



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

GB/T 41493.1-2022

**Accelerated life test method of mixed metal oxide anodes for
cathodic protection - Part 1: Application in concrete**

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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 of Standardization Documents" drafted.

This document is part 1 of GB/T 41493 "Accelerated Life Test Method for Mixed Metal Oxide Anodes for Cathodic Protection".

GB/T 41493 has published the following parts.

--- Part 1. Applied to concrete;

--- Part 2. Applied to soil and natural water environments.

This document is identical to ISO 19097-1:2018 "Accelerated Life Test Method for Mixed Metal Oxide Anodes for Cathodic Protection No. 1

Section. Application to Concrete".

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

GB/T 41493 "Accelerated Life Test Method for Mixed Metal Oxide Anodes for Cathodic Protection" is the National Steel Standardization Technical Committee

One of the standards for corrosion test methods developed by the Subcommittee on Corrosion of Metals and Alloys (the "Committee").

GB/T 41493 aims to standardize the accelerated life test method of mixed metal oxide anodes for cathodic protection, the accelerated life test results are available

To compare the durability of different metal oxide anode materials and to assess whether the anode meets the design life expectancy at rated current output

Require.

GB/T 41493 consists of two parts.

--- Part 1. Applied to concrete. The purpose is to standardize mixed metal oxide anodes for cathodic protection in concrete environments

accelerated life test method.

--- Part 2. Applied to soil and natural water environments. The purpose is to standardize the use of mixed materials for cathodic protection in soil and natural water environments.

Accelerated life test method for alloyed metal oxide anodes.

Ambiguity of understanding and any resulting responsibility arising from the dissemination or interpretation of standards by other bodies that have not been authorized in writing by the Committee

The committee will not take any responsibility for any consequences.

Mixed metal oxide anodes for cathodic protection

Accelerated Life Test Method

Part 1. Application in concrete

1 Scope

This document specifies an accelerated life test method for mixed metal oxide anodes for cathodic protection in concrete environments. accelerated life test

The test results can be used to compare the durability of different metal oxide anode materials and to evaluate whether the anode meets the design pre-design at rated current output.

longevity requirements.

This document is also applicable to other systems of impressed current anodes embedded in concrete, which can be fixed with different

any shape of the anode.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to

this document.

Note. GB/T 17671-2021 Test method for strength of cement mortar (ISO method) (ISO 679.2009, MOD)

Note. GB/T 10123-2022 Basic terms and definitions for corrosion of metals and alloys (ISO 8044.2020, IDT)

3 Terms and Definitions

Terms and definitions defined in ISO 8044 and the following apply to this document.

3.1

mixed metal oxide anode

The auxiliary anode for impressed current cathodic protection is formed by coating a mixed metal oxide conductive coating on a titanium substrate.

Note. The most commonly used coating of metal oxide anodes for cathodic protection is a mixture of iridium oxide and tantalum oxide, and the specific composition of the coating can vary.

3.2

accelerated life

Lifetime of mixed metal oxide anodes in accelerated tests at high current densities in the specified test medium.

Note. The total test time before the failure of the mixed metal oxide anode is taken as the accelerated life.

3.3

Slot pressure celvoltage

The voltage difference between the anode and cathode in a single electrolytic cell (cell).

3.4

charge density

The product of the applied current density and the operating time is applied.