



IEC 60335-2-101

Edition 2.0 2024-10
COMMENTED VERSION

INTERNATIONAL STANDARD



Household and similar electrical appliances – Safety –
Part 2-101: Particular requirements for vaporizers

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2024 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews, graphical symbols and the glossary. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IECNORM.COM : Click to view the full PDF file (613352-10:2024 CMV)



IEC 60335-2-101

Edition 2.0 2024-10
COMMENTED VERSION

INTERNATIONAL STANDARD



Household and similar electrical appliances – Safety –
Part 2-101: Particular requirements for vaporizers

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 97.030, 13.120

ISBN 978-2-8322-3938-4

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD	4
INTRODUCTION	7
1 Scope	8
2 Normative references	9
3 Terms and definitions	9
4 General requirement	9
5 General conditions for the tests	9
6 Classification	9
7 Marking and instructions	9
8 Protection against access to live parts	10
9 Starting of motor-operated appliances	10
10 Power input and current	10
11 Heating	10
12 Void Charging of metal-ion batteries	12
13 Leakage current and electric strength at operating temperature	12
14 Transient overvoltages	12
15 Moisture resistance	12
16 Leakage current and electric strength	12
17 Overload protection of transformers and associated circuits	13
18 Endurance	13
19 Abnormal operation	13
20 Stability and mechanical hazards	14
21 Mechanical strength	14
22 Construction	14
23 Internal wiring	14
24 Components	15
25 Supply connection and external flexible cords	15
26 Terminals for external conductors	15
27 Provision for earthing	15
28 Screws and connections	15
29 Clearances, creepage distances and solid insulation	15
30 Resistance to heat and fire	15
31 Resistance to rusting	15
32 Radiation, toxicity and similar hazards	15
Annexes	17
Annex B (normative) Battery-operated appliances, separable batteries and detachable batteries for battery-operated appliances	18
Bibliography	19
List of comments	20

Figure 101 – Probe for measuring surface temperatures..... 16

Table 101 – Maximum temperature rises for specified external accessible surfaces
under normal operating conditions 12

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-101: Particular requirements for vaporizers

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

This commented version (CMV) of the official standard IEC 60335-2-101:2024 edition 2.0 allows the user to identify the changes made to the previous IEC 60335-2-101:2002+AMD1:2008+AMD2:2014 CSV edition 1.2. Furthermore, comments from IEC TC 61 experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

IEC 60335-2-101 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This second edition cancels and replaces the first edition published in 2002, Amendment 1:2008 and Amendment 2:2014. This edition constitutes a technical revision.

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

- a) alignment with IEC 60335-1:2020;
- b) conversion of some notes to normative text (Clause 1, 7.1);
- c) application of test probe 19 has been introduced (8.1.1, 8.1.3, 20.2, B.22.3, B.22.4);
- d) addition of external accessible surface temperatures (Clause 11).

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

Draft	Report on voting
61/7278/FDIS	61/7302/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments unless that edition precludes it; in that case, the latest edition that does not preclude it is used. It was established on the basis of the sixth edition (2020) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Particular requirements for vaporizers.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification", or "replacement", the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

- requirements: in roman type;
- test specifications: in italic type;
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

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

- reconfirmed,
- withdrawn, or
- revised.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations can need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

IMPORTANT – The "colour inside" logo on the cover page of this document 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.

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV

INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

Guidance documents concerning the application of the safety requirements for appliances can be accessed via TC 61 supporting documents on the IEC website

<https://www.iec.ch/tc61/supportingdocuments>

This information is given for the convenience of users of this International Standard and does not constitute a replacement for the normative text in this standard.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules ~~may~~ can differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 ~~Horizontal and generic standards~~ Horizontal publications, basic safety publications and group safety publications covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. ~~For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.~~ **1**

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

NOTE 3 Standards dealing with non-safety aspects of household appliances are:

- IEC standards published by TC 59 concerning methods of measuring performance;
- CISPR 11, CISPR 14-1 and relevant IEC 61000-3 series standards concerning electromagnetic emissions;
- CISPR 14-2 concerning electromagnetic immunity;
- IEC standards published by TC 111 concerning environmental matters. **2**

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-101: Particular requirements for vaporizers

1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of electric **vaporizers** for household and similar use, their **rated voltage** being not more than 250 V including direct current (DC) supplied appliances and **battery-operated appliances**. **3**

~~NOTE 101~~—Examples of appliances that are within the scope of this standard are:

- air fresheners;
- insect repellents.

They ~~may~~ can be plugged directly into a socket-outlet or connected to the supply mains by means of a flexible cord and plug.

Appliances not intended for normal household use but which nevertheless ~~may~~ can be a source of danger to the public, such as appliances intended to be used by ~~laymen~~ laypersons in shops, in light industry and on farms, are within the scope of this standard.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

- persons (including children) whose
 - physical, sensory or mental capabilities; or
 - lack of experience and knowledgeprevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

~~NOTE 102~~—Attention is drawn to the fact that

- for appliances to be used in vehicles or on board ships or aircraft, additional requirements ~~may~~ can be necessary;
- in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, and similar authorities.

~~NOTE 103~~—This standard does not apply to

- appliances intended exclusively for industrial purposes;
- appliances intended to be used in locations where special conditions prevail, such as the presence of corrosive or explosive atmosphere (dust, vapour or gas);
- appliances for heating liquids (IEC 60335-2-15);
- insect killers (IEC 60335-2-59);
- fabric steamers (IEC 60335-2-85);
- humidifiers (IEC 60335-2-98).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1 Definitions relating to physical characteristics

3.1.9 ~~Replacement~~ Modification: 4 normal operation

Replace the first paragraph with the following:

operation of the appliance filled with vaporizing medium in accordance with the instructions, or unfilled, whichever is more unfavourable

3.5 Definitions relating to types of appliances

3.5.101 vaporizer

appliance incorporating a heater for vaporizing a medium in order to affect the air in a room

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.2 *Addition:*

The test of 21.101 is carried out on a new appliance.

