Cathodic protection of internal surfaces of metallic tanks, structures, equipment, and piping containing seawater

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NATIONAL FOREWORD

See Eesti standard EVS-EN 17243:2020 sisaldab Euroopa standardi EN 17243:2020 ingliskeelset teksti.	This Estonian standard EVS-EN 17243:2020 consists of the English text of the European standard EN 17243:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 11.03.2020.	Date of Availability of the European standard is 11.03.2020.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 47.020.30, 77.060

EUROPEAN STANDARD

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English Version

Cathodic protection of internal surfaces of metallic tanks, structures, equipment, and piping containing seawater

Protection cathodique des surfaces internes des réservoirs, ouvrages, équipements et tuyauteries métalliques contenant de l'eau de mer

Kathodischer Schutz der inneren Oberflächen von metallischen Tanks, Strukturen, Ausrüstung und Rohrleitungen die Meerwasser enthalten

This European Standard was approved by CEN on 11 November 2019.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 17243:2020) has been prepared by Technical Committee CEN/TC 219 “Cathodic protection”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2020, and conflicting national standards shall be withdrawn at the latest by September 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Introduction

Metallic structures containing seawater or brackish waters are exposed to the risk of corrosion. Even when a coating is applied to reduce this risk, cathodic protection (CP) is usually used to ensure corrosion control during the structure design life. This is especially important in the presence of galvanic couples between various metals and alloys because corrosion is then concentrated to the less noble material.

Cathodic protection works by supplying sufficient direct current to the internal surface of the structures in contact with water in order to change the structure to electrolyte potential to values where the corrosion rate is insignificant.

The general principles and theoretical aspects of cathodic protection in seawater are detailed in EN 12473.

1 Scope

This document specifies the requirements and recommendations for cathodic protection systems applied to the internal surfaces of metallic tanks, structures, equipment and piping containing natural or treated seawater or brackish waters to provide an efficient protection from corrosion.

Cathodic protection inside fresh water systems is excluded from this document. This is covered by EN 12499.

NOTE EN 12499 covers internal cathodic protection for any kind of waters, including general aspects for seawater but excluding industrial cooling water systems. This document specifically details applications in seawater and brackish waters.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12473, *General principles of cathodic protection in seawater*

EN 12496, *Galvanic anodes for cathodic protection in seawater and saline mud*

EN 12499, *Internal cathodic protection of metallic structures*

EN 13509, *Cathodic protection measurement techniques*

EN ISO 8044, *Corrosion of metals and alloys — Basic terms and definitions (ISO 8044)*

EN ISO 9606-1, *Qualification testing of welders — Fusion welding — Part 1: Steels (ISO 9606-1)*

EN ISO 15257, *Cathodic protection — Competence levels of cathodic protection persons — Basis for certification scheme (ISO 15257)*

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials —General rules (ISO 15607)*

EN ISO 15609-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 1: Arc welding (ISO 15609-1)*

3 Terms and definitions

For the purposes of this document the terms and definitions given in EN 12473 and EN ISO 8044 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp/ui

3.1
anode redundancy factor
multiplier applied to the theoretical number of anodes to allow for anode damage and failures for ensuring that protection will continue to be achieved when one or more anodes are lost, without modifying the unit weight of anodes