

Corrosion of metals and alloys - Classification of low corrosivity of indoor atmospheres - Part 1:  
Determination and estimation of indoor corrosivity (ISO 11844-1:2020)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 11844-1:2020 sisaldab Euroopa standardi EN ISO 11844-1:2020 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 11844-1:2020 consists of the English text of the European standard EN ISO 11844-1:2020.
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.
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English Version

**Corrosion of metals and alloys - Classification of low  
corrosivity of indoor atmospheres - Part 1: Determination  
and estimation of indoor corrosivity (ISO 11844-1:2020)**

Corrosion des métaux et alliages - Classification de la  
corrosivité faible des atmosphères d'intérieur - Partie  
1: Détermination et estimation de la corrosivité des  
atmosphères d'intérieur (ISO 11844-1:2020)

Korrosion von Metallen und Legierungen - Einteilung  
der Korrosivität in Räumen mit geringer Korrosivität -  
Teil 1: Bestimmung und Abschätzung der Korrosivität  
in Räumen (ISO 11844-1:2020)

This European Standard was approved by CEN on 25 May 2020.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (EN ISO 11844-1:2020) 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, including for corrosion protection and corrosion testing of metals and alloys" 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of an identical text or by endorsement, at the latest by December 2020, and conflicting national standards shall be withdrawn at the latest by December 2020.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.

This document supersedes EN ISO 11844-1:2008.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Endorsement notice

The text of ISO 11844-1:2020 has been approved by CEN as EN ISO 11844-1:2020 without any modification.

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## 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)).

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

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 156, *Corrosion of metals and alloys*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 262, *Metallic and other inorganic coatings, including for corrosion protection and corrosion testing of metals and alloys*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 11844-1:2006), which has been technically revised. The main changes compared with the previous edition are as follows:

- a reference to the ISO 16000 series in [Clause 7](#) has been added;
- a model that estimates the indoor concentration and deposition of pollutants originating from outdoors has been added;
- lead has been included as a standard specimen with high sensitivity to vapour organic acids.

A list of all parts in the ISO 11844 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Metals, alloys and metallic coatings are subject to atmospheric corrosion under the impact of air humidity, especially when gaseous and solid substances of atmospheric pollution co-impact. Corrosivity data are of fundamental importance for derivation of suitable corrosion protection, or for evaluation of serviceability of metal elements of a product.

ISO 9223 classifies the atmospheric environment into six corrosivity categories.

Low corrosivity indoor atmospheres are indoor atmospheres with C 1 (very low) or C 2 (low) corrosivity categories in accordance with ISO 9223.

The classification in ISO 9223 is too broad for some purposes in low corrosivity indoor atmospheres, e.g. places where electronic devices, sophisticated technical products, or works of art and historical objects are stored.

