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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

ICS 97.040.01

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GB 4706.29-2008

Replacing GB 4706.29-1992

Household and similar electrical appliances - Safety - Particular requirements for portable induction cooker

家用和类似用途电器的安全 便携式电磁灶的特殊要求

Issued on: December 31, 2008

Implemented on: February 01, 2010

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine;**

**Standardization Administration of the People's Republic of
China.**

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Foreword

All the contents of this part are mandatory.

This part shall be used in conjunction with GB 4706.1-2005 “Household and similar electrical appliances - Safety - Part 1: General requirements” and its revisions.

In this part, the part which is “applicable” indicates that the corresponding provisions in GB 4706.1-2005 apply to this part; the part which is “replaced” or “modified” shall be based on this part; the part which is “added” indicates that it shall, in addition to the corresponding provisions of GB 4706.1-2005, also comply with the provisions added in this part.

This part replaces GB 4706.29-1992 “Safety of household and similar electrical appliances - Particular requirements for electromagnetic cookers”.

The main differences between this part and GB 4707.29-1992 are as follows:

- 1) The name of the part and the applicable product are different: This part is entitled “Particular requirements for portable induction cooker”, which defines that the applicable products are applicable portable induction cooker, and the non-portable induction cooker shall be tested in accordance with the requirements of GB 4706.22; GB 4706.29-1992 also applies to non-portable induction cookers;
- 2) In this part, it adds the normative references in Clause 2;
- 3) In this part, it clearly defines the test container, load, test method, etc. (3.1.9);
- 4) In this part, it introduces relevant definitions in Clause 3 (3.101 ~ 3.104);
- 5) This part defines that portable induction cookers shall be tested in accordance with the requirements of motor-driven appliances (5.101). The provisions of GB 4706.29-1992 stipulate that Clause 10 shall be tested as the requirements of motor-driven appliances, and Clause 11 shall be tested as electric appliances.
- 6) Clause 13 requirements and test methods are different;
- 7) The requirements and test methods for Clause 15 overflow tests are different (15.2);
- 8) Clause 16 requirements and test methods are different;
- 9) In this part, it cancels the durability test (Clause 18 does not apply);

Household and similar electrical appliances - Safety - Particular requirements for portable induction cooker

1 Scope

This clause of GB 4706.1-2005 is replaced by the following.

This part is applicable to portable induction cookers for household and similar purposes the rated voltage of which does not exceed 250 V. The electromagnetic heating part in gas and electric combined household and similar cookers shall comply with this part.

Practically speaking, this part deals with the usual dangers posed by appliances that are encountered by all persons in and around the residence.

However, this part generally does not consider:

- The use of appliances by unsupervised young children and disabled persons;
- Children play with the appliance.

Note 1: Note the following:

- Some additional requirements may be required for appliances intended for use on vehicles, ships or aircraft;
- In many countries, the additional requirements are regulated by the national health care department, the department responsible for labor protection, the national water supply department and similar departments.
- For measurements involving electromagnetic compatibility and electromagnetic radiation, it requires to refer to relevant standards.

Note 2: This part does not apply to:

- Appliances used in special environments, such as corrosive or explosive environments (dust, vapor or gas);
- Appliances intended for commercial use (but some of the requirements can be referred to by these devices);
- Microwave oven (GB 4706.21);

The hotplate which heats at least one metal container by eddy current.

Note 1: Eddy currents are induced at the bottom of the vessel by the electromagnetic field of a coil.

3.102

Induction cookers

A portable appliance equipped with at least one induction hotplate.

3.103

Cooking zone

The indicated area on the surface of the appliance where the container is placed when heating the food.

Note: When a hotplate projects from the induction hotplate, the surface is the cooking area.

3.104

Touch control

A controller that is started by the contact or proximity of a finger while the contact surface moves little or not at all.

4 General requirements

This clause of GB 4706.1-2005 is applicable.

5 General conditions of test

This clause of GB 4706.1-2005 is applicable except as follows.

5.2 ADD:

Note 101: If the test of 15.101 is required, it needs to add three samples.

5.3 ADD:

If it is clear from the structure of the appliance that a functional test is not more severe than the test of another function, the test of this function does not need to be carried out.

5.6 ADD:

For appliances with appliance receptacles and appliances partially or completely immersed in water during cleaning, the instructions shall state that the connector must be removed from the appliance before cleaning and the appliance receptacle must be wiped dry before the appliance is used again.

For appliances that use connectors with temperature controls, the instructions shall state that they must be used with the mating connector.

For appliances intended for outdoor use, the instructions shall include the following:

- Appliances suitable for outdoor use;
- It is necessary to check the power cord regularly for damage. Do not use the appliance if the power cord is damaged.
- The appliance must be powered by a residual current breaker (RCD) rated at no more than 30 mA;
- The appliance shall be connected to a socket with a grounding pin (for category I appliances).

