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NSAI Standards

Irish Standard
I.S. EN ISO 9224:2012

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

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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

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NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 9224

February 2012

ICS 77.060

Supersedes EN 12500:2000

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 Atmospären - Anhaltswerte für die Korrosivitätskategorien (ISO 9224:2012)

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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of an identical text or by endorsement, at the latest by August 2012, and conflicting national standards shall be withdrawn at the latest by August 2012.

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

Corrosion des métaux et alliages — Corrosivité des atmosphères — Valeurs de référence relatives aux classes de corrosivité

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
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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.

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ISO 9224 was prepared by Technical Committee ISO/TC 156, *Corrosion of metals and alloys*.

This second edition cancels and replaces the first edition (ISO 9224:1992), which has been technically revised.

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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.

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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

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