

**Environmental testing -- Part 2-54: Tests -
Test Ta: Solderability testing of electronic
components by the wetting balance method**

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EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

<p>Käesolev Eesti standard EVS-EN 60068-2-54:2008 sisaldab Euroopa standardi EN 60068-2-54:2006 ingliskeelset teksti.</p>	<p>This Estonian standard EVS-EN 60068-2-54:2008 consists of the English text of the European standard EN 60068-2-54:2006.</p>
<p>Standard on kinnitatud Eesti Standardikeskuse 31.01.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p>	<p>This standard is ratified with the order of Estonian Centre for Standardisation dated 31.01.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p>
<p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 07.08.2006.</p>	<p>Date of Availability of the European standard text 07.08.2006.</p>
<p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>The standard is available from Estonian standardisation organisation.</p>

ICS 19.040, 31.020

Võtmesõnad:

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Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
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English version

Environmental testing
Part 2-54: Tests -
Test Ta: Solderability testing of electronic components
by the wetting balance method
(IEC 60068-2-54:2006)

Essais d'environnement
Partie 2-54 : Essais -
Essai Ta : Essai de brasabilité des
composants électroniques par
la méthode de la balance de mouillage
(CEI 60068-2-54:2006)

Umweltprüfungen
Teil 2-54: Prüfungen -
Prüfung Ta: Prüfung der Lötbarkeit
elektronischer Bauelemente
mit der Benetzungswaage
(IEC 60068-2-54:2006)

This European Standard was approved by CENELEC on 2006-07-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 91/576/FDIS, future edition 2 of IEC 60068-2-54, prepared by IEC TC 91, Electronics assembly technology, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60068-2-54 on 2006-07-01.

This European Standard supersedes HD 323.2.54 S1:1987.

The major technical changes with regard to HD 323.2.54 S1:1987 concern:

- the addition of lead free solder alloy (see Clause 7, Materials);
- reversal of force-time curves to align with EN 60068-2-69 (see Figure 2 and Figure B.1);
- modification to the test requirement for progress of wetting (see Clause 9).

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2007-04-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2009-07-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60068-2-54:2006 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-2-44	NOTE Harmonized as EN 60068-2-44:1995 (not modified).
IEC 60068-2-58	NOTE Harmonized as EN 60068-2-58:2004 (not modified).
IEC 60068-2-69	NOTE Harmonized as EN 60068-2-69:1996 (not modified).
IEC 61190-1-1	NOTE Harmonized as EN 61190-1-1:2002 (not modified).
IEC 61190-1-3	NOTE Harmonized as EN 61190-1-3:2002 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1	1988	Environmental testing Part 1: General and guidance	EN 60068-1 ¹⁾	1994
IEC 60068-2-20	1979	Environmental testing Part 2: Tests - Test T: Soldering	HD 323.2.20 S3 ²⁾	1988
IEC 61190-1-3	- ³⁾	Attachment materials for electronic assembly Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications	EN 61190-1-3	2002 ⁴⁾

¹⁾ EN 60068-1 includes corrigendum October 1988 + A1:1992 to IEC 60068.

²⁾ HD 323.2.20 S3 includes A2:1987 to IEC 60068-2-20.

³⁾ Undated reference.

⁴⁾ Valid edition at date of issue.

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
4 General description of the test	5
5 Description of the test apparatus.....	6
5.1 Test system.....	6
5.2 Solder bath.....	6
6 Preconditioning.....	6
6.1 Preparation of specimens	6
6.2 Ageing.....	6
7 Materials	7
7.1 Solder	7
7.2 Flux.....	7
8 Procedure.....	7
8.1 Test temperature	7
8.2 Fluxing	7
8.3 Flux drying.....	8
8.4 Test.....	8
9 Presentation of results	8
9.1 Form of chart-recorder trace	8
9.2 Points of significance.....	9
9.3 Reference wetting force	9
9.4 Test requirements.....	10
10 Information to be given in the relevant specification.....	10
Annex A (normative) Equipment specification	11
Annex B (informative) Guide to the use of the wetting balance for solderability testing	12
Bibliography	18
Figure 1 – Test arrangement	6
Figure 2 – Wetting conditions	9
Figure B.1 – Representative force-time curves	15
Table 1 – Time sequence of the test.....	8

ENVIRONMENTAL TESTING –

Part 2-54: Tests – Test Ta: Solderability testing of electronic components by the wetting balance method

1 Scope

This part of IEC 60068 outlines Test Ta, solder bath wetting balance method applicable for any shape of component terminations to determine the solderability. It is especially suitable for reference testing and for components that cannot be quantitatively tested by other methods. For surface mounting devices (SMD), IEC 60068-2-69 should be applied if it is suitable.

This standard provides the standard procedures for solder alloys containing lead (Pb) and for lead-free solder alloys.

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.

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-20:1979, *Environmental testing – Part 2: Tests – Test T: Soldering*

IEC 61190-1-3, *Attachment materials for electronic assembly – Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications*

3 Terms and definitions

For the purposes of this document, the terms and definitions, as defined in IEC 60068-1 and IEC 60068-2-20, apply.

4 General description of the test

The specimen is suspended from a sensitive balance (typically a spring system) and immersed edgewise to a set depth in a bath of molten solder at a controlled temperature. The resultant of the vertical forces of buoyancy and surface tension acting upon the immersed specimen is detected by a transducer and converted into a signal which is continuously recorded as a function of time on a high-speed chart recorder. The trace may be compared with that derived from a perfectly wetted specimen of the same nature and dimensions.

Two modes of testing exist:

- The stationary mode, intended to study the solderability of a particular place on the specimen. It is this mode which is standardized in this standard.
- The scanning mode, intended to study the homogeneity of the solderability of an extended region of the surface of the specimen. The standardization of this mode is still under consideration.