6 Classification

This clause of Part 1 is applicable.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 *Addition:*

~~NOTE 101~~—If the **rated power input** does not exceed 10 W, the appliance may be marked "10 W max".

7.12 Addition:

The instructions shall include the substance of the following:

The appliance is only to be used with the recommended vaporizing medium. The use of other substances ~~may~~ can give rise to a toxic or fire risk.

For appliances that are directly plugged into socket-outlets, if the temperature rise of **accessible surfaces** during the test of Clause 11 exceeds the value specified for handles, knobs, grips and similar parts that are held for short periods only in normal use, the instructions shall include the substance of the following:

The appliance has hot surfaces to evaporate the active ingredients and these surfaces should not be touched during use.

8 Protection against access to live parts

This clause of Part 1 is applicable except as follows.

8.1.1 Addition:

For parts of appliances with pins for insertion into the socket outlet and other appliances situated not more than 850 mm above the floor after installation or in normal use, in addition to the use of test probe 18, test probe 19 of IEC 61032 is also applied wherever test probe 18 is used and with the same test conditions used for test probe 18. 5

8.1.3 Addition:

Test probe 19 is not applied.

9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable except as follows.

10.1 Addition:

For appliances marked with "10 W max", the power input shall not exceed this value.

11 Heating

This clause of Part 1 is applicable except as follows.

11.3 Addition:

*Where the external **accessible surfaces** are suitably flat and access permits, then the test probe of Figure 101 is used to measure the temperature rises of external **accessible surfaces** specified in Table 101. The probe is applied with a force of $4\text{ N} \pm 1\text{ N}$ to the surface in such a way that the best possible contact between the probe and the surface is ensured. The measurement is performed after a contact period of 30 s.*

The probe may be held in place using a laboratory stand clamp or similar device. Any measuring instrument giving the same results as the probe may be used. **6**

11.4 Modification:

*Instead of operating the appliance at 1,15 times **rated power input**, it is supplied at 1,06 times **rated voltage**.*

11.7 Replacement Modification: **7**

Replace the first paragraph with the following:

The appliance is operated until steady conditions are established.

11.8 Modification:

~~*In Table 3, the temperature rise of Parts in contact with oil is not measured.*~~

Replace the first paragraph with the following:

During the test, the temperature rises are monitored continuously and shall not exceed the values shown in Table 3 and Table 101. **8**

In Table 3, delete the entry for Parts in contact with oil having a flash-point of t °C.

Add the following to footnote "k" of Table 3:

Similar parts held for short periods include handles or grips of vents and air shutters.

Addition:

*For appliances that are directly plugged into socket-outlets, the temperature rise of **accessible surfaces** shall not exceed the limit specified for handles, knobs, grips and similar parts that are held for short periods only in normal use. This does not apply to surfaces of outlet grilles and slots for inserting the vaporizing medium, and surfaces within 7 mm of these parts.*

The temperature rise of the surface of the appliance adjacent to the socket-outlet shall not exceed 40 K.

IECNORM.COM · Click to view the full PDF of IEC 60335-2-101:2024 CMV

Table 101 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions

Surface	Temperature rise of external accessible surfaces ^a	
	K	
	Surfaces of appliances situated more than 850 mm above the floor after installation or in normal use according to the installation instructions after installation	Surfaces of other appliances
Bare metal	42	38
Coated metal ^b	49	42
Glass and ceramic	56	51
Plastic and plastic coating > 0,4 mm ^{c, d}	62	58

NOTE The temperature rise limits of handles, knobs, grips, keyboards, keypads and similar parts are specified in Table 3.

^a The limits do not apply to:

- appliances that are directly plugged into socket-outlets;
- surfaces of outlet grilles and slots for inserting the vaporizing medium, and surfaces within 7 mm of these parts.

^b Metal is considered coated when a coating having a minimum thickness of 90 µm made of enamel, powder or non-substantially plastic coating is used.

^c The temperature rise limit of plastic also applies for plastic material having a metal finish of thickness less than 0,1 mm.

^d When the thickness of the plastic coating does not exceed 0,4 mm, the temperature rise limits of coated metal for underlying metal apply or the temperature rise limits for glass or ceramic material for underlying glass or ceramic material apply.

12 ~~Void~~ Charging of metal-ion batteries

This clause of Part 1 is applicable. **9**

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable except as follows.

13.1 Modification:

Instead of operating the appliance at 1,15 times **rated power input**, it is supplied at 1,06 times **rated voltage**.

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable.

16 Leakage current and electric strength

This clause of Part 1 is applicable.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.1 Addition:

Appliances are also subjected to the test of 19.101.

19.2 Addition:

The appliance is operated without the vaporizing medium.

Modification:

*Instead of operating the appliance at 0,85 times **rated power input**, it is supplied at 0,9 times **rated voltage**.*

19.3 Modification:

*Instead of operating the appliance at 1,24 times **rated power input**, it is supplied at 1,1 times **rated voltage**.*

19.4 Modification:

*Instead of operating the appliance at 1,15 times **rated power input**, it is supplied at 1,06 times **rated voltage**.*

19.13 Addition:

*During the tests, the temperature rise of **accessible surfaces** of appliances that are directly plugged into socket-outlets shall not exceed*

- 55 K, if of metal;*
- 65 K, if of porcelain or vitreous enamel;*
- 75 K, if of moulded material, rubber or wood.*

This does not apply to surfaces of outlet grilles and slots for inserting the vaporizing medium, and surfaces within 7 mm of these parts.

The temperature rise of the surface of the appliance adjacent to the socket-outlet shall not exceed 65 K.

19.101 *A single layer of double-hemmed pre-washed cotton sheet approximately 70 cm × 70 cm, having a specific mass between 140 g/m² and 170 g/m² when dry, is draped over the appliance. It is operated under **normal operation** at **rated voltage**.*

The cotton sheet shall not smoulder or ignite.

20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows.

20.2 Addition:

For parts of appliances with pins for insertion into the socket outlet and other appliances situated not more than 850 mm above the floor after installation or in normal use, in addition to the use of test probe 18, test probe 19 of IEC 61032 is also applied wherever test probe 18 is used and with the same test conditions used for test probe 18. 10

21 Mechanical strength

This clause of Part 1 is applicable except as follows.

