

ICS 77.060

CCS H 25



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

GB/T 41951-2022

**Corrosion of metals and alloys - Test method for the corrosion
resistance of construction steel joints and members**

金属和合金的腐蚀 建筑用钢连接部件及钢构件耐腐蚀性能测试方法

Issued on: December 30, 2022

Implemented on: July 1, 2023

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part

1. Structure and Drafting Rules for Standardization Documents" drafting. Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents. This document is proposed by China Iron and Steel Industry Association. This document is under the jurisdiction of the National Steel Standardization Technical Committee (SAC/TC183). This document is drafted by: China Metallurgical Construction Research Institute Co., Ltd., Metallurgical Industry Information Standard Research Institute, Institute of Metal Research, Chinese Academy of Sciences, Beijing University of Science and Technology, Qingdao Iron and Steel Research Nanoco Testing and Protection Technology Co., Ltd., China Metallurgical Testing and Certification Co., Ltd. The main drafters of this document. Chen Jie, Hou Jie, Wang Zhenyao, Lu Shanglin, Zhang Lei, Yang Zhaohui, Tian Zijian, Cao Gongwang, Li Xiaobin, Li Qian, Ding Guoqing. Corrosion of metals and alloys for construction steel connecting parts and Test method for corrosion resistance of steel components

1 Scope

China's national test method for the corrosion resistance of steel construction joints and members. Testing a coupon of steel tells you about the steel; testing a joint tells you about the structure, and they are not the same. Corrosion in a real structure concentrates at the features a flat specimen does not have: the crevice between two bolted plates, where water is drawn in and cannot dry and where the oxygen depletion drives an aggressive local chemistry; the bolt itself, which is usually a different alloy and often galvanically coupled to what it holds; the weld and its heat affected zone, whose microstructure and composition differ from the parent; and the coating, which is thin at every edge and every corner. That is why a method for joints and members exists separately, and why weathering steel

structures fail at their details rather than in their spans.

This document gives the test methods for the corrosion resistance of steel connecting parts and steel components used in construction. This document is applicable to the corrosion performance test of steel connecting parts and steel components used in buildings in chloride ion environment. This document includes the following two methods, the test personnel can choose according to the actual conditions.

--- Method A. periodic spray test method;

--- Method B. periodic salt spray test method.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 1766 Method for rating the aging of paint and varnish coatings

GB/T 6682-2008 Analytical laboratory water specifications and test methods

GB/T 10123 Basic Terms and Definitions for Corrosion of Metals and Alloys

GB/T 10125-2021 Artificial atmosphere corrosion test Salt spray test

GB/T 11263 Hot-rolled H-shaped steel and split T-shaped steel

GB/T 16545 Removal of corrosion products on corrosion samples of metals and alloys

3 Terms and Definitions

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

3.1 Components connected by welding, screwing or riveting with steel plates, angle steels, channel steels, I-beams, H-beams, etc.

3.2 member assembled with steel connecting parts (3.1)

4.1.1 Test device

4.1.1.1 See Figure 1 for the periodic spray test device for corrosion resistance. The device can place multiple test pieces, and the main body is an environmental box that can be sprayed automatically. Mechanical loading device can be configured. The corrosion resistance periodic spray test device shall meet the requirements in 7.1.