

SLOVENSKI STANDARD
oSIST prEN ISO 11844-1:2019
01-januar-2019

Korozija kovin in zlitin - Klasifikacija notranjih atmosfer z nizko korozivnostjo - 1. del: Ugotavljanje in ocenjevanje korozivnosti v zaprtih prostorih (ISO/DIS 11844-1:2018)

Corrosion of metals and alloys - Classification of low corrosivity of indoor atmospheres - Part 1: Determination and estimation of indoor corrosivity (ISO/DIS 11844-1:2018)

Korrosion von Metallen und Legierungen - Einteilung der Korrosivität in Räumen mit geringer Korrosivität - Teil 1: Bestimmung und Abschätzung der Korrosivität in Räumen (ISO/DIS 11844-1:2018)

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/DIS 11844-1:2018)

Ta slovenski standard je istoveten z: prEN ISO 11844-1

ICS:

77.060 Korozija kovin Corrosion of metals

oSIST prEN ISO 11844-1:2019 en,fr,de

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DRAFT INTERNATIONAL STANDARD

ISO/DIS 11844-1

ISO/TC 156

Secretariat: SAC

Voting begins on:
2018-11-12Voting terminates on:
2019-02-04

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

Part 1:

Determination and estimation of indoor corrosivity

*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*

ICS: 77.060

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ISO/CEN PARALLEL PROCESSING



Reference number
ISO/DIS 11844-1:2018(E)

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Published in Switzerland

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ISO/DIS 11844-1:2018(E)

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).

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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.

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.

This document was prepared by Technical Committee ISO/TC 156, *Corrosion of metals and alloys*.

This second edition cancels and replaces the first edition (ISO 11844-1:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

- reference to ISO 16000 in the [Clause 7](#) has been added;
- the model estimates the indoor concentration and deposition of pollutants originating from outdoors was added;
- lead was included as 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.

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 according to 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 indoor corrosivity categories 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) which may cause corrosion on metals and alloys.

