
Korozija kovin in zlitin - Pospešeni ciklični korozijski preskusi z izpostavljanjem sintetični morski vodi s postopkom nanašanja soli - "Suhi" in "mokri" pogoji pri konstantni absolutni vlažnosti (ISO 16539:2013)

Corrosion of metals and alloys - Accelerated cyclic corrosion tests with exposure to synthetic ocean water salt-deposition process - "Dry" and "wet" conditions at constant absolute humidity (ISO 16539:2013)

Korrosion von Metallen und Legierungen - Beschleunigte zyklische Korrosionsprüfungen unter Aussetzung von synthetischem Meerwassersalz im Absetzungsprozess - "Trockene" und "feuchte" Bedingungen, bei einer konstanten absoluten Feuchtigkeit (ISO 16539:2013)

Corrosion des métaux et alliages - Essais de corrosion cyclique accélérée avec exposition à l'eau de mer synthétique par procédé de dépôt de sel - Conditions "sèches" et conditions "humides" à taux d'humidité absolue constant (ISO 16539:2013)

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Contents	Page
European foreword.....	3

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European foreword

The text of ISO 16539:2013 has been prepared by Technical Committee ISO/TC 156 "Corrosion of metals and alloys" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 16539:2022 by 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of an identical text or by endorsement, at the latest by December 2022, and conflicting national standards shall be withdrawn at the latest by December 2022.

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Endorsement notice

The text of ISO 16539:2013 has been approved by CEN as EN ISO 16539:2022 without any modification.

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**Corrosion of metals and alloys —
Accelerated cyclic corrosion tests
with exposure to synthetic ocean
water salt-deposition process — “Dry”
and “wet” conditions at constant
absolute humidity**

*Corrosion des métaux et alliages — Essais de corrosion cyclique
accélérée avec exposition à l'eau de mer synthétique par procédé de
dépôt de sel — Conditions “sèches” et conditions “humides” à taux
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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Test solution	2
3.1 Preparation of the mixed salt solution	2
3.2 pH adjustment.....	2
3.3 Preparation of the test solution.....	2
4 Apparatus	3
4.1 Component protection	3
4.2 Exposure cabinet.....	3
4.3 Salt deposition device.....	3
4.4 Temperature and humidity control device	3
4.5 Rinse treatment of specimens	3
4.6 Types of apparatus	3
5 Test specimens	4
6 Salt deposition measurement method	4
7 Arrangement of the test specimens	4
8 Operating conditions and procedure	4
9 Treatment of specimens after test	9
10 Continuity of tests	9
11 Duration of tests	9
12 Evaluation of results	9
13 Test report	9
Annex A (informative) Combined cyclic test instrument with salt deposition unit (two cabinets)	11
Annex B (informative) Combined cyclic test instrument with salt deposition unit (one cabinet)	12
Annex C (informative) Salt deposition method by manual spraying	13
Annex D (informative) Recommended periods of testing	15
Annex E (informative) Methods for evaluation of corrosivity of test	17
Bibliography	19

ISO 16539:2013(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.

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ISO 16539 was prepared by Technical Committee ISO/TC 156, *Corrosion of metals and alloys*.

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Introduction

Corrosion of metallic materials, with or without corrosion protection, is influenced by many environmental factors, the importance of which can vary with the type of metallic materials and with the type of environment. It is impossible, therefore, to design accelerated laboratory corrosion tests in such a way that all environmental factors influencing resistance to corrosion are taken into account. Laboratory tests are, therefore, designed to simulate the effects of most important factors, which enhance the corrosion of metallic materials.

The accelerated corrosion tests described in this International Standard are designed to simulate and enhance the environmental influence on a metallic material of exposure to outdoor climates, where exposure to salt-contaminated conditions occurs and can promote corrosion. It has been prepared by reference to technical papers and reports (see the Bibliography).

The particular advantages of two tests described in this International Standard over conventional accelerated tests, such as the neutral salt spray test (NSS) as specified in ISO 9227 and the wet (salt fog)/dry/humidity test as specified in ISO 14993, lies in their better ability to reproduce the corrosion that occurs in atmospheric environments which contain much sea salt.

Accelerated corrosion tests to simulate atmospheric corrosion in such environments are intended/expected to include the following requirements.

- a) Constant absolute humidity: It is generally observed that temperature and relative humidity change under a constant absolute humidity in outdoor environments. The water absorption of deposited salts is an important factor affecting atmospheric corrosion behaviour. The same relationship, constant absolute humidity, as an actual environment is intended/expected to exist for temperature and relative humidity during dry/wet cycles.
- b) Control of the amount of salt deposition: The amount of the salt deposition on test specimens is intended/expected to be changed according to the corrosivity of the atmosphere in which the tested metallic material can be used. A salt-containing test solution is intended/expected to be diluted or the spraying time is intended/expected to be adjusted to provide the same yearly average amount of the salt deposition as an actual environment.

Therefore, the tests described in this International Standard involve the salt deposition and cyclic dry/wet conditions under a constant absolute humidity.

The results obtained do not permit far-reaching conclusions on the corrosion resistance of the tested metallic material under the whole range of environmental conditions in which it can be used. Nevertheless, the tests provide valuable information on the relative performance of materials exposed to salt-contaminated environments similar to those used in the tests.

The International Organization for Standardization (ISO) draws attention to the fact that it is claimed that compliance with this International Standard can involve the use of a patent concerning the tests given in [Clause 8](#), [Table 3](#), and [Figure 2](#).

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