21.1 Addition:

NOTE 101 Appliances that are directly plugged into socket-outlets are tested with the appliance rigidly held by its contact pins.

~~Appliances that are directly plugged into socket-outlets are also subjected to the test of 21.101 which is carried out on a new appliance.~~

~~21.101 An empty appliance is subjected to the test free fall repeated procedure 2, of IEC 60068-2-31. The number of falls is~~

~~— 50, if the mass of the appliance is greater than 250 g;~~

~~— 100, for other appliances.~~

~~The height of the fall is 500 mm.~~

~~After the test, the appliance shall not be damaged to such an extent that compliance with Clauses 8 and 29 is impaired. 11~~

22 Construction

This clause of Part 1 is applicable except as follows.

22.4 Not applicable.

23 Internal wiring

This clause of Part 1 is applicable except as follows.

23.3 Addition:

Appliances that are directly plugged into socket-outlets and can be rotated in relation to the socket-outlet, are subjected to the following test.

The movable part is rotated clockwise and anticlockwise through the largest angle permitted by the construction. It is rotated 100 times at a speed of approximately 10 rotations per min.

NOTE 101 A rotation is one movement, either clockwise or anticlockwise.

After the test, the appliance shall comply with Clause 8 and Clause 29 and the electrical connections shall not have loosened.

24 Components

This clause of Part 1 is applicable.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows.

25.5 Addition:

Type Z attachment is allowed.

26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable.

28 Screws and connections

This clause of Part 1 is applicable.

29 Clearances, creepage distances and solid insulation

This clause of Part 1 is applicable.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

30.2.2 Not applicable.

31 Resistance to rusting

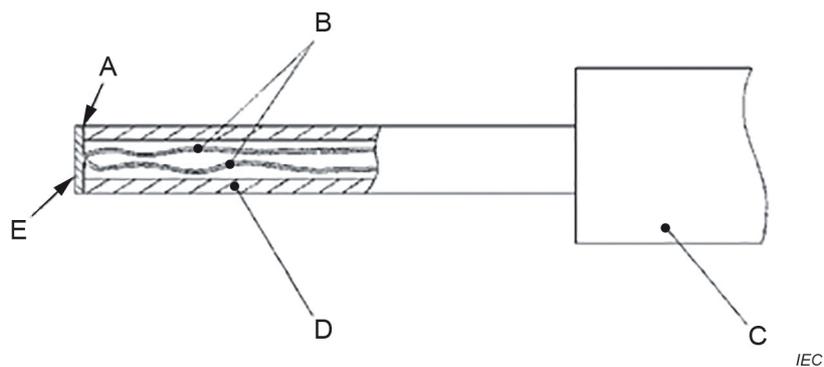
This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable except as follows.

Addition:

NOTE 101 The toxicity of vaporizing materials is controlled by national legislation.



Key

- A adhesive
- B thermocouple wires 0,3 mm diameter to IEC 60584-1 Type K
- C handle arrangement permitting a contact force of $4\text{ N} \pm 1\text{ N}$
- D polycarbonate tube: inside diameter 3 mm, outside diameter 5 mm
- E tinned copper disc: 5 mm diameter, 0,5 mm thick with flat contact face

Figure 101 – Probe for measuring surface temperatures

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV

Annexes

The annexes of Part 1 are applicable **except as follows**.

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV

Annex B (normative)

Battery-operated appliances, separable batteries and detachable batteries for battery-operated appliances

Annex B of Part 1 Is applicable except as follows.

B.22.3 Addition:

For parts of appliances situated not more than 850 mm above the floor after installation or in normal use, in addition to the use of test probe 18, test probe 19 of IEC 61032 is also applied wherever test probe 18 is used and with the same test conditions used for test probe 18.

B.22.4 Addition:

*For parts of **batteries** situated not more than 850 mm above the floor after installation or in normal use, in addition to the use of test probe 18, test probe 19 of IEC 61032 is also applied wherever test probe 18 is used and with the same test conditions used for test probe 18.* **12**

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV

Bibliography

The Bibliography of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-15, *Household and similar electrical appliances – Safety – Part 2-15: Particular requirements for appliances for heating liquids*

IEC 60335-2-59, *Household and similar electrical appliances – Safety – Part 2-59: Particular requirements for insect killers*

IEC 60335-2-85, *Household and similar electrical appliances – Safety – Part 2-85: Particular requirements for fabric steamers*

IEC 60335-2-98, *Household and similar electrical appliances – Safety – Part 2-98: Particular requirements for humidifiers*

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV

List of comments

- 1 This revision is for alignment with IEC 60335-1:2020.
 - 2 This revision is for alignment with IEC 60335-1:2020.
 - 3 This revision is for alignment with IEC 60335-1:2020.
 - 4 This revision maintains the normal operation while charging as specified in IEC 60335-1:2020.
 - 5 Appliance can be located on the floor where they would be accessible to children up to 3 years in age, so test probe 19 is applicable. However, appliances and parts of appliances located above 850 mm from the floor are not considered to be within reach of these children, so test probe 19 is not applied.
 - 6 Limits on the temperature rise of external accessible surfaces are introduced to address the risk of thermal injury from contact with external accessible surfaces based on IEC Guide 117 for Temperatures of touchable hot surfaces.
 - 7 This revision maintains the requirements for appliance outlets and socket outlets and the test duration for charging of battery-operated appliances as specified in IEC 60335-1:2020.
 - 8 Limits on the temperature rise of external accessible surfaces are introduced to address the risk of thermal injury from contact with external accessible surfaces based on IEC Guide 117 for Temperatures of touchable hot surfaces.
 - 9 This revision is for alignment with IEC 60335-1:2020.
 - 10 Appliance can be located on the floor where they would be accessible to children up to 3 years in age, so test probe 19 is applicable. However, appliances and parts of appliances located above 850 mm from the floor are not considered to be within reach of these children, so test probe 19 is not applied.
 - 11 This requirement is now included in the Part 1 Standard, so it is removed from the Part 2 Standard.
 - 12 Appliance can be located on the floor where they would be accessible to children up to 3 years in age, so test probe 19 is applicable. However, appliances and parts of appliances located above 850 mm from the floor are not considered to be within reach of these children, so test probe 19 is not applied.
-

