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Part 4: Classification, packaging, labelling and handling of moisture sensitive devices ED2

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



91/1986/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER: IEC 61760-4 ED2	
DATE OF CIRCULATION: 2024-10-18	CLOSING DATE FOR COMMENTS: 2024-12-13
SUPERSEDES DOCUMENTS: 91/1954/RR	

IEC TC 91 : ELECTRONICS ASSEMBLY TECHNOLOGY	
SECRETARIAT: Japan	SECRETARY: Mr Osamu IKEDA
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 40,TC 47,TC 86	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED:	

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Recipients of this document are invited to submit, with their comments, notification of any local regulations or technical reasons that may exist and should be considered should this proposal proceed, recognizing that failure to address such requirements could result in the need for new or existing "In Some Countries" clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE: Surface mounting technology - Part 4: Classification, packaging, labelling and handling of moisture sensitive devices ED2
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NOTE FROM TC/SC OFFICERS:

Link to Committee Draft (CD) online document:

<https://osd.iec.ch/#/editor/archive/1532b860-2fb0-010f-e063-1610000a6180/en/ACD/1>

How to access

This link will lead you to the Online Standards Development (OSD) platform for national mirror committee's comments. It replaces the project content, which is usually circulated as a PDF.

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- latest videos and presentations on the [OSD webpage](#), and
- step-by-step explanations on [Helpscout](#).

Contact

Should you require any assistance, please contact the OSD project team at osd_support@iec.ch.

CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references	9
3 Terms and definitions.....	9
4 General information	11
4.1 Moisture sensitive devices	11
4.2 Moisture sensitivity level (MSL).....	11
4.3 Relation to other environmental test methods (humidity tests).....	12
5 Assessment of moisture sensitivity	12
5.1 Identification of non moisture sensitive devices.....	12
5.2 Classification	12
6 Test procedure.....	13
6.1 General.....	13
6.1.1 Structurally similar components	13
6.1.2 Verification and validation tests	13
6.1.3 Selection of applicable soak conditions and temperature profile	13
6.2 Drying.....	13
6.3 Moisture soak	13
6.4 Temperature load	14
6.4.1 Classification temperature profile.....	14
6.4.2 Classification temperature profile for special devices	15
6.4.3 Reflow	15
6.5 Recovery	16
6.6 Final measurements.....	16
6.6.1 Requirements	16
6.6.2 Visual inspection	16
6.6.3 Electrical measurements.....	17
6.6.4 Non-destructive inspection (if required)	17
6.7 Classification	17
6.8 Information to be given in the relevant specification	17
7 Requirements to packaging and labelling.....	17
7.1 Packaging process.....	17
7.1.1 Drying of MSDs and carrier materials before being sealed in MBBs	17
7.1.2 Evacuation and sealing.....	18
7.2 Packaging material for dry pack	18
7.2.1 Moisture barrier bag (MBB).....	18
7.2.2 Desiccant	19
7.2.3 Humidity indicator.....	21
7.3 Information to be given on labels	23
8 Handling of moisture sensitive devices	24
8.1 Storage.....	24

8.1.1	Recommended storage conditions	24
8.1.2	Shelf life	24
8.1.3	Floor life	25
8.2	ESD	25
8.3	Humidity indication.....	25
8.3.1	Humidity indicator card (HIC).....	25
8.3.2	Moisture indicating desiccant.....	26
8.4	Unpacking and re-packing.....	26
9	Drying	26
9.1	Drying options.....	26
9.2	Methods.....	27
9.2.1	General considerations for baking	27
9.2.2	Bakeout times.....	28
9.2.3	ESD protection	28
9.2.4	Reuse of carriers	28
9.2.5	Solderability limitations	28
Annex A (normative)	Moisture sensitivity of assemblies	29
Annex B (normative)	Mass/gain loss analysis	30
Annex C (normative)	Baking of devices.....	31
C.1	Baking time and conditions	31
C.2	Example of a baking process	31
Annex D (informative)	Moisture sensitivity labels	33
D.1	Object.....	33
D.2	Graphical symbols and labels	33
D.2.1	Graphical symbol for moisture-sensitivity.....	33
D.2.2	Moisture-sensitivity identification label (MSID).....	34
D.2.3	Moisture-sensitivity caution label (MSCL)	34
Bibliography		36
Figure 1	– Classification temperature profile	15
Figure 2	– Example of humidity indicator card for levels C2a and C3	22
Figure 3	– Example of humidity indicator card for levels 2 to 5	23
Figure 4	– Examples of humidity indicator cards	23
Figure C.1	– Baking process	32
Figure D.1	– Standardized graphical symbol for use on equipment	33
Figure D.2	– Alternative moisture sensitivity symbol (also in market use)	34
Figure D.3	– MSID labels (examples).....	34
Table 1	–.....	6
Table 2	– Moisture sensitivity levels	12
Table 3	– Moisture soak conditions	13
Table 4	– Parameters of the classification temperature profile.....	15
Table 5	– Classification temperatures T_c	15

Table 6 – MBB material properties	19
Table 7 – Conditions for re-bake – Example for one type of plastic encapsulated devices	26
Table 8 – Conditions for baking prior to dry pack – Example for one type of plastic encapsulated devices	27

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SURFACE MOUNTING TECHNOLOGY - PART 4: CLASSIFICATION,
PACKAGING, LABELLING AND HANDLING OF MOISTURE SENSITIVE
DEVICES ED2 –**

FOREWORD

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International Standard IEC 61760-4 has been prepared by IEC technical committee 91: Electronics assembly technology.

