

**INTERNATIONAL
STANDARD**

**IEC
60335-2-52**

Third edition
2002-10

**Household and similar electrical appliances –
Safety –**

**Part 2-52:
Particular requirements for
oral hygiene appliances**

*Appareils électrodomestiques et analogues –
Sécurité –*

*Partie 2-52:
Règles particulières pour les appareils
d'hygiène buccale*



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –**
Part 2-52: Particular requirements for oral hygiene appliances

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

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

This third edition cancels and replaces the second edition published in 1994. It constitutes a technical revision.

The text of this part of IEC 60335 is based on the following documents:

FDIS	Report on voting
61/2221/FDIS	61/2296/RVD

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

This 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 oral hygiene appliances.

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 publication will remain unchanged until 2004. At this date, the publication will be

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- withdrawn;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

The following differences exist in the countries indicated below.

- 6.1: Class 0 appliances are allowed (Japan).
- 6.1: Appliances may have other classifications (USA).
- 7.12.1: Additional instructions are required (USA).
- 11.7: The duration and number of cycles are different (USA).
- 19.101: The test is different (USA).
- 22.36: Hand-held parts may be class 0 construction (Japan).

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

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.

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.

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.

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 2-52: Particular requirements for oral hygiene appliances

1 Scope

This clause of Part 1 is replaced by the following.

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

NOTE 101 Examples of appliances covered by this standard are

- oral irrigators;
- toothbrushes.

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;
- playing with the appliance by young children.

NOTE 102 Attention is drawn to the fact that

- for appliances intended 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 for medical purposes (IEC 60601).

2 Normative references

This clause of Part 1 is applicable.

3 Definitions

This clause of Part 1 is applicable except as follows.

3.1.9 *Replacement:*

normal operation

operation of the appliance under the following conditions

Oral irrigators are operated with the reservoir filled with water having a temperature of approximately 45 °C, to the level specified in the instructions. In the absence of such instructions, the reservoir is filled to the maximum level.

Other appliances are operated without load.

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable.

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 *Modification:*

Appliances shall be **class II** or **class III**.

6.2 *Addition:*

Class II appliances shall be at least IPX7 except that parts intended to be fixed, and transformers with pins for insertion into socket-outlets, shall be at least IPX4.

Class III appliances shall be at least IPX4. However, if the **rated voltage** does not exceed 24 V, they may be IPX0.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.12.1 *Addition:*

The installation instructions shall state that parts that have to be fixed must be fixed so that they cannot fall into water, unless they are of IPX7 construction.

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.

11 Heating

This clause of Part 1 is applicable except as follows.

11.7 Replacement:

Appliances are operated for five cycles, each cycle comprising an operating period of 3 min and a rest period of 1 min.

During the rest period, the reservoir of oral irrigators is refilled.

NOTE 101 If the reservoir empties during the operating period, it is refilled and the test is continued.

12 Void

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable.

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:

Class II oral irrigators are also subjected to the test of 19.101.

19.2 Addition:

The test is carried out without water in the reservoir.

19.101 *The hose is punctured within the enclosure of the appliance at the most unfavourable location. Rubber hoses are punctured by means of a 0,8 mm diameter needle. Thermoplastic hoses are punctured by means of a 0,5 mm diameter heated needle, care being taken not to enlarge the hole.*

NOTE When reassembling the appliance, sealants such as silicone rubber may be used to insure that the joints are watertight.

The appliance is operated as specified in Clause 11, but with water containing 1 % NaCl. During the last cycle of operation, the water pressure in the hose is increased to the maximum obtainable by blocking the water outlet. The pressure is then reduced to its normal value.

A vessel of insulating material is filled with the saline solution and the hand-held part of the appliance is immersed to a depth of approximately 100 mm. The appliance is operated without restricting the water flow until 30 s after the reservoir has emptied. During the test, the leakage current is measured, as specified in 13.2. It is measured between any pole of the supply and a rectangular stainless steel electrode, having dimensions approximately 250 mm x 50 mm, placed in the solution.

The leakage current shall not exceed 0,5 mA.

20 Stability and mechanical hazards

This clause of Part 1 is applicable.

21 Mechanical strength

This clause of Part 1 is applicable.

22 Construction

This clause of Part 1 is applicable except as follows.

22.36 Addition:

Hand-held parts shall be **class III construction** having a **working voltage** not exceeding 24 V.

22.101 Class II appliances shall be constructed so that parts intended to be fixed can be fixed securely, unless they are classified at least IPX7.

Compliance is checked by inspection.

NOTE Keyhole slots, hooks and similar means, without further means to prevent the appliance being inadvertently lifted off the support, are not considered to be adequate means for fixing the appliance securely.

23 Internal wiring

This clause of Part 1 is applicable.

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 X attachment is not allowed for appliances classified IPX7.

Type Z attachment is allowed.

25.23 Addition:

Interconnection cords for parts of **class III construction** are not required to comply with the requirements for **supply cords**.

26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is not 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.

30.2.3 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.

Annexes

The annexes of Part 1 are applicable.

Bibliography

The bibliography of Part 1 is applicable.



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- purchasing agent
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- public utility
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- military
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Q5 This standard meets my needs: (tick one)

- not at all
- nearly
- fairly well
- exactly

Q6 If you ticked NOT AT ALL in Question 5 the reason is: (tick all that apply)

- standard is out of date
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- title is misleading
- I made the wrong choice
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- (1) unacceptable,
- (2) below average,
- (3) average,
- (4) above average,
- (5) exceptional,
- (6) not applicable

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- technical contents.....
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Q8 I read/use the: (tick one)

- French text only
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- both English and French texts

Q9 Please share any comment on any aspect of the IEC that you would like us to know:

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