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Household and similar electrical appliances – Safety –
Part 2-101: Particular requirements for vaporizers**

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-101: Exigences particulières pour les vaporisateurs**

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	9
3 Terms and definitions	9
4 General requirement.....	9
5 General conditions for the tests	9
6 Classification.....	9
7 Marking and instructions.....	9
8 Protection against access to live parts.....	10
9 Starting of motor-operated appliances	10
10 Power input and current.....	10
11 Heating.....	10
12 Charging of metal-ion batteries.....	12
13 Leakage current and electric strength at operating temperature.....	12
14 Transient overvoltages	12
15 Moisture resistance	12
16 Leakage current and electric strength.....	12
17 Overload protection of transformers and associated circuits	13
18 Endurance.....	13
19 Abnormal operation	13
20 Stability and mechanical hazards.....	14
21 Mechanical strength	14
22 Construction	14
23 Internal wiring.....	14
24 Components	14
25 Supply connection and external flexible cords	15
26 Terminals for external conductors.....	15
27 Provision for earthing	15
28 Screws and connections	15
29 Clearances, creepage distances and solid insulation	15
30 Resistance to heat and fire.....	15
31 Resistance to rusting.....	15
32 Radiation, toxicity and similar hazards.....	15
Annexes	17
Annex B (normative) Battery-operated appliances, separable batteries and detachable batteries for battery-operated appliances	18
Bibliography.....	19

Figure 101 – Probe for measuring surface temperatures 16

Table 101 – Maximum temperature rises for specified external accessible surfaces
under normal operating conditions 12

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2-101: Particular requirements for vaporizers**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60335-2-101 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This second edition cancels and replaces the first edition published in 2002, Amendment 1:2008 and Amendment 2:2014. This edition constitutes a technical revision.

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

- a) alignment with IEC 60335-1:2020;
- b) conversion of some notes to normative text (Clause 1, 7.1);
- c) application of test probe 19 has been introduced (8.1.1, 8.1.3, 20.2, B.22.3, B.22.4);
- d) addition of external accessible surface temperatures (Clause 11).

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

Draft	Report on voting
61/7278/FDIS	61/7302/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments unless that edition precludes it; in that case, the latest edition that does not preclude it is used. It was established on the basis of the sixth edition (2020) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Particular requirements for vaporizers.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification", or "replacement", the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

- requirements: in roman type;
- test specifications: in italic type;
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

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

- reconfirmed,
- withdrawn, or
- revised.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations can need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 GMV

INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

Guidance documents concerning the application of the safety requirements for appliances can be accessed via TC 61 supporting documents on the IEC website

<https://www.iec.ch/tc61/supportingdocuments>

This information is given for the convenience of users of this International Standard and does not constitute a replacement for the normative text in this standard.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules can differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal publications, basic safety publications and group safety publications covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

NOTE 3 Standards dealing with non-safety aspects of household appliances are:

- IEC standards published by TC 59 concerning methods of measuring performance;
- CISPR 11, CISPR 14-1 and relevant IEC 61000-3 series standards concerning electromagnetic emissions;
- CISPR 14-2 concerning electromagnetic immunity;
- IEC standards published by TC 111 concerning environmental matters.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-101: Particular requirements for vaporizers

1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of electric **vaporizers** for household and similar use, their **rated voltage** being not more than 250 V including direct current (DC) supplied appliances and **battery-operated appliances**.

Examples of appliances that are within the scope of this standard are:

- air fresheners;
- insect repellents.

They can be plugged directly into a socket-outlet or connected to the supply mains by means of a flexible cord and plug.

Appliances not intended for normal household use but which nevertheless can be a source of danger to the public, such as appliances intended to be used by laypersons in shops, in light industry and on farms, are within the scope of this standard.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

- persons (including children) whose
 - physical, sensory or mental capabilities; or
 - lack of experience and knowledgeprevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

Attention is drawn to the fact that

- for appliances to be used in vehicles or on board ships or aircraft, additional requirements can be necessary;
- in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, and similar authorities.

This standard does not apply to

- appliances intended exclusively for industrial purposes;
- appliances intended to be used in locations where special conditions prevail, such as the presence of corrosive or explosive atmosphere (dust, vapour or gas);
- appliances for heating liquids (IEC 60335-2-15);
- insect killers (IEC 60335-2-59);
- fabric steamers (IEC 60335-2-85);
- humidifiers (IEC 60335-2-98).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1 Definitions relating to physical characteristics

3.1.9 *Modification:* normal operation

Replace the first paragraph with the following:

operation of the appliance filled with vaporizing medium in accordance with the instructions, or unfilled, whichever is more unfavourable

3.5 Definitions relating to types of appliances

3.5.101 vaporizer

appliance incorporating a heater for vaporizing a medium in order to affect the air in a room

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.2 *Addition:*

The test of 21.101 is carried out on a new appliance.

6 Classification

This clause of Part 1 is applicable.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 *Addition:*

If the **rated power input** does not exceed 10 W, the appliance may be marked "10 W max".

7.12 Addition:

The instructions shall include the substance of the following:

The appliance is only to be used with the recommended vaporizing medium. The use of other substances can give rise to a toxic or fire risk.

For appliances that are directly plugged into socket-outlets, if the temperature rise of **accessible surfaces** during the test of Clause 11 exceeds the value specified for handles, knobs, grips and similar parts that are held for short periods only in normal use, the instructions shall include the substance of the following:

The appliance has hot surfaces to evaporate the active ingredients and these surfaces should not be touched during use.

8 Protection against access to live parts

This clause of Part 1 is applicable except as follows.

8.1.1 Addition:

For parts of appliances with pins for insertion into the socket outlet and other appliances situated not more than 850 mm above the floor after installation or in normal use, in addition to the use of test probe 18, test probe 19 of IEC 61032 is also applied wherever test probe 18 is used and with the same test conditions used for test probe 18.

