YHX

# Product Inspection Procedures
# Shaanxi Ehisen Technology Co., Ltd.

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Controlled

# Titanium base lead dioxide anode

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# Catalogue

# Introduction

This standard is drafted in accordance with the principles given in GB/T1.1-2009 and in accordance with the spirit of the Standardization Law of the People's Republic of China.

This standard is formulated for the first 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.

Authorizer of this standard: Xu Jiahao.

Shaanxi Ehisen Technology Co., Ltd
admin@ehisen-anode.com
0917-3292780
https://www.ehisenanode.com/



# Titanium base lead dioxide anode

## 1.Scope

This document specifies the requirements, raw materials, test methods, inspection rules, labeling, packaging, transportation, storage, etc., for titanium-based lead dioxide anodes (hereinafter referred to as lead dioxide anodes).

## 2.Reference files

The terms of the following standards become terms of this document by reference to this document. All subsequent amendment orders or revised versions of dated reference standards shall not apply to this document; The most recent version of any reference standard not dated applies to this document

2. 1 ASTB338 (Stundard Specifieat ion and TitaniumA1lloy Tube for Condensers Heat Exears (Stundard specifieat ion and Titaniuma1Lloy Tube for condensers heat exears)

2.2 ASTM B348 (Standard Specification for Titanium and Titanium Alloy Bars and Billets) 2.2 ASTM B348 (Standard Specification for Titanium and Titanium Alloy Bars Andbillets)

2.3 ASTM B265 Standard Specification for Titanium and Titanium Alloy Strip,Sheetand Plate

## 3.Terms and definitions

3. 1 Terms and Definitions

The following terms and definitions apply to this document

3.1.1 Titanium lead dioxide anode plate

The invention relates to an anode formed by attaching lead dioxide to a pure titanium plate as a substrate by means of electrodeposition.

3.1.2 Titanium-based lead dioxide anode net

The invention relates to an anode formed by attaching lead dioxide to a pure titanium mesh plate by electrodeposition.

## 4.Classification and model

4.1 Classification

Lead dioxide anode according to its shape can be divided into plate anode, network anode, tube anode and other special anode;

4.2 Models

The model and specification shall meet customer's technical requirements.

## 5.Requirements

5.1 General product requirements

5.1.1 Surface quality

A. anode surface without flash, burr, scratch and other defects;

B. The anode surface color is uniform, the coating is firmly combined, and will not fall off when wiped by hand;

C. The anode surface should be kept clean, free of paint, epoxy resin and oil.

5.1.2 Weight and size deviation

A. Weight deviation:

The weight deviation of a single anode is ±2%, and the total weight must not be negative.

B. Size deviation

Anode length deviation ±2%, section size deviation ±3%.

5.2 Main Raw Materials

| Ingredients | ASTMB265 grade I or grade 2 |
|---|---|
| Thermal expansion coefficient | 8.7×10/K |
| Thermal conductivity (20℃) | 15.6W/(m·K) |
| Tensile strength | ≥240 MPa(≥34800 PSI) |
| The resistivity is | 0.056 m cm |
| Tensile rate | 20% minimum value |

5.5.2 Performance parameters of titanium tubes for tubular anodes

| Composition | ASTM B338 grade 1 or grade 2 |
|---|---|
| Coefficient of thermal expansion | 8.7×10 to 5/K |
| Thermal conductivity (20℃) | 15.6W/(m·K) |
| Tensile strength | ≥240 MPa(≥34800 PSI) |
| The resistivity is | 0.056m cm |
| Tensile rate | 20% minimum value |

## 6.Quality Inspection

6.1 Batch Rules

Lead dioxide anode products using the same raw material batch, according to the same process operation, and produced in the same class can form a finished product group batch.

6.2 Life test Method

The life of the lead dioxide anode is demonstrated by testing its electrochemical properties under test conditions

| Test medium | 10%wt sulfuric acid |
|---|---|
| Test total charge density | 10000KA.h/ |
| Test current density | 20000A/m |
| Test time | ≥500h |

The results should accord with the performance requirements of anode.

6.3 Inspection of surface quality

The surface quality of lead dioxide anode was tested one by one by visual inspection.

6.4 Weight and dimension inspection

The weight is checked with scales, the section size is checked with calipers, and the roll length is checked with steel tape. 5% of the products of the same batch and the same specification and model are randomly selected for inspection.

6.5 Inspection of raw materials

Raw material ingredients and physical properties shall be provided by the raw material supplier inspection report, and the factory shall send samples to the third party for testing at least once a year.

6.6 Decision Rules

If a sample does not meet the requirements during the inspection, the sample should be doubled for reinspection. If the reinspection still does not meet the requirements, the batch of products is unqualified. Disqualification of surface quality inspection shall be dealt with individually.

## 7.Inspection Rules

7.1 Type Inspection

7.1.1 Type inspection shall be carried out under any of the following circumstances;

a) New products or old products transferred to the factory production of prototype identification

b) After the formal production, if the structure, material, process has a large change, which may affect the product performance:

c) In normal production, once a year:

d) When production resumes after the product has been discontinued for more than one year;

e) When there is a big difference between the factory inspection result and the last type inspection:

f) When the national quality supervision agency proposes the type test requirements.

7.1.2 The samples for type test shall be randomly selected from the products that have passed the factory inspection.

7.2 Factory Inspection

7.2.1 The product shall meet the requirements of serial number 1, 2, and 3 in Table 6, and shall be delivered only after passing the requirements, and the product qualification certificate and quality certificate shall be attached.

7.2.2 Mass-produced products shall comply with the requirements of 7.2.3.

7.2.3 Batch and sampling inspection

7.2.3.1 Batch Group Rules

Using the same batch of raw materials, according to the same process operation, the same production, the same chemical composition of high silicon cast iron anode products can form a finished product group.

7.2.3.2 Sample quantity

a) Life test: Take any three samples of the same batch of products for inspection.

b) Surface quality inspection: use visual inspection method to inspect one by one.

c) Weight and size inspection, the same batch, the same specification and model of the product, randomly selected 10% for inspection.

## 8.Marking, packaging, transportation and storage

8.1 Flags

8.1.1 Product logo

The product should be clearly marked: trademark and model number.

8.1.2 Packaging Labels

The following contents shall be marked on the product package:

Trademark:

Product name, model:

Address and telephone number of the production unit:

Batch number, quantity:

Production Date:

Moisture-proof, fragile marking.

8.2 Packaging

8.2.1 The anode of lead dioxide should be packed in wooden cases, which should be neat and firm and should not be moved. Prevent the anode from being damaged by external forces