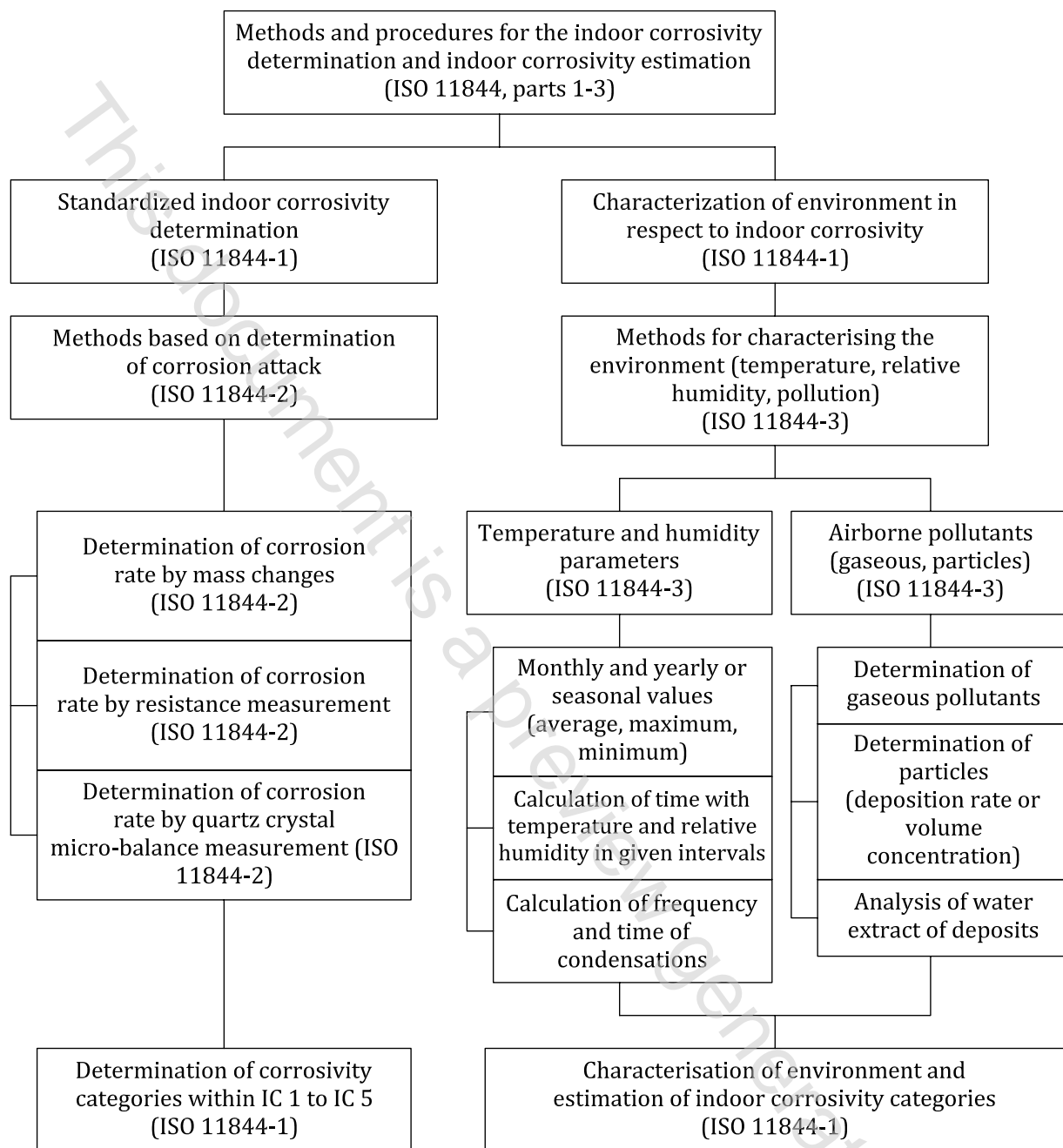
For such purposes, it is necessary to subdivide the corrosivity categories C 1 (very low) and C 2 (low) into the indoor corrosivity categories given in this document.

The evaluation of low corrosivity indoor atmospheres can be accomplished by direct determination of corrosion attack of selected metals (see ISO 11844-2) or by measurement of environmental parameters (see ISO 11844-3) that can cause corrosion on metals and alloys.

This document describes general procedures for derivation and estimation of indoor corrosivity categories.

The aim of this document is to characterize indoor atmospheric environments of low corrosivity that can affect metals and metallic coatings during storage, transport, installation or operational use, to set a consistent way of indoor corrosivity classification, and to prescribe procedures for derivation and estimation of indoor corrosivity categories.

A general approach to the classification of corrosivity of indoor atmospheres is given in the scheme shown in [Figure 1](#).



**Figure 1 — Scheme for classification of low corrosivity of indoor atmospheres**



# Corrosion of metals and alloys — Classification of low corrosivity of indoor atmospheres —

## Part 1: Determination and estimation of indoor corrosivity

### 1 Scope

This document establishes a classification of low corrosivity of indoor atmospheres.

It specifies the reference metals for which a corrosion attack after a defined exposure period is used for determining corrosivity categories of indoor atmospheres of low corrosivity.

It defines corrosivity categories of indoor atmospheres according to corrosion attack on standard specimens.

It indicates important parameters of indoor atmospheres that can serve as a basis for an estimation of indoor corrosivity.

The selection of a method for the determination of corrosion attack, description of standard specimens, exposure conditions and evaluation are given in ISO 11844-2. The measurement of environmental parameters affecting indoor corrosivity is given in ISO 11844-3.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

#### 3.1

##### **climate**

statistics of temperature, humidity, atmospheric pressure, wind, rainfall, and other meteorological elements in a given location over a long period of time

[SOURCE: EN 15759-1:2011, 3.1]

#### 3.2

##### **atmosphere**

mixture of gases, aerosols and particles that surrounds a given material, object or structure

#### 3.3

##### **indoor atmosphere**

environment [combined effect of *climate* (3.1) and *atmosphere* (3.2)] inside a box, a room or a building