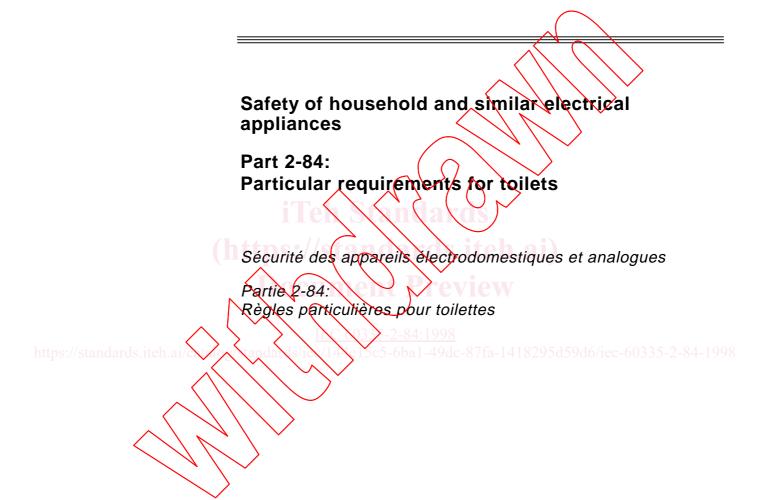
# INTERNATIONAL STANDARD



First edition 1998-10





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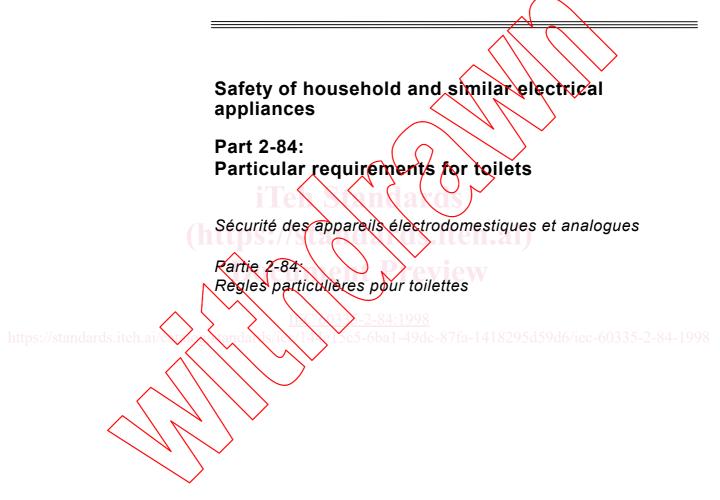
For graphical symbols, and letter symbols and signs approved by the IEC for general use, readers are referred to publications IEC 60027: Letter symbols to be used in electrical technology, IEC 60417: Graphical symbols for use on equipment. Index, survey and compilation of the single sheets and IEC 60617: Graphical symbols for diagrams

See web site address on title page.

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES

## Part 2-84: Particular requirements for toilets

## 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 tields. 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.
- 2) The formal decisions or agreements of the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
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- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEQ shall not be held responsible for identifying any or all such patent rights.
- International Standard NEC 60335-2-84 has been prepared by IEC technical committee 61: Safety 4-1998 of household and similar electrical appliances.

It forms the first edition of VEC 60335-2-84.

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

$\mathcal{A}$	FDIS	Report on voting
$\searrow$	61/1481/FDIS	61/1520/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 third edition (1991) of that standard.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert it into the IEC standard: Safety requirements for electric toilets.

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

NOTE 1 – 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 2. When a definition of part 1 concerns an adjective, the adjective and the associated noun are also in bold.

NOTE 2 – Subclauses, figures and tables which are additional to those in part 1 are numbered starting from 101.

The following additional differences exist in some countries:

- 2.2.9: The conditions for normal operation are different (USA).
- 22.103: The test is different (USA).

The contents of the corrigendum of April 1999 have been included in this copy.

https://standards.iteh.ai/c

## SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES

## Part 2-84: Particular requirements for toilets

## 1 Scope

This clause of part 1 is replaced by:

This standard deals with the safety of electric toilets in which excrement is stored, dried or destructed, their **rated voltage** being not more than 250 V.

NOTE 1 - Electric toilets may be used to process garbage such as paper and food waste

This standard also applies to electric equipment for use with conventional tollets.

NOTE 2 - Examples of such electric equipment are

- pumping units,
- chopping units,
- heated seats,
- automatic seat covering devices.