8.1.3 Addition:

Test probe 19 is not applied.

9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable except as follows.

10.1 Addition:

For appliances marked with "10 W max", the power input shall not exceed this value.

11 Heating

This clause of Part 1 is applicable except as follows.

11.3 Addition:

*Where the external **accessible surfaces** are suitably flat and access permits, then the test probe of Figure 101 is used to measure the temperature rises of external **accessible surfaces** specified in Table 101. The probe is applied with a force of $4\text{ N} \pm 1\text{ N}$ to the surface in such a way that the best possible contact between the probe and the surface is ensured. The measurement is performed after a contact period of 30 s.*

The probe may be held in place using a laboratory stand clamp or similar device. Any measuring instrument giving the same results as the probe may be used.

11.4 Modification:

*Instead of operating the appliance at 1,15 times **rated power input**, it is supplied at 1,06 times **rated voltage**.*

11.7 Modification:

Replace the first paragraph with the following:

The appliance is operated until steady conditions are established.

11.8 Modification:

Replace the first paragraph with the following:

During the test, the temperature rises are monitored continuously and shall not exceed the values shown in Table 3 and Table 101.

In Table 3, delete the entry for Parts in contact with oil having a flash-point of t °C.

Add the following to footnote "k" of Table 3:

Similar parts held for short periods include handles or grips of vents and air shutters.

Addition:

*For appliances that are directly plugged into socket-outlets, the temperature rise of **accessible surfaces** shall not exceed the limit specified for handles, knobs, grips and similar parts that are held for short periods only in normal use. This does not apply to surfaces of outlet grilles and slots for inserting the vaporizing medium, and surfaces within 7 mm of these parts.*

The temperature rise of the surface of the appliance adjacent to the socket-outlet shall not exceed 40 K.

Table 101 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions

Surface	Temperature rise of external accessible surfaces ^a	
	K	
	Surfaces of appliances situated more than 850 mm above the floor after installation or in normal use according to the installation instructions after installation	Surfaces of other appliances
Bare metal	42	38
Coated metal ^b	49	42
Glass and ceramic	56	51
Plastic and plastic coating > 0,4 mm ^{c, d}	62	58

NOTE The temperature rise limits of handles, knobs, grips, keyboards, keypads and similar parts are specified in Table 3.

^a The limits do not apply to:

- appliances that are directly plugged into socket-outlets;
- surfaces of outlet grilles and slots for inserting the vaporizing medium, and surfaces within 7 mm of these parts.

^b Metal is considered coated when a coating having a minimum thickness of 90 µm made of enamel, powder or non-substantially plastic coating is used.

^c The temperature rise limit of plastic also applies for plastic material having a metal finish of thickness less than 0,1 mm.

^d When the thickness of the plastic coating does not exceed 0,4 mm, the temperature rise limits of coated metal for underlying metal apply or the temperature rise limits for glass or ceramic material for underlying glass or ceramic material apply.

12 Charging of metal-ion batteries

This clause of Part 1 is applicable.

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable except as follows.

13.1 Modification:

Instead of operating the appliance at 1,15 times **rated power input**, it is supplied at 1,06 times **rated voltage**.

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable.

16 Leakage current and electric strength

This clause of Part 1 is applicable.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.1 Addition:

Appliances are also subjected to the test of 19.101.

19.2 Addition:

The appliance is operated without the vaporizing medium.

Modification:

*Instead of operating the appliance at 0,85 times **rated power input**, it is supplied at 0,9 times **rated voltage**.*

19.3 Modification:

*Instead of operating the appliance at 1,24 times **rated power input**, it is supplied at 1,1 times **rated voltage**.*

19.4 Modification:

*Instead of operating the appliance at 1,15 times **rated power input**, it is supplied at 1,06 times **rated voltage**.*

19.13 Addition:

*During the tests, the temperature rise of **accessible surfaces** of appliances that are directly plugged into socket-outlets shall not exceed*

- 55 K, if of metal;
- 65 K, if of porcelain or vitreous enamel;
- 75 K, if of moulded material, rubber or wood.

This does not apply to surfaces of outlet grilles and slots for inserting the vaporizing medium, and surfaces within 7 mm of these parts.

The temperature rise of the surface of the appliance adjacent to the socket-outlet shall not exceed 65 K.

19.101 *A single layer of double-hemmed pre-washed cotton sheet approximately 70 cm × 70 cm, having a specific mass between 140 g/m² and 170 g/m² when dry, is draped over the appliance. It is operated under **normal operation** at **rated voltage**.*

The cotton sheet shall not smoulder or ignite.

20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows.

20.2 Addition:

For parts of appliances with pins for insertion into the socket outlet and other appliances situated not more than 850 mm above the floor after installation or in normal use, in addition to the use of test probe 18, test probe 19 of IEC 61032 is also applied wherever test probe 18 is used and with the same test conditions used for test probe 18.

21 Mechanical strength

This clause of Part 1 is applicable except as follows.

21.1 Addition:

NOTE 101 Appliances that are directly plugged into socket-outlets are tested with the appliance rigidly held by its contact pins.

22 Construction

This clause of Part 1 is applicable except as follows.

22.4 Not applicable.

23 Internal wiring

This clause of Part 1 is applicable except as follows.

23.3 Addition:

Appliances that are directly plugged into socket-outlets and can be rotated in relation to the socket-outlet, are subjected to the following test.

The movable part is rotated clockwise and anticlockwise through the largest angle permitted by the construction. It is rotated 100 times at a speed of approximately 10 rotations per min.

NOTE 101 A rotation is one movement, either clockwise or anticlockwise.

After the test, the appliance shall comply with Clause 8 and Clause 29 and the electrical connections shall not have loosened.

24 Components

This clause of Part 1 is applicable.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows.

25.5 Addition:

Type Z attachment is allowed.

26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable.

28 Screws and connections

This clause of Part 1 is applicable.

