

INTERNATIONAL STANDARD

IEC
60335-2-24

2002

AMENDMENT 1
2005-02

Amendment 1

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

**Part 2-24:
Particular requirements for refrigerating
appliances, ice-cream appliances
and ice-makers**

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International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE

G

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FOREWORD

This amendment has been prepared by subcommittee 61C: Household appliances for refrigeration, of IEC technical committee 61: Safety of household and similar electrical appliances.

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

FDIS	Report on voting
61C/291/FDIS	61C/302/RVD

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the maintenance result 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- withdrawn,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.

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Add, to the list of annexes, the following new title:

Annex CC (normative) Non-sparking "n" electrical apparatus

INTRODUCTION

Replace the second sentence of the second paragraph by the following:

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.

2 Normative references

Add the following reference:

IEC60335-2-5: *Household and similar electrical appliances – Safety – Part 2-5: Particular requirements for dishwashers*

Replace reference to IEC 60079-15:1987 by the following.

IEC 60079-15, *Electrical apparatus for explosive gas atmospheres – Part 15: Construction, test and marking of type of protection, non-sparking "n" electrical apparatus*¹

¹ This future third edition of IEC 60079-15 is currently circulating as an FDIS to the National Committees.

11 Heating

11.8 Add the following new paragraph after Table 101:

The temperature of ballast windings and their associated wiring shall not exceed the values specified in 12.4 of IEC 60598-1, when measured under the conditions stated.

19 Abnormal operation

Replace 19.104 by the following.

19.104 Illuminating equipment shall not cause any fire hazard under abnormal operating conditions.

Compliance is checked by the following test, for which the appliance is empty, the refrigerating system is switched off, and doors or lids are fully opened or closed, whichever is the more unfavourable.

The complete illuminating equipment including its protective cover, fitted with a lamp as recommended by the manufacturer, is operated for 12 h at 1,06 times the rated voltage.

If an incandescent lamp does not attain the maximum rated wattage at rated voltage, the voltage is varied until the maximum rated wattage is reached and is then increased to 1,06 times this voltage.

Illuminating equipment having discharge lamps is operated under the fault conditions specified in items a), d) and e) of 12.5.1 of IEC 60598-1, the appliance being supplied at rated voltage.

During the test, surrounding plastic parts shall not show any distortion which may affect safety in the sense of this standard.

The temperatures of ballast windings shall not exceed the values specified in 12.5 of IEC 60598-1 when measured under the conditions specified.

20 Stability and mechanical hazards

20.102

Replace the third paragraph with the following:

As many weights as possible are placed horizontally on the door shelves starting as far as possible from the hinge and touching each other along the shelf, even if extended beyond the edge of the shelf, except for a space less than 80 mm wide at the end of the shelf.

Three of these weights are placed in each position on those shelves where the free height above the shelf is 340 mm or higher, two weights in each position on those shelves where the free height above the shelf is between 170 mm and 340 mm and one weight in each position where the free height above the shelf is less than 170 mm. Shelves that can be adjusted to different positions by the user are placed in the position which will give the most unfavourable results.

22 Construction

22.107.1

In the ninth paragraph (immediately after Note 3), in the first line, replace "continuously" by "at least every 30 s".

In the tenth paragraph (immediately prior to Note 4) replace the third dash item by the following.

- electrical apparatus that has been tested and found to comply with at least the requirements in Annex CC

22.108 Replace the first paragraph of the requirement, by the following.

For **compression-type appliances** with unprotected cooling systems and which use **flammable refrigerants**, any electrical component located inside the food storage compartment, which during **normal operation** or abnormal operation produces sparks or arcs and luminaires, shall be tested and found at least to comply with the requirements in Annex CC for group IIA gases or the refrigerant used.

Delete the third paragraph of the requirement.

Replace the fourth paragraph of the requirement, by the following.

Refrigerant leakage into food storage compartments shall not result in an explosive atmosphere outside the food storage compartments in areas where electrical components that produce arcs and sparks during **normal operation** or abnormal operation or luminaires are mounted, when doors or lids remain closed or when opening or closing doors or lids, unless these components have been tested and found at least to comply with the requirements in Annex CC, for group IIA gases or the refrigerant used.

Delete the sixth paragraph of the requirement.

Replace Note 5 and Note 6, by the following.

NOTE 5 The tests called up by Annex CC may be carried out using the stoichiometric concentration of the refrigerant used. However, apparatus which has been independently tested and found to comply with Annex CC using the gas specified for group IIA need not be tested.

NOTE 6 Irrespective of the requirement given in 5.4 of IEC 60079-15 Ed 3., surface temperature limits are specified in 22.110.

In the eighth paragraph of the test specification, in the first line, replace "continuously" by "at least every 30 s".

22.109 Replace the first paragraph of the test specification, by the following.

Compliance is checked by the following test, unless luminaires and components that produce arcs or sparks during **normal operation** or abnormal operation, and which are mounted in the areas under consideration, have been tested and found at least to comply with the requirements in Annex CC for group IIA gases or the refrigerant used.

Replace Notes 2 and 3, by the following.

NOTE 2 Irrespective of the requirement given in 5.4 of IEC 60079-15, Ed.3, surface temperature limits are specified in 22.110.

NOTE 3 Other types of protection for electrical apparatus used in potentially explosive atmospheres covered by the IEC 60079 series are also acceptable.

In the sixth paragraph of the test specification (immediately after Note 4), in the second line, replace "continuously" by "at least every 30 s"

22.115 Delete the entire subclause.

Insert the following new Annex CC:

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Annex CC
(normative)**Non-sparking “n” electrical apparatus**

Where reference is made to IEC 60079-15, the following clauses are applicable as modified below.

21 Supplementary requirements for non-sparking luminaires

All of the subclauses of Clause 21 are applicable, except 21.2.5.1, 21.2.5.5, 21.2.7, 21.2.8, 21.2.9, 21.2.10, 21.2.11, 21.2.12 and 21.3.

26 General supplementary requirements for apparatus producing arcs, sparks or hot surfaces

Clause 26 is applicable

27 Supplementary requirements for enclosed-break devices and non-incendive components producing arcs, sparks or hot surfaces

Clause 27 is applicable

28 Supplementary requirements for hermetically sealed devices producing arcs, sparks or hot surfaces

Clause 28 is applicable

29 Supplementary requirements for sealed devices or encapsulated devices producing arcs, sparks or hot surfaces

All of the subclauses of Clause 29 are applicable, except 29.1 and 29.8, which are replaced by the following

29.1 Non metallic materials

Seals are tested using 33.5. However if the device is tested in the appliance, then 33.5.1 and 33.5.1 are not applicable. However, after the tests of Clause 19 in IEC 60335-2-24, by inspection, no damage of the encapsulation that could impair the type of protection shall be evident, such as cracks in the resin or exposure of encapsulated parts.

29.8 Type tests

The type tests described in 33.5 shall be performed where relevant.