So far as is practicable, this standard deals with the common hazards presented by appliances which are encountered by all persons in and around the home.

This standard does not in general take into account playing with the appliance by young children.

NOTE 3 – Attention is drawn to the fact that the fact that

- for appliances intended to be used in hopical countries, special 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, the national water supply authorities and similar authorities.

NOTE 4 - This standard does not apply to

- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive attrosphere (dus) vapour or gas),

- chemical toilets,
- toilets in which excrement is destructed by combustion.

2 Definitions

This clause of part 1 is applicable except as follows.

#### 2.2.9 Replacement:

#### normal operation

operation of the appliance under the following conditions:

Appliances are operated in cycles, each cycle being initiated every 10 min, bowl covers being open or closed whichever is more unfavourable. If the cycle is not automatically terminated, the appliance is operated for 15 s or for the period specified by the instructions for use, whichever is longer.

The excrement tank of **mouldering toilets** is empty or filled with peat, whichever is more unfavourable.

Package toilets are provided with bags.

For **freezing toilets**, 0,3 I of water having a temperature of 37 °C is added each cycle, controls being set to the lowest temperature. They are also operated without water.

Shower units are supplied with water at the lowest pressure which provides an effective spray.

#### 2.101

#### mouldering toilet

appliance in which the excrement is processed by drying

#### 2.102

#### package toilet

appliance in which the excrement is packed in bags and stored in a tank

#### 2.103

#### freezing toilet

appliance in which the excrement is frozen and stored in a tank

## 2.104

#### vacuum toilet

appliance in which the excrement is evacuated to a storage tank by negative pressure

#### 2.105

#### shower unit

device incorporated in the appliance which projects water for cleaning parts of the human body

NOTE - Shower units may supply warm air for drying

## 3 General requirement

This clause of part is applicable. Interstitute and a single state of the second state of the second second

## 4 General conditions for the tests

This clause of part is applicable except as follows.

## 4.7 Addition:

The temperature of the water used for the tests is  $15 \degree C \pm 5 \degree C$ .

## 5 Void

## 6 Classification

This clause of part 1 is applicable except as follows.

#### **6.2** Addition:

Toilets and heated seats shall be at least IPX4.

## 7 Marking and instructions

This clause of part 1 is applicable except as follows.

#### 7.12 Addition:

The instructions for use shall state how to empty and clean the toilet safely. They shall include details about the final disposal of the excrement or its residue, unless the toilet is connected to the sewage system.

#### 7.12.1 Addition:

The instructions for installation of **class I appliances** shall state that they have to be earthed.

The instructions for installation of a toilet shall state that the label concerning glowing cigarettes is to be fixed in a conspicuous place beside the toilet, if applicable

**7.101** Toilets shall be provided with a label stating that glowing cigarettes and other burning materials must not be thrown into the toilet.

NOTE 1 - The label is not required for flushing toilets if the bowl is resistant to heat and here.

NOTE 2 – The label is to be suitable for permanent fixing.

NOTE 3 - The label may be fixed on the appliance if it is visible before using the toilet.

## 8 **Protection against access to live parts**

This clause of part 1 is applicable except as follows

**8.1.1** Addition:

The small test finger of figure 101 is also 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.

## 11 Heating

This clause of part is applicable except as follows.

## **11.3** Addition:

Thermocouples attached to the small blackened disks are also used for measuring the temperature rise of warm air.

#### **11.7** *Replacement:*

Appliances are operated until steady conditions are established.

## **11.8** Addition:

The temperature rises shall not exceed the values shown in table 101.

Part	Temperature rise K	
Surfaces likely to be in contact with the skin,		
– if of metal – if of other material	15 25	
Warm air for drying parts of the human body	25 <sup>1)</sup>	
Surfaces outside the bowl located within 25 cm of the seat	30	
Interior of the excrement tank of mouldering toilets	68	
Ducts through which excrement passes	l Call	
1) The air temperature is measured 5 cm from the air outlet		

Table 101 – Maximum normal temperature rises

The temperature of the water supplied by **shower units** shall not exceed 40 °C.

## 12 Void

## 13 Leakage current and electric strength at operating temperature

This clause of part 1 is applicable.

## 14 Void

## https://s15.cMoisture.resistance

This clause of part 1 is applicable except as follows.

## 15.1.1 Addition:

It may be necessary to use the spray nozzle described in subclause 14.2.4 of IEC 60529 for testing the inside of the bowl.

## 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.