29 Clearances, creepage distances and solid insulation

This clause of Part 1 is applicable.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

30.2.2 Not applicable.

31 Resistance to rusting

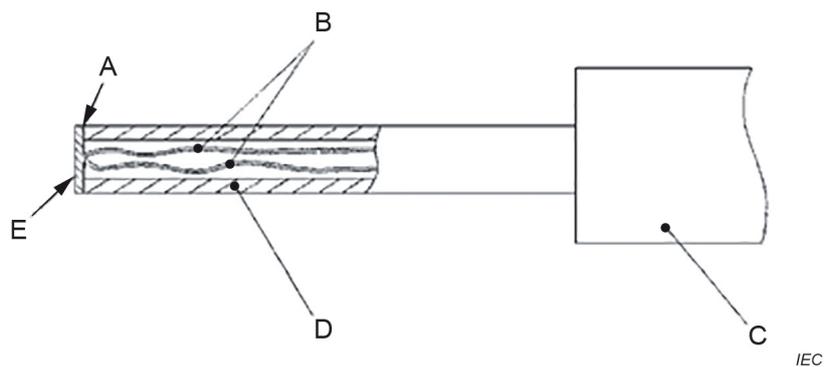
This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable except as follows.

Addition:

NOTE 101 The toxicity of vaporizing materials is controlled by national legislation.



Key

- A adhesive
- B thermocouple wires 0,3 mm diameter to IEC 60584-1 Type K
- C handle arrangement permitting a contact force of $4\text{ N} \pm 1\text{ N}$
- D polycarbonate tube: inside diameter 3 mm, outside diameter 5 mm
- E tinned copper disc: 5 mm diameter, 0,5 mm thick with flat contact face

Figure 101 – Probe for measuring surface temperatures

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV

Annexes

The annexes of Part 1 are applicable except as follows.

[IECNORM.COM](https://www.iecnorm.com) : Click to view the full PDF of IEC 60335-2-101:2024 CMV

Annex B
(normative)

Battery-operated appliances, separable batteries and detachable batteries for battery-operated appliances

Annex B of Part 1 is applicable except as follows.

B.22.3 Addition:

For parts of appliances situated not more than 850 mm above the floor after installation or in normal use, in addition to the use of test probe 18, test probe 19 of IEC 61032 is also applied wherever test probe 18 is used and with the same test conditions used for test probe 18.

B.22.4 Addition:

*For parts of **batteries** situated not more than 850 mm above the floor after installation or in normal use, in addition to the use of test probe 18, test probe 19 of IEC 61032 is also applied wherever test probe 18 is used and with the same test conditions used for test probe 18.*

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024

Bibliography

The Bibliography of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-15, *Household and similar electrical appliances – Safety – Part 2-15: Particular requirements for appliances for heating liquids*

IEC 60335-2-59, *Household and similar electrical appliances – Safety – Part 2-59: Particular requirements for insect killers*

IEC 60335-2-85, *Household and similar electrical appliances – Safety – Part 2-85: Particular requirements for fabric steamers*

IEC 60335-2-98, *Household and similar electrical appliances – Safety – Part 2-98: Particular requirements for humidifiers*

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV

SOMMAIRE

AVANT-PROPOS	22
INTRODUCTION.....	25
1 Domaine d'application	26
2 Références normatives	27
3 Termes et définitions	27
4 Exigence générale	27
5 Conditions générales d'essai	27
6 Classification	27
7 Marquage et instructions	28
8 Protection contre l'accès aux parties actives	28
9 Démarrage des appareils à moteur	28
10 Puissance et courant	28
11 Échauffements.....	29
12 Charge des batteries à ions métalliques	30
13 Courant de fuite et rigidité diélectrique à la température de régime	30
14 Surtensions transitoires	30
15 Résistance à l'humidité.....	30
16 Courant de fuite et rigidité diélectrique	31
17 Protection contre la surcharge des transformateurs et des circuits associés	31
18 Endurance	31
19 Fonctionnement anormal	31
20 Stabilité et dangers mécaniques	32
21 Résistance mécanique.....	32
22 Construction	32
23 Conducteurs internes.....	32
24 Composants	33
25 Raccordement au réseau et câbles souples extérieurs	33
26 Bornes pour conducteurs externes	33
27 Dispositions pour assurer la mise à la terre	33
28 Vis et connexions	33
29 Distances d'isolement, lignes de fuite et isolation solide	33
30 Résistance à la chaleur et au feu.....	33
31 Protection contre la rouille	33
32 Rayonnement, toxicité et dangers analogues	33
Annexes	35
Annexe B (normative) Appareils alimentés par batteries, batteries séparables et batteries amovibles pour les appareils alimentés par batteries	36
Bibliographie.....	37

Figure 101 – Calibre de mesure des températures de surface..... 34

Tableau 101 – Échauffements maximaux pour les surfaces accessibles extérieures
spécifiées en conditions de fonctionnement normal..... 30

