

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

AMENDMENT 2  
AMENDEMENT 2

Household and similar electrical appliances – Safety –  
Part 2-24: Particular requirements for refrigerating appliances, ice-cream  
appliances and ice-makers  
(standards.iteh.ai)

IEC 60335-2-24:2010/AMD2:2017  
https://standards.iteh.ai/catalog/standards/sis/c6da0552-6c15-4040-b080-312222222222  
Appareils électrodomestiques et analogues – Sécurité –  
Partie 2-24: Règles particulières pour les appareils de réfrigération, les  
sorbetières et les fabriques de glace





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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**IEC 60335-2-24 Amendment 2 to**  
Edition 7.0 2017-04

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –**

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

**INTERPRETATION SHEET 1**

This interpretation sheet has been prepared by subcommittee 61C: Safety of refrigeration appliances for household and commercial use, of technical committee 61: Safety of household and similar electrical appliances.

The text of this interpretation sheet is based on the following documents:

FDIS	Report on voting
<a href="https://standards.itec.org/standards/sist/60335-2-24-2010-amd2-2017-61C/730/FDIS/">61C/730/FDIS</a>	<a href="https://standards.itec.org/standards/sist/60335-2-24-2010-amd2-2017-61C/734/RVD/">61C/734/RVD</a>

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

**SC 61C interpretation sheet on: Subclause 30.2.101 with respect to testing of built-in appliances and interpretation of accessible non-metallic material**

**Questions:** Some questions have arisen over the text added to 30.2 and 30.2.101 via AMD2 concerning non-metallic material on the external rear surfaces of an appliance that is in direct contact with thermal insulation. These are:

- Is the non-metallic material on the external rear surfaces of an appliance that is in direct contact with thermal insulation considered to be “accessible non-metallic material” ?
- Does the term “accessible” have the meaning defined in 3.6.3 of Part 1 ?
- What force is applied to test probe B when judging accessibility ?
- For built-in appliances, is accessibility judged before the appliance is built-in ?

**Relevant text from IEC 60335-2-24 AMD2**

**The addition to 30.2 states:**

*For accessible thermal insulation and non-metallic material on the external rear surfaces of an appliance having an area exceeding 75 cm<sup>2</sup> that is in direct contact with the thermal insulation, compliance is checked by the test of 30.2.101.*

**Subclause 30.2.101 states:**

**30.2.101** *Accessible thermal insulation and non-metallic material on the external rear surfaces of an appliance that is in direct contact with thermal insulation*

- *is subject to the needle-flame test (NFT) of Annex E; or*
- *shall comprise material classified as V-0 or V-1 according to IEC 60695-11-10 provided that the test sample used for the classification was no thicker than the relevant part of the appliance.*

*Non-metallic material*

- *that is within 150 mm from the top surface of the appliance;*
  - *that is on the left side or right side of the motor-compressor compartment;*
  - *that has an area not exceeding 75 cm<sup>2</sup> that is in direct contact with the thermal insulation*
- is not tested.*

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**ANSWERS**

- a) Yes <https://standards.iteh.ai/catalog/standards/sist/c6dab552-de13-4040-b080-331e972ac27e/iec-60335-2-24-2010-amd2-2017>
- b) Yes
- c) The test probe is applied with a force not exceeding 1 N
- d) Yes. This is irrespective of the last paragraph of 5.10 of Part 1

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**IEC 60335-2-24**  
Edition 7.0 2010-02  
Amendment 2: 2017-04

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –  
SAFETY –**

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

**INTERPRETATION SHEET 2**

This interpretation sheet has been prepared by subcommittee 61C: Safety of refrigeration appliances for household and commercial use, of technical committee 61: Safety of household and similar electrical appliances. (standards.iteh.ai)

The text of this interpretation sheet is based on the following documents:

<https://standards.iteh.ai/catalog/standards/sis/c6dab552-de15-4040-b080-331e972ac27e/iec-60335-2-24-2010-amd2-2017>

DISH	Report on voting
61C/839/DISH	61C/853/RVDISH

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

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**SC 61C interpretation sheet on: Subclause 30.2 of IEC 60335-2-24:2010/AMD2:2017**

