YHX

Product Inspection Procedures
Shaanxi Ehisen Technology Co., Ltd.

Q/YHX07-2019
Replace Q/YHX07-2018

Controlled

Titanium anode for cathodic protection in soil environments

2019-04-28 Publish **2019-05-06 Implement**

Shaanxi Ehisen Technology Co., Ltd. Publish

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.

Drafters of this standard: Miao Lei, Ren Chao.

Reviewer of this standard: Xue Liang.

This standard approved by: Xu Boshi.

The previous versions of the standard replaced by this standard are: Q/YHX07-2019.

1.Scope

This standard is applicable to the anode coating for cathodic protection with Ir as the main body and titanium as the matrix under soil environment.

2.Reference Standards

The following standards include provisions that constitute the provisions of this Standard by reference to this Standard, and the version shown at the time of publication of this standard is valid, all standards are subject to revision, and parties using this standard should explore the possibility of using the latest version of the following standards.

GB/T3620-2007 Titanium and titanium alloy grades and chemical composition

NACE Standard TM0108-2008 Testing ofCatalyzed Titanium Anodes for

Use in Soils or Natural Waters.

3.Terminology

Reinforcement life

Life of anodic coating electrolytic reaction in Na_2SO_4 solution in specified concentration at specified current density and temperature.

4.Product Classification

4.1 Product Classification

4.1.1 Grade, type and material

Coating Brand	Type	Substrate Material
TJ/F	Tubes, plates, nets	TA1 or TA2

4.2 The matrix of the metal anode is made of titanium material, and its chemical composition shall comply with the provisions of GB/T 3620-2007. The inspection method shall be carried out according to GB/T 3620-2007.

4.3 The anode dimensions shall meet the requirements in the drawing provided by the user.

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

Table 1 Technical requirements for anode coatings

Project	Technical Index Value
Enhanced life (kA • h/m^2)	according to the customer's specific use

According to the provisions of NACE Standard TM0108-2008, according to the actual working conditions of customers, ensure the anode strengthening life (h) ≥ customer life expectancy (h)x maximum output current (A/m^2) / 10000 A/m^2.

4.5 Appearance requirements for anode coatings

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

4.5.2 Each anode shall not have more than two scratches, each scratch shall be less than 10mm in length, and the depth shall not expose the substrate.

4.5.3 The surface scratches of each anode shall not exceed two, and the area of each scratch shall be less than 5mm^2.

4.5.4 For tube-rod anodes, scratches or scrapes on the surface of each anode shall not exceed three, and the length of each scratch or scratch shall not exceed 20mm.

4.6 Requirements for anode coating bonding status

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

4.6.2 When the test piece is bent 180° with a Φ12mm circular shaft, the coating on the curved surface will not peel off.

5.Test methods

5.1 Test piece requirements

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

5.1.1 The material and grade of the sample substrate should be consistent with the same batch of anode substrate. Hang 2 samples for each batch production.

5.1.2 The sample size is 100*100 ~ 200 mm

5.1.3 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.

5.2 Anode dimensions are measured with standard measuring tools (ruler, vernier caliper, etc.).

5.3 Enhanced life test according to this condition

Dielectric	Current Density (A/m^2)	Temperature (℃)
1 mol/L Na_2SO_4	10000	±25+5

5.4 The appearance of the anode coating shall be checked piece-by-piece with the naked eye.

5.5 The coating surface bonding state is checked in accordance with 4.6.1 of the standard.

5.6 The bonding state of the coating to the substrate shall be checked in accordance with clause 4.6.2 of this standard.

6.Check the rules

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

6.2 The Demander may inspect the received products according to 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.

6.3 Batch: Anodes manufactured with the same batch of ingredients.

6.4 Inspection Items:

Product inspection items:

(1) Anode size check

(2) Anodic coating appearance inspection

(3) anodic coating surface bonding state inspection

(4) Check the bonding state of the anode coating and the substrate

(5) Enhanced life test

(6) chemical composition analysis of the substrate

Enhanced life test because of its long cycle, so there is no data at the factory (if the user needs to supplement later). Chemical composition analysis of the substrate is based on the feed material list.

6.5 Anode coating appearance inspection and anode size inspection shall be carried out on the anode product; If the test data of the test piece 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, the batch of anodes is disqualified.

7.Marking, packaging, storage and transportation

7.1 Flags

7.1.1 The following marks or labels shall be printed or affixed on qualified products:

a. The supplier's technical department checks and prints

b. Product brand

c. Batch number

d. Date

7.1.2 The following marks shall be marked on the product packaging:

a. Supplier label

b. Product name

c. Quantity

7.2 Packaging, transportation and storage

7.2.1 Transport mark:

The packing cases are marked with words such as "Do not turn upside down" or "fragile".

7.2.2 Packaging and transportation

a. The product should be wrapped in soft materials or packaging paper before packing.

b. Make packing boxes according to the requirements of railway slow and express shipment.

c. The anode should be gently put into the box, between the electrodes and between the electrodes and the packaging box, using a soft foam board Isolation, firm, strictly prevent relative movement of electrodes during loading and unloading or transportation or pulsation due to turbulence.

7.2.3 Storage and Transportation

a. Product loading and unloading, transport should be handled carefully.

b. Do not roll or hit the package.

c. The anode should be lightly put into the box. Between the electrodes and the electrodes and the packing box, the soft foam board should be used for isolation and firmness to prevent the electrodes from moving relative or bouncing due to bumps during loading and unloading and transportation.

7.2.4 Certificate of Quality

Each batch should be accompanied by a product quality certificate, including:

a. Supplier name

b. Product name

c. Product brand and specification

d. Product batch number, number of pieces

e. The required analysis, inspection results and technical department's stamp.

f. This standard No.

g. Packing (storage) date.