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 CMV

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – SÉCURITÉ –

Partie 2-101: Exigences particulières pour les vaporisateurs

AVANT-PROPOS

- 1) La Commission Électrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. À cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national de l'IEC intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
- 2) Les décisions ou accords officiels de l'IEC concernant les questions techniques représentent, dans la mesure du possible, un accord international sur les sujets étudiés, étant donné que les Comités nationaux de l'IEC intéressés sont représentés dans chaque comité d'études.
- 3) Les Publications de l'IEC se présentent sous la forme de recommandations internationales et sont agréées comme telles par les Comités nationaux de l'IEC. Tous les efforts raisonnables sont entrepris afin que l'IEC s'assure de l'exactitude du contenu technique de ses publications; l'IEC ne peut pas être tenue responsable de l'éventuelle mauvaise utilisation ou interprétation qui en est faite par un quelconque utilisateur final.
- 4) Dans le but d'encourager l'uniformité internationale, les Comités nationaux de l'IEC s'engagent, dans toute la mesure possible, à appliquer de façon transparente les Publications de l'IEC dans leurs publications nationales et régionales. Toutes divergences entre toutes Publications de l'IEC et toutes publications nationales ou régionales correspondantes doivent être indiquées en termes clairs dans ces dernières.
- 5) L'IEC elle-même ne fournit aucune attestation de conformité. Des organismes de certification indépendants fournissent des services d'évaluation de conformité et, dans certains secteurs, accèdent aux marques de conformité de l'IEC. L'IEC n'est responsable d'aucun des services effectués par les organismes de certification indépendants.
- 6) Tous les utilisateurs doivent s'assurer qu'ils sont en possession de la dernière édition de cette publication.
- 7) Aucune responsabilité ne sera imputée à l'IEC, à ses administrateurs, employés, auxiliaires ou mandataires, y compris ses experts particuliers et les membres de ses comités d'études et des Comités nationaux de l'IEC, pour tout préjudice causé en cas de dommages corporels et matériels, ou de tout autre dommage de quelque nature que ce soit, directe ou indirecte, ou pour supporter les coûts (y compris les frais de justice) et les dépenses découlant de la publication ou de l'utilisation de cette Publication de l'IEC ou de toute autre Publication de l'IEC, ou du crédit qui lui est accordé.
- 8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
- 9) L'IEC attire l'attention sur le fait que la mise en application du présent document peut entraîner l'utilisation d'un ou de plusieurs brevets. L'IEC ne prend pas position quant à la preuve, à la validité ou à l'applicabilité de tout droit de brevet revendiqué à cet égard. À la date de publication du présent document, l'IEC n'avait pas reçu notification qu'un ou plusieurs brevets pouvaient être nécessaires à sa mise en application. Toutefois, il y a lieu d'avertir les responsables de la mise en application du présent document que des informations plus récentes sont susceptibles de figurer dans la base de données de brevets, disponible à l'adresse <https://patents.iec.ch>. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets.

L'IEC 60335-2-101 a été établie par le comité d'études 61 de l'IEC: Sécurité des appareils électrodomestiques et analogues. Il s'agit d'une Norme internationale.

Cette deuxième édition annule et remplace la première édition parue en 2002, son Amendement 1:2008 et son Amendement 2:2014. La présente édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) alignement sur l'IEC 60335-1:2020;
- b) transformation de certaines notes en texte normatif (Article 1, 7.1);
- c) introduction de l'application du calibre d'essai 19 (8.1.1, 8.1.3, 20.2, B.22.3, B.22.4);
- d) ajout d'exigences relatives aux températures des surfaces accessibles extérieures (Article 11).

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
61/7278/FDIS	61/7302/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2. Il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/publications.

Une liste de toutes les parties de la série IEC 60335, publiées sous le titre général: *Appareils électrodomestiques et analogues – Sécurité*, se trouve sur le site web de l'IEC.

La présente Partie 2 doit être utilisée conjointement avec la dernière édition de l'IEC 60335-1 et ses amendements sauf si cette édition l'exclut; dans ce cas, la dernière édition qui n'exclut pas la présente Partie 2 est utilisée. Elle a été établie sur la base de la sixième édition (2020) de cette norme.

NOTE 1 L'expression "Partie 1" utilisée dans la présente norme fait référence à l'IEC 60335-1.

La présente Partie 2 complète ou modifie les articles correspondants de l'IEC 60335-1, de façon à transformer cette publication en norme IEC: Exigences particulières pour les vaporisateurs.

Lorsqu'un paragraphe particulier de la Partie 1 n'est pas mentionné dans cette Partie 2, ce paragraphe s'applique pour autant que cela soit raisonnable. Lorsque la présente norme mentionne "addition", "modification" ou "remplacement", le texte correspondant de la Partie 1 doit être adapté en conséquence.

NOTE 2 Le système de numérotation suivant est utilisé:

- Les paragraphes, tableaux et figures qui s'ajoutent à ceux de la Partie 1 sont numérotés à partir de 101;
- Notes: à l'exception de celles qui sont dans un nouveau paragraphe ou de celles qui concernent des notes de la Partie 1, les notes sont numérotées à partir de 101, y compris celles des articles ou paragraphes qui sont modifiés ou remplacés;
- Annexes: les annexes qui sont ajoutées sont désignées AA, BB, etc.

NOTE 3 Les caractères d'imprimerie suivants sont utilisés:

- exigences: caractères romains;
- *modalités d'essais: caractères italiques;*
- notes: petits caractères romains.

Les mots en **gras** dans le texte sont définis à l'Article 3. Lorsqu'une définition concerne un adjectif, l'adjectif et le nom associé figurent également en gras.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous webstore.iec.ch dans les données relatives au document recherché. À cette date, le document sera

- reconduit,
- supprimé, ou
- révisé.

NOTE 4 L'attention des Comités nationaux est attirée sur le fait que les fabricants d'appareils et les organismes d'essai peuvent avoir besoin d'une période transitoire après la publication d'une nouvelle publication IEC, ou d'une publication amendée ou révisée, pour fabriquer des produits conformes aux nouvelles exigences et pour adapter leurs équipements aux nouveaux essais ou aux essais révisés.

Le comité recommande que le contenu de cette publication soit adopté pour application nationale au plus tôt 12 mois et au plus tard 36 mois après la date de publication.

IECNORM.COM : Click to view the full PDF of IEC 60335-2-101:2024 GMV

INTRODUCTION

Il a été admis par hypothèse, en établissant la présente Norme internationale, que l'exécution de ses dispositions était confiée à des personnes expérimentées et ayant une qualification appropriée.

Les documents de recommandations concernant l'application des exigences de sécurité des appareils peuvent être consultés dans les documents de support du CE 61, accessibles sur le site web de l'IEC à l'adresse:

<https://www.iec.ch/tc61/supportingdocuments>

Cette information est donnée à l'intention des utilisateurs de la présente Norme internationale et ne constitue nullement un remplacement du texte normatif de la présente norme.

La présente norme reconnaît le niveau de protection internationalement accepté contre les dangers électriques, mécaniques, thermiques, liés au feu et au rayonnement des appareils, lorsqu'ils fonctionnent comme en utilisation normale en tenant compte des instructions du fabricant. Elle couvre également les situations anormales qui peuvent être attendues dans la pratique et elle tient compte de la façon dont les phénomènes électromagnétiques peuvent altérer le fonctionnement sûr des appareils.

