



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 16701:2015&LC:2021

Corrosion of metals and alloys - Corrosion in artificial atmosphere - Accelerated corrosion test involving exposure under controlled conditions of humidity cycling and intermittent spraying of a salt solution (ISO 16701:2015, Corrected version 2018-10)

**I.S. EN ISO 16701:2015&LC:2021**

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*This document is based on:*

*Published:*

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

2021-03-09

ICS number:

77.060

NOTE: If blank see CEN/CENELEC cover page

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## National Foreword

I.S. EN ISO 16701:2015&LC:2021 is the adopted Irish version of the European Document EN ISO 16701:2015, Corrosion of metals and alloys - Corrosion in artificial atmosphere - Accelerated corrosion test involving exposure under controlled conditions of humidity cycling and intermittent spraying of a salt solution (ISO 16701:2015, Corrected version 2018-10)

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

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## Corrected Version

**Reference:** EN ISO 16701:2015

**Title:** Corrosion of metals and alloys - Corrosion in artificial atmosphere - Accelerated corrosion test involving exposure under controlled conditions of humidity cycling and intermittent spraying of a salt solution (ISO 16701:2015, Corrected version 2018-10)

**Work Item:** 00262236

Brussels, 2021-02-10

**Please include the following minor editorial correction(s) in the document related to:**

the following language version(s) :

- ☒ English
- ☒ French
- ☒ German

for the following procedure :

- ☐ PQ/UQ
- ☐ Enquiry
- ☐ 2nd Enquiry
- ☐ Parallel Enquiry
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- ☐ UAP
- ☐ TC Approval
- ☐ 2<sup>nd</sup> TC Approval
- ☐ Publication
- ☒ Parallel Publication

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It has been brought to our attention that this document, issued on 2015-05-27, requires modification.

ISO has published in French (Corrected version 2018-10) of ISO 16701:2015.

Titles for English, French and German versions) and Foreword (only for French version) have been updated accordingly.

We apologise for any inconvenience this may cause.

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**EUROPEAN STANDARD**  
**NORME EUROPÉENNE**  
**EUROPÄISCHE NORM**

**EN ISO 16701**

May 2015

ICS 77.060

Supersedes EN ISO 16701:2008

English Version

**Corrosion of metals and alloys - Corrosion in artificial  
atmosphere - Accelerated corrosion test involving  
exposure under controlled conditions of humidity cycling  
and intermittent spraying of a salt solution (ISO  
16701:2015, Corrected version 2018-10)**

Corrosion des métaux et alliages - Corrosion en  
atmosphère artificielle - Essai de corrosion accélérée  
comprenant des expositions sous conditions contrôlées  
à des cycles d'humidité et à des vaporisations  
intermittentes de solution saline (ISO 16701:2015,  
Version corrigée 2018-10)

Korrosion von Metallen und Legierungen - Korrosion  
in künstlicher Atmosphäre - Beschleunigte  
Korrosionsprüfungen unter zyklischer Einwirkung von  
Luftfeuchte und intermittierendem Versprühen einer  
Salzlösung unter kontrollierten Bedingungen (ISO  
16701:2015, korrigierte Fassung 2018-10)

This European Standard was approved by CEN on 16 April 2015.

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**EN ISO 16701:2015 (E)**

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## **Foreword**

This document (EN ISO 16701:2015) 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 November 2015, and conflicting national standards shall be withdrawn at the latest by November 2015.

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 16701:2008.

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, 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 16701:2015 has been approved by CEN as EN ISO 16701:2015 without any modification.

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# INTERNATIONAL STANDARD

ISO  
16701

Second edition  
2015-05-15

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## **Corrosion of metals and alloys — Corrosion in artificial atmosphere — Accelerated corrosion test involving exposure under controlled conditions of humidity cycling and intermittent spraying of a salt solution**

*Corrosion des métaux et alliages — Corrosion en atmosphère  
artificielle — Essai de corrosion accélérée comprenant des  
expositions sous conditions contrôlées à des cycles d'humidité et à des  
vaporisations intermittentes de solution saline*



Reference number  
ISO 16701:2015(E)

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## ISO 16701:2015(E)



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## ISO 16701:2015(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](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 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 second edition cancels and replaces the first edition (ISO 16701:2003), of which it constitutes a minor revision.

## **Introduction**

Atmospheric corrosion of metallic materials, with or without corrosion protection, is influenced by many environmental factors, the importance of which might vary with the type of metallic material and with the type of environment. It is therefore not possible to design a laboratory corrosion test in such a way that the full complexity of real in-service conditions are taken into account. Acceleration (forced conditions) as such can also have a negative impact on the correlation to field performance. Nevertheless, tests with humidity cycling and only intermittent exposure to salt solution will generally provide a better correlation to field performance than tests using continuous salt spray.

This International Standard was developed in the automotive context, where the major contributor to corrosion is the use of winter time de-icing road salt in cool/cold temperate areas around the world, here as sodium chloride compounds acting in cyclic humidity conditions. The test procedure is moderately forced by humidity and salt and intended to be applicable for quality assurance of the metals and corrosion protections typically encountered in motor vehicles. The method can have relevance also in other areas of application, provided representing similar climatic conditions with an influence of sodium chloride compounds.





# **Corrosion of metals and alloys — Corrosion in artificial atmosphere — Accelerated corrosion test involving exposure under controlled conditions of humidity cycling and intermittent spraying of a salt solution**

## **1 Scope**

This International Standard specifies the test method, the reagents, and the procedure to be used in an accelerated atmospheric corrosion test constituting a 6 h exposure to a slightly acidified solution of 1 % NaCl twice weekly, followed by a condition of controlled humidity cycling between 95 % RH and 50 % RH at a constant temperature of 35 °C.

This International Standard does not specify the dimensions of the tests specimens, the exposure period to be used for a particular product, or the interpretation of the results. Such details are provided in the appropriate product specifications.

The accelerated laboratory corrosion test applies to

- metals and their alloys,
- metallic coatings (anodic or cathodic),
- chemical conversion coatings, and
- organic coatings on metallic materials.

NOTE 1 If testing low-alloy stainless steels, especially austenitic grades, according to this International Standard, there is a risk of receiving exaggerated pitting, not representative for most service environments.

NOTE 2 This International Standard is not suitable for testing of wax and oil based rust protection agents, due to the constantly elevated temperature condition of the test.

## **2 Normative references**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4628-1, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 1: General introduction and designation system*

ISO 4628-2, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 2: Assessment of degree of blistering*

ISO 4628-4, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 4: Assessment of degree of cracking*

ISO 4628-5, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 5: Assessment of degree of flaking*

ISO 8407, *Corrosion of metals and alloys — Removal of corrosion products from corrosion test specimens*

ISO 10289, *Methods for corrosion testing of metallic and other inorganic coatings on metallic substrates — Rating of test specimens and manufactured articles subjected to corrosion tests*

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