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**General principles of cathodic protection  
in sea water**

*Principes généraux de la protection cathodique en eau de mer*



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## Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 12473 was prepared by the European Committee for Standardization (CEN) (as EN 12473) and was adopted, under a special "fast-track procedure", by Technical Committee ISO/TC 156, *Corrosion of metals and alloys*, in parallel with its approval by the ISO member bodies.

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## Foreword

This European Standard 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of an identical text or by endorsement, at the latest by July 2000, and conflicting national standards shall be withdrawn at the latest by July 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Annex A of this European standard is normative.

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## 1 Scope

This European Standard covers the general principles of cathodic protection including the criteria for protection, environmental and design considerations and secondary effects of cathodic protection and is intended as an introduction to other European Standards in the general series "Cathodic Protection of Steel Structures in Sea Water".

This European Standard provides a link between the theoretical aspects and the practical applications of cathodic protection as contained in the European Standards:

prEN 12474:1997, *Cathodic protection for submarine pipelines.*

EN 12495:2000, *Cathodic protection for fixed steel offshore structures.*

prEN 12496:1997, *Galvanic anodes for cathodic protection in sea water and saline mud.*

prEN 13173:1998, *Cathodic protection for steel offshore floating structures.*

This group of European Standards does not cover cathodic protection of steel in concrete whether immersed or atmospherically exposed. These aspects are covered by prEN 12696-1:1997 and prEN 12696-2.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN ISO 8044, *Corrosion of metals and alloys – Basic terms and definitions (ISO 8044:1999).*

## 3 Terms and definitions

For the purposes of this European Standard the terms and definitions in EN ISO 8044 and the following apply:

### 3.1

#### **acidity**

presence of an excess of hydrogen ions over hydroxyl ions ( $\text{pH} < 7$ )

### 3.2

#### **alkalinity**

presence of an excess of hydroxyl ions over hydrogen ions ( $\text{pH} > 7$ )

### 3.3

#### **anaerobic condition**

absence of free oxygen in the electrolyte

### 3.4

#### **anodic area**

that part of a metal surface which acts as an anode

### 3.5

#### **bond**

metal conductor, usually of copper, connecting two points with the intention of making the points equipotential

### 3.6

#### **calcareous deposits**

minerals precipitated on the steel cathode because of the increased alkalinity caused by cathodic protection