

# INTERNATIONAL VERSION

# NORME INTERNATIONALE



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

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

[IEC 60335-2-101:2002](#)

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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



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## CONTENTS

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

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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**IEC 60335-2-101 edition 1.2 contains the first edition (2002-07) [documents 61/2136/FDIS and 61/2161/RVD], its amendment 1 (2008-04) [documents 61/3558/FDIS and 61/3604/RVD] and its amendment 2 (2014-08) [documents 61/4686/CDV and 61/4752/RVC].**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendments 1 and 2. Additions and deletions are displayed in red, with deletions being struck through. A separate Final version with all changes accepted is available in this publication.**

This part of International Standard IEC 60335 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

It forms the first edition of IEC 60335-2-101.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fourth edition (2001) 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: Safety requirements for electric 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 the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site 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.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may 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.

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## 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.

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 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 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.

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.

# 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 International Standard deals with the safety of electric **vaporizers** for household and similar purposes, their **rated voltage** being not more than 250 V.

NOTE 101 Examples of appliances that are within the scope of this standard are air fresheners and insect repellents. They may 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 be a source of danger to the public, such as appliances intended to be used by laymen 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

- ~~the use of appliances by young children or infirm persons without supervision~~ 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~~ ~~by young children~~.

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 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.

### 3 Terms and definitions

This clause of Part 1 is applicable except as follows.

### 3.1.9 Replacement:

#### normal operation

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

### 3.101

#### 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.<sup>1:2002</sup>

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### 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 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.

## 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.

### 11.4 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:

*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.*

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*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.*

## 12 Void

## 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 x 70 cm, having a specific mass between 140 g/m<sup>2</sup> and 170 g/m<sup>2</sup> 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.

## 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-test repeated**, – procedure 2, of IEC 60068-2-321. 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.*

## 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: