

**Corrosion of metals and alloys - Corrosivity of  
atmospheres - Guiding values for the corrosivity  
categories (ISO 9224:2012)**

## EESTI STANDARDI EESSÕNA

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English Version

Corrosion of metals and alloys - Corrosivity of atmospheres -  
Guiding values for the corrosivity categories (ISO 9224:2012)

Corrosion des métaux et alliages - Corrosivité des  
atmosphères - Valeurs de référence relatives aux classes  
de corrosivité (ISO 9224:2012)

Korrosion von Metallen und Legierungen - Korrosivität von  
Atmosphären - Anhaltswerte für die Korrosivitätskategorien  
(ISO 9224:2012)

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Management Centre: Avenue Marnix 17, B-1000 Brussels

## Foreword

This document (EN ISO 9224:2012) 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of an identical text or by endorsement, at the latest by August 2012, and conflicting national standards shall be withdrawn at the latest by August 2012.

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### Endorsement notice

The text of ISO 9224:2012 has been approved by CEN as a EN ISO 9224:2012 without any modification.

# Contents

Page

Foreword .....	iv
Introduction.....	v
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions .....	1
4 Principle .....	2
5 Prediction of corrosion attack after extended exposure.....	2
6 Specific criteria for calculation of corrosion rates of structural metals.....	3
6.1 Steels .....	3
6.2 Zinc materials .....	4
6.3 Copper alloys .....	4
6.4 Aluminium alloys.....	4
7 Long-term exposures .....	4
Annex A (informative) Example of maximum corrosion attack after extended exposures for corrosivity categories .....	7
Annex B (informative) Average initial corrosion rates and average steady corrosion rates in intervals relative to classified corrosivity categories.....	9
Annex C (informative) Prediction of corrosion attack of steels with regard to steel composition .....	10
Bibliography.....	12

## Introduction

The “corrosivity category” established in ISO 9223 is a general term suitable for engineering purposes, which describes the corrosion properties of atmospheres based on current knowledge of atmospheric corrosion.

Guiding values of corrosion attack can be used to predict the extent of corrosion attack in long-term exposures based on measurements of corrosion attack in the first-year exposure to the outdoor atmosphere in question. These values can also be used to determine conservative estimates of corrosion attack based on environmental information or corrosivity category estimates as shown in ISO 9223.

Corrosion attack estimates obtained by using the methods in this International Standard can be used to predict the useful life of metallic components and, in some cases, of metallic coatings exposed to outdoor atmospheres covered by ISO 9223. The corrosion attack results can also be used to determine whether or not protective measures, such as coatings, are required to achieve desired product lives. Other uses include the selection of construction materials for outdoor atmospheric service.

Guiding values of corrosion can be used as information for the selection of a protection method against atmospheric corrosion according to ISO 11303.

The guiding values in this International Standard are based on a large number of exposures in many locations throughout the world. However, the procedure used in this International Standard cannot possibly cover all the situations in natural environments and service conditions which can occur. In particular, situations that result in significant changes in the environment can cause major increases or decreases in corrosion rates. Users of this International Standard are cautioned to consult with qualified experts in the field of outdoor atmospheric corrosion in cases where localized corrosion can be more important than general attack. The specific issues of galvanic (bi-metallic) corrosion, pitting corrosion, crevice corrosion, environmental cracking and corrosion product wedging are not addressed in this International Standard.

# Corrosion of metals and alloys — Corrosivity of atmospheres — Guiding values for the corrosivity categories

## 1 Scope

This International Standard specifies guiding values of corrosion attack for metals and alloys exposed to natural outdoor atmospheres for exposures greater than one year. This International Standard is intended to be used in conjunction with ISO 9223.

Guiding corrosion values for standard structural materials can be used for engineering calculations. The guiding corrosion values specify the technical content of each of the individual corrosivity categories for these standard metals.

Annex A provides examples of calculated maximum corrosion attack after extended exposure (up to 20 years) for six standardized corrosivity categories.

Annex B provides presumed average initial and steady-state corrosion rates of standard metals in intervals relative to six standardized corrosivity categories.

Annex C provides the calculation procedure for corrosion attack of steels in regard to their composition.

## 2 Normative references

The following referenced documents are indispensable for the application 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*

## 3 Terms and definitions

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

### 3.1

#### **guiding corrosion value**

corrosion rates, mass loss, penetration or other corrosion characteristics expressing the expected corrosive action of the atmospheric environment of a given corrosivity category towards standard metals

### 3.2

#### **corrosion rate after extended exposure**

corrosion rate after exposures longer than one year