



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 8044:2015

# Corrosion of metals and alloys - Basic terms and definitions (ISO 8044:2015)

## I.S. EN ISO 8044:2015

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):*

*NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.*

*This document is based on:*

EN ISO 8044:2015

*Published:*

2015-09-16

*This document was published  
under the authority of the NSAI  
and comes into effect on:*

2015-10-05

ICS number:

01.040.77

77.060

NOTE: If blank see CEN/CENELEC cover page

NSAI  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

Sales:  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

## National Foreword

I.S. EN ISO 8044:2015 is the adopted Irish version of the European Document EN ISO 8044:2015, Corrosion of metals and alloys - Basic terms and definitions (ISO 8044:2015)

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with this document does not of itself confer immunity from legal obligations.**

*In line with international standards practice the decimal point is shown as a comma (,) throughout this document.*

This page is intentionally left blank

**EUROPEAN STANDARD**

**EN ISO 8044**

**NORME EUROPÉENNE**

**EUROPÄISCHE NORM**

September 2015

ICS 77.060; 01.040.77

Supersedes EN ISO 8044:1999

English Version

## **Corrosion of metals and alloys - Basic terms and definitions (ISO 8044:2015)**

Corrosion des métaux et alliages - Termes principaux  
et définitions (ISO 8044:2015)

Korrosion von Metallen und Legierungen -  
Grundbegriffe (ISO 8044:2015)

This European Standard was approved by CEN on 13 May 2015.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

**EN ISO 8044:2015 (E)**

<b>Contents</b>	<b>Page</b>
<b>European foreword.....</b>	<b>3</b>

## **European foreword**

This document (EN ISO 8044:2015) has been prepared by Technical Committee ISO/TC 156 “Corrosion of metals and alloys” in collaboration with Technical Committee CEN/TC 262 “Metallic and other inorganic coatings” 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 March 2016, and conflicting national standards shall be withdrawn at the latest by March 2016.

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

This document supersedes EN ISO 8044:1999.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Endorsement notice**

The text of ISO 8044:2015 has been approved by CEN as EN ISO 8044:2015 without any modification.

This page is intentionally left blank



# **INTERNATIONAL STANDARD**

**ISO  
8044**

# **NORME INTERNATIONALE**

Fourth edition  
Quatrième édition  
2015-09-01

---

---

## **Corrosion of metals and alloys — Basic terms and definitions**

## **Corrosion des métaux et alliages — Termes principaux et définitions**

## **Korrosion von Metallen und Legierungen — Grundbegriffe**



Reference number  
Numéro de référence  
ISO 8044:2015(E/F)

© ISO 2015

**ISO 8044:2015(E/F)**



**COPYRIGHT PROTECTED DOCUMENT  
DOCUMENT PROTÉGÉ PAR COPYRIGHT**

© ISO 2015

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie, l'affichage sur l'internet ou sur un Intranet, sans autorisation écrite préalable. Les demandes d'autorisation peuvent être adressées à l'ISO à l'adresse ci-après ou au comité membre de l'ISO dans le pays du demandeur.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland/Publié en Suisse

# Contents

	Page
<b>Foreword</b> .....	<b>v</b>
<b>Introduction</b> .....	<b>vi</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 General terms</b> .....	<b>1</b>
<b>3 Types of corrosion</b> .....	<b>3</b>
<b>4 Corrosion protection</b> .....	<b>9</b>
<b>5 Corrosion testing</b> .....	<b>11</b>
<b>6 Electrochemical terms</b> .....	<b>12</b>
6.1 The electrochemical cell.....	12
6.2 Reaction rates.....	16
6.3 Passivation.....	18
6.4 Electrochemical protection.....	19
6.5 Electrochemical corrosion tests.....	20
<b>Bibliography</b> .....	<b>23</b>

## **ISO 8044:2015(E/F)**

### **Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 156, *Corrosion of metals and alloys*.

This fourth edition cancels and replaces the third edition (ISO 8044:1999), which has been revised to include additional terms and definitions.

## **Introduction**

The definitions in this International Standard have been drawn up with the objective of achieving a proper balance between precision and simplicity. The main objective of this International Standard is to provide definitions that can be understood to have the same meaning by all concerned. Some corrosion terms in present use have developed through common usage and are not always logical. It has not, therefore, been possible to define certain terms in the form they are used in some countries. Because of the occasional conflicts between tradition and logic some definitions inevitably represent a compromise.

An example of this kind of conflict is the term “corrosion”. This has been used to mean the process, results of the process and damage caused by the process. In this International Standard corrosion is understood to mean the process. Any detectable result of corrosion in any part of a corrosion system is termed “corrosion effect”. The term “corrosion damage” covers any impairment of the function of the technical system of which the metal and the environment form a part. Consequently the term “corrosion protection” implies that the important thing is to avoid corrosion damage rather than to prevent corrosion, which in many cases is impossible and sometimes not necessary.



# Corrosion of metals and alloys — Basic terms and definitions

## 1 Scope

This International Standard defines terms relating to corrosion that are widely used in modern science and technology. In addition, some definitions are supplemented with short explanations.

NOTE 1 Throughout the document IUPAC rules for electrode potential signs are applied. The term “metal” is also used to include alloys and other metallic materials.

NOTE 2 Terms and definitions related to inorganic surface treatment of metals are given in ISO 2080.

NOTE 3 See also the ISO online browsing platform (OBP): [www.iso.org/obp/ui/](http://www.iso.org/obp/ui/)

## 2 General terms

### 2.1

#### **corrosion**

physicochemical interaction between a metal and its environment that results in changes in the properties of the metal, and which may lead to significant impairment of the function of the metal, the environment, or the technical system, of which these form a part

Note 1 to entry: This interaction is often of an electrochemical nature.

### 2.2

#### **corrosive agent**

corrodent

substance which when in contact with a given metal will cause *corrosion* ([2.1](#))

### 2.3

#### **corrosive environment**

environment that contains one or more *corrosive agents* ([2.2](#))

### 2.4

#### **corrosion system**

system consisting of one or more metals and those parts of the environment that influence *corrosion* ([2.1](#))

Note 1 to entry: Parts of the environment may be, for example, coatings, surface layers or additional *electrodes* ([6.1.2](#)).

### 2.5

#### **corrosion effect**

change in any part of the *corrosion system* ([2.4](#)) caused by *corrosion* ([2.1](#))

### 2.6

#### **corrosion damage**

*corrosion effect* ([2.5](#)) that causes impairment of the function of the metal, the environment or the technical system, of which these form a part

### 2.7

#### **corrosion failure**

*corrosion damage* ([2.6](#)) characterized by the total loss of function of the technical system

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- Looking for additional Standards? Visit Intertek Inform Infostore
  - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-