YHX

Product Inspection Procedures
Shaanxi Ehisen Technology Co., Ltd.

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Controlled

Titanium anode for cathodic protection in marine environments

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Introduction

This standard is formulated for the third time.

This standard is drafted by the technical department of Shaanxi Ehisen Technology Co., Ltd.

This standard drafting department: R & D center, complete equipment and technology department.

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This standard approved by: Xu Boshi.

Previous releases of the standard replaced by this standard are: Q/XB1508-96, Q/YHX03-2018

1.Scope

This standard specifies the technical requirements, test methods, inspection rules and requirements for anode packaging, storage and transportation for cathodic protection in seawater environment. This standard is applicable to metal anode coatings with ruthenium as the main body and titanium as the matrix for cathodic protection in seawater environment.

2.Reference Standards

GB3620-2007 Titanium and titanium alloy grades and chemical composition

3.Product Classification

Product classification conforms to the provisions of Table 1

Table 1 Product brand, type and material

Coating Grade	Type	Substrate Material
TJ-B	Tubes, plates, nets, wires, rods	TA1 or TA2

4.Terminology

Reinforcement life

Life of anodic coating electrolytic reaction in H_2SO_4 solution in specified concentration at specified current density.

5.Technical Requirements

5.1 The matrix of the metal anode is made of titanium material, and its chemical composition should comply with the provisions of GB3620-2007

5.2 The technical requirements of the anode coating shall comply with the provisions of Table 1

Table 1

Project	Technical index value
Reinforcement life (h)	⩾120

5.3 Appearance requirements for anode coatings

5.3.1 The anode surface should be free of stains and impurities.

5.3.2 Each anode shall not have more than two scratches, the length of each scratch shall not be greater than 20mm, and the depth shall not expose the substrate.

5.3.3 The surface scratches of each anode shall not exceed three, and the area of each scratch shall not be greater than 9mm².

5.3.4 For rod-like electrodes, scratches or bruises on the surface of each anode shall not exceed four, and the length of each scratch or scratch shall not exceed 40mm.

5.4 Requirements for anode coating bonding state

5.4.1 The bonding state of the coating surface shall be bonded with colorless transparent tape, and no obvious black marks shall be left on the tape.

5.4.2 Requirements for the bonding state of the coating and the substrate, no peeling when bending 180° with the test piece.

6.test pieces

6.1 The main test method used in this standard is sample detection.

6.2 The material, thickness and mesh shape of the sample substrate should be consistent with that of the same batch of anode substrate.

6.3 In the coating manufacturing process, the surface treatment process, coating liquid, brushing times, heat treatment process and the amount of coating liquid per unit area of the sample and the same batch of anodes shall be the same.

7. Strengthen the life test method

The enhanced life test was carried out according to the conditions in Table 4.

Table 2 Conditions of enhanced life test

Dielectric	Current Density (A/m²)	Temperature (℃)
1mol/L sulfuric acid	20000	40±5

8.Inspection Rules

8.1 The anode shall be inspected by the technical supervision department of the supplier or the department entrusted by it to ensure that the quality of the product meets the provisions of this standard, and fill in the quality guarantee certificate.

8.2 The Demander may inspect the products received in accordance with the provisions of this Standard. If the inspection results are not in conformity with the provisions of this Standard, the Demander shall, within one month from the date of receipt of the products, propose to the Supplier for settlement through negotiation.

8.3 Anodes manufactured with the same batch of ingredients shall be one batch.

8.4 The ex-factory inspection item of the product is the intensive life test.

8.5 Test decision rules

8.5.1 The appearance of the anode coating shall meet the requirements of Article 5.3, the surface layer bonding state shall meet the requirements of Article 5.4.1, and the coating and substrate assembly state shall meet the requirements of Article 5.4.2.

8.5.2 If the test piece inspection data does not meet the technical index value of the factory inspection item, it is allowed to take a double number of test pieces from the sample to which the test piece belongs for reinspection of the unqualified item. If a sample still does not meet the requirements, it is allowed to take three anode pieces from the same batch of unqualified samples immediately for item-by-item inspection. If any item does not meet the requirements, it is not allowed to take three anode pieces from the same batch of unqualified samples for item-by-item inspection. The anode is judged to be unqualified.

9.Packaging, marking, storage and transportation

9.1 Packaging

9.1.1 Products should be packed and bound with wrapping paper before packing.

9.1.2 Make packing boxes according to the requirements of railway slow and express delivery.

9.1.3 The anodes should be placed in the box with light hands. Between the electrodes and between the electrodes and the packing box, soft foam plates should be used to isolate and tighten them to prevent the electrodes from moving relative to each other during loading, unloading and transportation.

9.2 Flags

The following marks shall be marked on the packing case:

a. Supplier name

b. Product name

c. Name of fragile item

d. Quantity

9.3 Storage and Transportation

9.3.1 The product shall be handled with care during loading, unloading and transportation.

9.3.2 Do not roll or impact the package.

9.3.3 Before storage, the product should be wrapped in packaging paper and placed in an environment free from molten salt or severe acid and alkali corrosion.