is based on current atmospheric corrosion knowledge.

To describe the atmospheric corrosion properties of materials.

Based on the corrosion rate of the first year of outdoor exposure, corrosion guidance values can be used to predict the degree of corrosion of the material after long-term exposure. root

According to the environmental parameters or corrosion grades given in GB/T 19292.1, the corrosion guideline values can also be conservatively estimated for the material's corrosion

rate.

The corrosion rates calculated using the methods in this section can be used to predict the useful life of metal components, and in some cases can also be used

To predict the service life of metallic coatings contained in GB/T 19292.1 when exposed to the atmosphere. Corrosion rate results can be used to determine

In order to improve product life, it is necessary to take protective measures, such as coating. In addition, the corrosion rate can also be used in outdoor atmospheric service conditions.

The choice of material provides the basis.

Corrosion guideline can be used as a reference for selecting atmospheric corrosion protection methods in GB/T 20852.

The guidelines in this section are based on extensive exposure experiments at many locations around the world. However, this section cannot be used during use

Can cover all conditions that may occur in the natural environment and service conditions. Especially when the environment changes dramatically, it may cause corrosion.

The rate increases or decreases dramatically. When using this section to deal with local corrosion as the main corrosion process, you should pay attention to consult the atmospheric corrosion side

Face expert. This section does not apply to galvanic corrosion, pitting, crevice corrosion, environmental cracking and corrosion product wedging.

Corrosion of metals and alloys at atmospheric corrosion

Part 2. Guidance Values for Corrosion Ratings

1 Scope

This part of GB/T 19292 stipulates the corrosion guide values for metals and alloys exposed to the outdoor natural atmosphere for more than one year. this

Partially used in conjunction with GB/T 19292.1.

The guideline gives the corrosion rate of standard structural materials. These data can be used for engineering calculations. The guideline specifies the standard metal for each

Corrosive grade technical content.

Appendix A gives an example of the calculation of the maximum corrosion loss for six standard corrosion grades with a maximum exposure time of 20 years.

Appendix B gives the average corrosion rate and steady-state corrosion rate for the initial

exposure to standard metal in six standard corrosion grades.

Appendix C gives the method of calculating the corrosion loss based on the composition of the steel.

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 version (including all amendments) applies to this document.

GB/T 10123 Basic terms and definitions for corrosion of metals and alloys (GB/T 10123-2001, eqvISO 8044.1999)

GB/T 19292.1 Corrosion of metals and alloys - Atmospheric corrosion - Part 1. Classification, determination and evaluation (GB/T 19292.1-2018, ISO 9223.2012, IDT)

GB/T 19355.1 Guidelines and recommendations for corrosion protection of zinc-coated steel structures Part 1. Basic principles of design and corrosion protection (GB/T 19355.1-2016, ISO 14713-1.2009, MOD)

3 Terms and Definitions

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

3.1

Guideline valueguidingcorrosionvalue

Corrosion rate, weight loss, penetration, or other corrosion characteristics characterize the atmospheric corrosion behavior of standard metals at a given level of corrosivity.

3.2

Long-term corrosion rate corrosionrateafterextendedexposure

Exposure to corrosion rates of more than 1 year.

3.3

Average corrosion rate (rav) averagecorrosionrate

The average corrosion rate of metals exposed to the atmosphere for the first 10 years.

3.4

Steady-state corrosion rate (rlin) steadystatecorrosionrate