La présente norme tient compte autant que possible des exigences de l'IEC 60364, de façon à rester compatible avec les règles d'installation quand l'appareil est raccordé au réseau d'alimentation. Cependant, des règles nationales d'installation peuvent être différentes.

Si un appareil compris dans le domaine d'application de cette norme comporte également des fonctions qui sont couvertes par une autre partie 2 de l'IEC 60335, la partie 2 correspondante est appliquée à chaque fonction séparément, dans la limite du raisonnable. Si cela s'applique, l'influence d'une fonction sur les autres fonctions est prise en compte.

Lorsqu'une partie 2 ne comporte pas d'exigences complémentaires pour couvrir les dangers traités dans la Partie 1, la Partie 1 s'applique.

NOTE 1 Cela signifie que les comités d'études responsables pour les parties 2 ont déterminé qu'il n'était pas nécessaire de spécifier des exigences particulières pour l'appareil en question en plus des exigences générales.

La présente norme est une norme de famille de produits traitant de la sécurité d'appareils et prévaut sur les normes horizontales et génériques couvrant le même sujet.

NOTE 2 Les publications horizontales, les publications fondamentales de sécurité et les publications groupées de sécurité couvrant un danger ne s'appliquent pas, parce qu'elles ont été prises en considération lorsque les exigences générales et particulières ont été étudiées pour la série de normes IEC 60335.

Un appareil conforme au texte de la présente norme n'est pas nécessairement jugé conforme aux principes de sécurité de la norme si, lorsqu'il est examiné et soumis aux essais, il apparaît qu'il présente d'autres caractéristiques qui compromettent le niveau de sécurité visé par ces exigences.

Un appareil utilisant des matériaux ou présentant des modes de construction différents de ceux décrits dans les exigences de la présente norme peut être examiné et soumis à l'essai en fonction de l'objectif poursuivi par ces exigences et, s'il est jugé pratiquement équivalent, il peut être estimé conforme aux principes de sécurité de la présente norme.

NOTE 3 Les normes traitant des aspects non relatifs à la sécurité des appareils électrodomestiques sont:

- les normes IEC publiées par le CE 59 concernant les méthodes de mesure de l'aptitude à la fonction;
- les normes CISPR 11, CISPR 14-1 et les normes applicables de la série IEC 61000-3 concernant les émissions électromagnétiques;
- la norme CISPR 14-2 concernant l'immunité électromagnétique;
- les normes IEC publiées par le CE 111 concernant l'environnement.

APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – SÉCURITÉ –

Partie 2-101: Exigences particulières pour les vaporisateurs

1 Domaine d'application

L'article de la Partie 1 est remplacé par le texte suivant.

La présente partie de l'IEC 60335 traite de la sécurité des **vaporisateurs** électriques pour usages domestiques et analogues dont la **tension assignée** est inférieure ou égale à 250 V, y compris les appareils alimentés en courant continu et les **appareils alimentés par batteries**.

Exemples d'appareils relevant du domaine d'application de la présente norme:

- diffuseurs;
- appareils insectifuges.

Ils peuvent être branchés directement dans un socle de prise de courant ou raccordés au réseau d'alimentation au moyen d'un câble souple et d'une fiche de prise de courant.

Les appareils non destinés à un usage domestique normal mais qui peuvent néanmoins constituer une source de danger pour le public, par exemple les appareils destinés à être utilisés par des utilisateurs non avertis dans des magasins, chez des artisans et dans des fermes, relèvent du domaine d'application de la présente norme.

Dans la mesure du possible, la présente norme traite des dangers courants que présentent les appareils et auxquels sont exposés tous les individus à l'intérieur et autour de l'habitation. Cependant, elle ne tient en général pas compte

- des personnes (y compris des enfants) dont:
 - les capacités physiques, sensorielles ou mentales; ou
 - le manque d'expérience et de connaissanceles empêchent d'utiliser l'appareil en toute sécurité sans surveillance ou instruction;
- de l'utilisation de l'appareil comme jouet par des enfants.

L'attention est attirée sur le fait que

- pour les appareils utilisés dans des véhicules ou à bord de navires ou d'avions, des exigences supplémentaires peuvent être nécessaires;
- dans de nombreux pays, des exigences supplémentaires sont spécifiées par les organismes nationaux de la santé, par les organismes nationaux responsables de la protection des travailleurs et par des organismes similaires.

La présente norme ne s'applique pas:

- aux appareils prévus exclusivement pour des usages industriels;
- aux appareils destinés à être utilisés dans des locaux qui présentent des conditions particulières, telles que la présence d'une atmosphère corrosive ou explosive (poussière, vapeur ou gaz);
- aux appareils de chauffage des liquides (IEC 60335-2-15);
- aux destructeurs d'insectes (IEC 60335-2-59);

- aux appareils à vapeur pour tissus (IEC 60335-2-85);
- aux humidificateurs (IEC 60335-2-98).

2 Références normatives

L'article de la Partie 1 s'applique, avec l'exception suivante.

Addition:

IEC 60584-1, *Couples thermoélectriques – Partie 1: Spécifications et tolérances en matière de FEM*

3 Termes et définitions

L'article de la Partie 1 s'applique, avec les exceptions suivantes.

3.1 Définitions relatives aux caractéristiques physiques

3.1.9 Modification:

conditions de fonctionnement normal

Remplacer le 1^{er} alinéa par ce qui suit:

fonctionnement de l'appareil rempli de la substance à diffuser conformément aux instructions, ou non rempli, suivant la condition la plus défavorable

3.5 Définitions relatives aux types d'appareils

3.5.101

vaporisateur

appareil qui comporte un dispositif chauffant destiné à diffuser une substance dans le but de modifier l'air d'un local

4 Exigence générale

L'article de la Partie 1 s'applique.

5 Conditions générales d'essai

L'article de la Partie 1 s'applique, avec l'exception suivante.

5.2 Addition:

L'essai du 21.101 est effectué sur un appareil neuf.

6 Classification

L'article de la Partie 1 s'applique.