The text of this standard is based on the following documents:

Table 1 –

FDIS	Report on voting
91/xxxx/FDIS	91/xxxx/RVD

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

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

A list of all parts in the IEC 61760, published under the general title *Surface mounting technology*, can be found on the IEC website.

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

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

The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Due to the higher temperature profiles of reflow soldering processes using tin-silver-copper alloys or other lead-free solder alloys with higher melting temperatures than Sn-Pb eutectic solder, the sensitivity of components against soldering heat, when being exposed to moisture before soldering, becomes an increasingly important factor.

The currently existing standards describing the moisture sensitivity classification of devices are applicable for plastic encapsulated semiconductors and similar solid state packages (e.g. IEC 60749-20), but not for other types of components.

This part of IEC 61760 also extends the classification and packaging methods as described in [J-STD-020F \[1\]](#) and [J-STD-033 \[2\]](#). It is intended to be used for such type of components, where J-STD-020 and J-STD-033 are not required or not appropriate.

It is important to note, that moisture sensitivity levels existing in both, [J-STD-020F \[1\]](#) and this document, are equivalent.

SURFACE MOUNTING TECHNOLOGY - PART 4: CLASSIFICATION, PACKAGING, LABELLING AND HANDLING OF MOISTURE SENSITIVE DEVICES ED2 –

1 Scope

This part of IEC 61760 specifies the classification of moisture sensitive devices into moisture sensitivity levels related to soldering heat, and provisions for packaging, labelling and handling.

This part of IEC 61760 extends the classification and packaging methods to such components, where currently existing standards are not required or not appropriate. For such cases this standard introduces additional moisture sensitivity levels and an alternative method for packaging.

This standard applies to devices intended for reflow soldering, like surface mount devices, including specific through-hole devices (where the device supplier has specifically documented support for reflow soldering), but not to

- semiconductor devices,
- devices for flow (wave) soldering.

NOTE Background of this standard and its relation to currently existing standards, e.g. IEC 60749-20 or [J-STD-020F \[1\]](#) and [J-STD-033 \[2\]](#), are described in the [INTRODUCTION](#).

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 60749-20, *Semiconductor devices – Mechanical and climatic test methods – Part 20: Resistance of plastic encapsulated SMDs to the combined effect of moisture and soldering heat*

IEC 61340-5-1, *Electrostatics – Part 5-1: Protection of electronic devices from electrostatic phenomena – General requirements*

IEC 61760-2, *Surface mounting technology – Part 2: Transportation and storage conditions of surface mounting devices (SMD) – Application guide*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

moisture sensitive device

MSD

device, where during soldering the evaporation of absorbed moisture is likely to deteriorate its electrical or mechanical performance compared to what is given in the relevant specification

Note 1 to entry: This note applies to the French language only.

3.2 moisture sensitivity level MSL

rating indicating a device's susceptibility to damage due to absorbed moisture when subjected to reflow soldering

Note 1 to entry: This note applies to the French language only.

3.3 moisture barrier bag MBB

bag designed to restrict the transmission of water vapour and used to pack moisture sensitive devices

Note 1 to entry: This note applies to the French language only.

3.4 manufacturer's exposure time MET

maximum time after baking that the component manufacturer requires to process components prior to sealing of the bag

Note 1 to entry: The manufacturer's exposure time also includes the maximum time allowed at the distributor in order to keep the bag open to split up its content into smaller shipments.

Note 2 to entry: This note applies to the French language only.

3.5 floor life

allowable time for a device or semi-finished assembly to be exposed to normal room environment humidity and temperature after removal from a moisture barrier bag or storage chamber and before a solder reflow process

3.6 shelf life

recommendation of time that products can be stored in the original packaging, during which the defined quality of the goods remains acceptable under specified conditions of transportation, storage and handling

3.7 active desiccant

absorbent material used to maintain a low relative humidity

3.8 unit of desiccant

amount of [active desiccant](#) that will absorb a minimum of 2,85 g of water vapour at 25 °C and a relative humidity of 20 % within 24 h

3.9 moisture indicating desiccant

desiccant whose colour (hue) changes perceptibly, when a certain relative humidity is exceeded

Note 1 to entry: Typically a colour change due to a [moisture indicating desiccant](#) is from blue to pink, when the change from dry state to wet state is detected.

3.10 humidity indicator card HIC

card on which a moisture sensitive chemical is printed such that it changes colour from dry to wet when the indicated relative humidity is exceeded