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

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

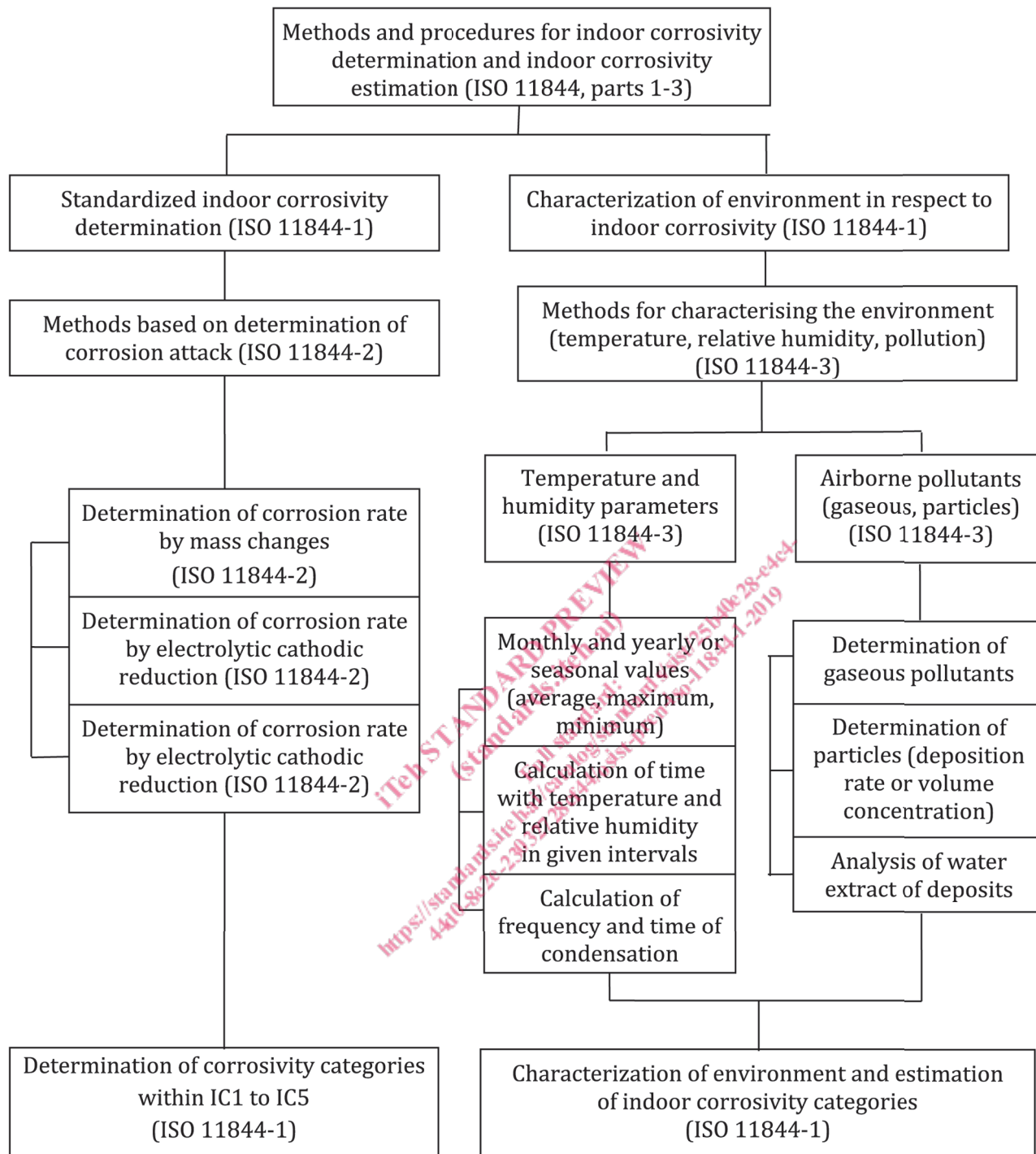


Figure 1 — Scheme for classification of low corrosivity in indoor atmospheres

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

Part 1: Determination and estimation of indoor corrosivity

1 Scope

This document deals with the classification of low corrosivity of indoor atmospheres.

The aim of this document is to characterise 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.

This document specifies technical metals, whose corrosion attack after a defined exposure period is used for determination of corrosivity categories of indoor atmospheres of low corrosivity.

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

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

Selection of a method for determination of corrosion attack, description of standard specimens, its exposure conditions and evaluation are the subject of ISO 11844-2. Measurement of environmental parameters affecting indoor corrosivity is the subject of ISO 11844-3.

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.

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

ISO 9223, *Corrosion of metals and alloys — Corrosivity of atmospheres — Classification, determination and estimation*

ISO 11844-2, *Corrosion of metals and alloys — Classification of low corrosivity of indoor atmospheres — Part 2: Determination of corrosion attack in indoor atmospheres*

ISO 11844-3, *Corrosion of metals and alloys — Classification of low corrosivity of indoor atmospheres — Part 3: Measurement of environmental parameters affecting indoor corrosivity*

ISO 16000 (all parts), *Indoor air*

ISO 16000-1:2004, *Indoor air — Part 1: General aspects of sampling strategy*

IEC 60654-4:1987, *Operating conditions for industrial-process measurement and control equipment — Part 4: Corrosive and erosive influences*

IEC 60721 (all parts), *Classification of environmental conditions*

ISO/DIS 11844-1:2018(E)

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:

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

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

3.2
atmosphere
mixture of gases, aerosols and particles, that surrounds a given material/object/structure

3.3
indoor atmosphere/environment
atmosphere/environment (combined effect of climate and atmosphere) inside a box, a room or a building

3.4
microclimate
the climate of a small area, specific rooms, part of building, etc. which may be different from that in the general region

3.5
temperature-humidity complex
combined effect of temperature and relative humidity on the corrosivity of the atmosphere

[SOURCE: ISO 9223:2012, definition 3.4]

3.6
time of wetness
period during which a metallic surface is covered by adsorptive and/or liquid films of electrolyte that are capable of causing atmospheric corrosion

[SOURCE: ISO 9223:2012, definition 3.5]

3.7
atmospheric pollution
specific corrosion-active substances, gases or suspended particles in the air (both natural and the result of human activity)

3.8
corrosion system
system consisting of one or more metals and those parts of environment that influence corrosion

3.9
corrosion damage
corrosion effect that causes impairment of the function of the metal, the environment or the technical system of which these form a part

3.10
corrosivity
ability of an environment to cause corrosion of a metal in a given corrosion system