**Subclause 30.2 states:**

*"Add the following to the addition:*

*For accessible thermal insulation and non-metallic material on the external rear surfaces of an appliance having an area exceeding 75 cm<sup>2</sup> that is in direct contact with the thermal insulation, compliance is checked by the test of 30.2.101."*

**Question 1: Has this subclause to be interpreted as:**

*"Add the following to the addition:*

*For accessible thermal insulation and non-metallic material on the external rear surfaces of an appliance having a total area exceeding 75 cm<sup>2</sup> that is in direct contact with the thermal insulation, compliance is checked by the test of 30.2.101."*

**Subclause 30.2.101, final bullet point states:**

- *"that has an area not exceeding 75 cm<sup>2</sup> that is in direct contact with the thermal insulation is not tested. "*

**Question 2: Has this bullet point to be interpreted as:**

- *"that has a total area not exceeding 75 cm<sup>2</sup> that is in direct contact with the thermal insulation is not tested. "*

**Answers:**

Question 1 –

From Subclause 30.2 addition, the following materials shall be tested:

- 1) Accessible thermal insulation
- 2) Non-metallic material on the rear surface of the appliance having an area exceeding 75 cm<sup>2</sup> that is in direct contact with the thermal insulation

Small holes (< 3 mm<sup>2</sup>) in the outer case were not intended to be considered as "accessible thermal insulation". These small < 3 mm<sup>2</sup> holes are much smaller than the test probe B, so therefore the thermal insulation of 3 mm<sup>2</sup> holes is automatically not considered as accessible thermal insulation without additional evaluation.

When testing accessible thermal insulation, the test is intended to be performed by applying the flame to the accessible thermal insulation on the end product.

Question 2 – See question 1.

## FOREWORD

This amendment has been prepared by sub-committee 61C: Safety of refrigeration appliances for household and commercial use, 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/694/FDIS	61C/700/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 stability date indicated on the IEC website 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 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.

The contents of the interpretation sheet 1 of April 2018 and interpretation sheet 2 of March 2020 have been included in this copy.

## 2 Normative references

*Delete references IEC 60079-4A and IEC/TR 60079-20 from the existing list.*

*Add the following new reference:*

IEC 60079-20-1, *Explosive atmospheres – Part 20-1: Material characteristics for gas and vapour classification – Test methods and data*

*Replace the reference to ISO 817 by the following new reference:*

ISO 817, *Refrigerants – Designation and safety classification*

*Replace the reference to ISO 5149 by the following new reference:*

ISO 5149-1, *Refrigerating systems and heat pumps – Safety and environmental requirements – Part 1: Definitions, classification and selection criteria*



### 3 Terms and definitions

**3.109** Replace the term definition by the following:

refrigerant with a flammability classification of A2L, A2 or A3 in accordance with ISO 817

### 5 General conditions for the tests

**5.3** Replace the last paragraph of the addition by the following:

The tests of 15.101.1, 15.101.2, 15.103 and 15.104 are carried out immediately after the test of 15.2.

### 7 Marking and instructions

**7.1** In the first paragraph, third dashed item, delete “only”.

In the first paragraph, fifth dashed item, add “or its service agent” after “manufacturer”.

In the eleventh paragraph, replace “the symbol “Caution: risk of fire” with “the symbol ISO 7010 W021”.

**7.6** In the note, replace “the symbol “Caution: risk of fire” with “the symbol ISO 7010 W021”.

**7.12** Add the following:

If symbol ISO 7010 W021 is used, its meaning shall be explained.

The instructions for **refrigerating appliances** and **ice-makers** shall include the substance of the following:

**WARNING:** When positioning the appliance, ensure the supply cord is not trapped or damaged.

**WARNING:** Do not locate multiple portable socket-outlets or portable power supplies at the rear of the appliance.

**7.14** In the first paragraph, replace “the symbol “Caution: risk of fire” with “the symbol ISO 7010 W021”.

**7.15** In the second paragraph, replace “the symbol “Caution: risk of fire” with “the symbol ISO 7010 W021”.

### 15 Moisture resistance

Replace Subclauses 15.101, 15.102 and 15.103 by the following:

**15.101** Appliances subject to spillage of liquid from containers onto the inside walls of the cabinet or compartment shall be constructed so that such spillage does not affect their electrical insulation.

Compliance is checked by the relevant tests of 15.101.1 and 15.101.2 using the spillage solution specified in 15.2.

