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Environmental testing

Part 2: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution) (IEC 60068-2-52:2017)

bsi.

National foreword

This British Standard is the UK implementation of EN IEC 60068-2-52:2018. It is identical to IEC 60068-2-52:2017. It supersedes BS EN 60068-2-52:1996, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/104, Environmental conditions, classification and testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Umweltprüfungen - Teil 2: Prüfverfahren - Prüfung Kb: Salznebel, zyklisch (Natriumchloridlösung) (IEC 60068-2-52:2017)

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European Committee for Electrotechnical Standardization
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European foreword

The text of document 104/751/FDIS, future edition 2 of IEC 60068-2-52, prepared by IEC/TC 104 "Environmental conditions, classification and methods of test" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60068-2-52:2018.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2018-09-12
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2020-12-12

This document supersedes EN 60068-2-52:1996.

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Endorsement notice

The text of the International Standard IEC 60068-2-52:2017 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60068-1	-	Environmental testing -- Part 1: General and guidance	EN 60068-1	-
IEC 60068-2-78	-	Environmental testing -- Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
ISO 9227	-	Corrosion tests in artificial atmospheres - Salt spray tests	EN ISO 9227	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ENVIRONMENTAL TESTING –

Part 2-52: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)

FOREWORD

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International Standard IEC 60068-2-52 has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test.

This third edition cancels and replaces the second edition published in 1996. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) the entire content has been harmonized with ISO 9227 as far as possible;
b) an introduction has been added;
c) the scope has been simplified;
d) normative references have been updated;
e) the general description of the test has been changed;

f) a dry chamber has been added to the test apparatus;
g) severities have been changed to test methods;
h) test methods 7 and 8 have been added;
i) information on the test report has been added;
j) Figure 1 has been changed to Table 1;
k) a typical test apparatus example has been added in a new Annex A;
l) a description of each test method has been added in a new Annex B;
m) bibliographical references have been added.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
104/751/FDIS	104/761/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60068 series, published under the general title *Environmental testing*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

The mechanism of corrosion on metallic materials in a chloride-containing atmosphere is electrochemical, whereas the degradation effects experienced on non-metallic materials are caused by complex chemical reactions of the salts with the materials involved. The rate at which corrosive action takes place is dependent, to a large extent, on the supply of oxygenated salt solution to the surface of the test specimen(s), the temperature of the test specimen(s) and the temperature and humidity of the environment.

Apart from the corrosive effects, this cyclic salt mist test may be used to indicate deterioration of some non-metallic materials by assimilation of salts. In the various test methods described in this document, the period of spraying with the relevant salt solution is sufficient to wet the test specimen(s) thoroughly. Because this wetting is repeated after intervals of storage under humid conditions supplemented by storage under a standard atmosphere, it goes some way to reproducing the effects of natural environments.

Furthermore, considering natural environments for corrosion on metallic materials, neutral or acidified salt solution spray, humid, and dry conditions are also important factors as a cyclic corrosion test. Each condition is repeated after intervals of other conditions in different combinations to achieve corrosion on metallic materials and to get acceleration of corrosion.

The tests described in this document are accelerated compared with most expected conditions of use. As a result, it may be difficult to establish an overall acceleration factor for all kinds of test specimens. This also means that it is often not possible to use results gained from these tests as a comparative guide to the long-term behaviour of different coating systems since the corrosion stress during these tests differs significantly from the corrosion stresses encountered during use. Nevertheless, the method described gives a means of checking that the comparative quality of a metallic material is maintained.

This document may involve hazardous materials, operations and equipment. This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

ENVIRONMENTAL TESTING –

Part 2-52: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)

1 Scope

This part of IEC 60068-2 specifies the application of the cyclic salt mist test to components or equipment designed to withstand a salt-laden atmosphere as salt can degrade the performance of parts manufactured using metallic and/or non-metallic materials.

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.

IEC 60068-1, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

ISO 9227*, Corrosion tests in artificial atmospheres – Salt spray tests*

3 Terms and definitions

No terms and definitions are listed in this document.

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 http://www.iso.org/obp

4 General description of the test

4.1 Description of each test condition

4.1.1 General

This document consists of the cyclic test conditions of salt mist, dry condition, humid condition and standard atmosphere. The effect of each test condition is as follows.

NOTE Salt mist is also called salt spray.

The test specimen(s) is typically not energized during the test.