**15.101.1** The apparatus shown in Figure 101 is filled with the spillage solution to the level of the lip, and the displacement block is supported just above the solution by means of any suitable release mechanism and bridge support.

All shelves and containers which can be removed without the use of a **tool** are removed and the appliance is disconnected from the supply. Lamp covers are not removed.

The apparatus is supported with its base horizontal and so positioned and at such a height that when the release mechanism is operated, the solution is discharged over the back and side interior walls of the cabinet or compartment including any electrical components mounted thereon, in the most unfavourable manner. The test is made only once with the apparatus in any one position, but the test may be repeated as many times as necessary in different positions, provided that there is no residual solution on parts wetted by a previous test.

Immediately after the test, the appliance shall withstand the electric strength test of 16.3 and inspection shall show that there is no trace of the solution on insulation which could result in a reduction of **clearances** and **creepage distances** below the values specified in Clause 29.

Furthermore, if the inspection shows that the solution is in contact with the defrost heating element or its insulation, then the complete heating element shall withstand the test of 22.102.

**15.101.2** A rectangular container having dimensions of 200 mm x 110 mm and a height of 50 mm is filled with 0,5 l of the spillage solution.

The container is positioned, with its longest side parallel to the wall to be tested, on the highest shelf on which it will fit, the shelf shall have a clearance to the ceiling of the compartment of at least 130 mm. All other shelves and containers which can be removed without the use of a **tool** are removed. Lamp covers are not removed.

The appliance is disconnected from the supply and the solution in the vessel is discharged over the back and side interior walls of the cabinet or compartment including any electrical components mounted thereon, in the most unfavourable manner within a period of 2 s. The test is made only once with the container in any one position, but the test may be repeated as many times as necessary in different positions, provided that there is no residual solution on parts wetted by a previous test.

Immediately after the test, the appliance shall withstand the electric strength test of 16.3 and inspection shall show that there is no trace of the solution on insulation which could result in a reduction of **clearances** and **creepage distances** below the values specified in Clause 29.

Furthermore, if the inspection shows that the solution is in contact with the defrost heating element or its insulation, then the complete heating element shall withstand the test of 22.102.

**15.102** Appliances subject to spillage of liquid onto the top of the cabinet shall be constructed so that such spillage does not affect their electrical insulation.

Compliance is checked by the relevant tests of 15.103 and 15.104. The spillage solution specified in 15.2 is used for the test of 15.103.

**15.103** Appliances, other than **built-in appliances**, **ice-makers** and **ice-cream appliances** are tilted at an angle of up to 2° in relation to the position of normal use in the direction which is likely to be the most unfavourable for this test. One half-litre of the spillage solution is poured uniformly over the top of the appliance in approximately 60 s at the most unfavourable place from a height of approximately 50 mm with the controls in the on position and the appliance disconnected from the supply.

*Immediately after the test, the appliance shall withstand the electric strength test of 16.3 and inspection shall show that there is no trace of the solution on insulation which could result in a reduction of **clearances** and **creepage distances** below the values specified in Clause 29.*

## 20 Stability and mechanical hazards

**20.101** *In the last paragraph of the test specification, replace “tip” by “tilt by more than 2° from the horizontal position”.*

*Delete Note 2 and replace “NOTE 1” by “NOTE”.*

**20.104** *Replace the second paragraph by the following:*

*Each sliding drawer accessible without opening a door is loaded with a uniformly distributed load/unit storage volume of the compartments of 0,5 kg/l.*

## 21 Mechanical strength

*Add the following new subclause:*

**21.1** *Addition:*

*For accessible glass panels, the impact energy is  $1,00 \text{ J} \pm 0,05 \text{ J}$ .*

## 22 Construction

**22.109** *Add the following to the end of fourth paragraph of the test specification:*

*"using a capillary tube having a diameter of  $0,7 \text{ mm} \pm 0,05 \text{ mm}$ ."*

*Add the following before the existing penultimate paragraph of the test specification:*

*If the electrical component under consideration is situated within a separate enclosure and if the refrigerant can stagnate within that enclosure, then the direction of refrigerant injection shall be from the pipework joint under consideration towards any opening (such as ventilation slots or cable entry ducts) in the separate enclosure.*

**22.110** *In the requirement, replace “ignition” by “auto-ignition”.*

*Replace Table 102 by the following:*