For appliances with non-working accessible metal surfaces that have a temperature rise of more than 90 K as mentioned in clause 11, the instructions shall include the following:

During the operation of the appliance, certain surfaces are very hot.

If the appliance is marked with the symbol of IEC 60417-5041 (DB: 2002-10), the instructions shall indicate that the surface will become hot during use.

If the surface of the induction hotplate surface that protects live parts is made of glass or similar fragile material, its instructions for use shall include the following warning:

Warning: If the surface is cracked, turn off the appliance to avoid possible electric shock.

The instructions for use of the appliance shall include the following:

Metal objects such as knives, forks, spoons, and lids shall not be placed on the surface of the cooking area as they may become hot.

7.14 ADD:

In the symbol of IEC 60417-5041 (DB:2002-10), the height of the triangle shall be at least 12 mm.

7.15 ADD:

The test shall be carried out four times or more, and then the electric strength test of 16.3 shall be carried out. The test voltage shall be as specified in Table 4.

After the fifth immersion, the appliance with the largest leakage current shall be dismantled for inspection. There shall be no water traces on the insulation surface that cause electrical clearances and creepage distances less than the values specified in clause 29.

The remaining two samples work at 1.06 times rated voltage for 240 hours. After completing this cycle, the connector is removed or the appliance power is disconnected to repeat the test. Then the electric strength test of 16.3 is performed. The test voltage is as specified in Table 4.

There shall be no water traces on the insulation surface that cause electrical clearances and creepage distances less than the values specified in clause 29.

16 Leakage current and electric strength

This clause of GB 4706.1-2005 is applicable except as follows.

16.1 ADD:

The container required for normal operation shall be placed on the cooking area during the test.

16.2 ADD:

If there is a grounded metal between live parts and glass, ceramic, or similar material, each container is connected to ground metal one by one. Leakage current shall not exceed 0.75 mA. If there is no grounded metal between the live parts and glass, ceramic or similar material, the leakage current between the live parts and each container is measured in turn and shall not exceed 0.25 mA.

16.3 ADD:

If there is a grounded metal between the live parts and glass, ceramic or similar material, the containers are connected together with the ground metal. The test voltage between the live parts and the container is 1250 V. If there is no grounded metal between live parts and glass, ceramic or similar material, the test voltage between the live parts and the connected container is 3000 V.

17 Overload protection of transformers and related

circuited or failed.

The temperature rise of oil cannot exceed 270 K.

20 Stability and mechanical hazards

This clause of GB 4706.1-2005 is applicable.

21 Mechanical strength

This clause of GB 4706.1-2005 is applicable except as follows.

21.1 ADD:

For appliances intended for outdoor use, the impact energy increases to 0.7 J.

If the surface of the induction hotplate made of glass, ceramic or similar material is not subject to the test of 21.101, three impacts are applied, the impact energy is increased by $0.70 \text{ J} \pm 0.05 \text{ J}$. The impact is not applied on the surface within 20 mm from the button.

Note 101: If the surface of the induction cooker is made of a whole piece other than the outer frame, the impact energy does not have to be increased to 0.7 J.

Note 102: Impact testing is under consideration for appliances with non-planar cooking surfaces.

21.101

The surface of the induction cooker made of glass, ceramic or similar material shall withstand the pressure that may occur during normal use.

The appliance is checked for compliance by the following test.

The induction hotplate works in accordance with the conditions specified in clause 11. When steady state is reached, the induction hotplate is de-energized and a container with a heavy object is dropped from the height of 150 mm to the cooking area for 10 times.

The bottom of the container is made of copper or aluminum, the flat bottom part has a diameter of $120 \text{ mm} \pm 10 \text{ mm}$, the edge has a circle diameter of at least 10 mm. At least 1.3 kg of sand or granules are uniformly placed in the container so that the total mass reaches $1.80 \text{ kg} \pm 0.01 \text{ kg}$.

Each cooking area shall be subject to 10 times of this impact in turn. The container is removed and the appliance is allowed to work at the rated input power to reach a steady state.

inlet;

- The temperature-rise of current-carrying parts specified in clause 21 has not been determined.

Note: Connectors conforming to GB 17465.1 (eqv IEC 60320-1) shall not be equipped with temperature controllers.

24.101

Temperature controller and energy conditioners with an open position shall not be switched on due to ambient temperature changes.

The following tests are performed on three devices to check their eligibility.

The appliance is set in the off position, placed at a temperature of -20_{-3}°C for 2 h, then put it in the following ambient temperature:

- $t^{\circ}\text{C}$, t is the temperature of the T mark of the element.
- 55°C , element temperature without T mark.

During the test, it shall be kept in the off position.

The 500 V test voltage is applied to the contact for 1 min. Breakdown shall not occur.

25 Power connection and external cord

This clause of GB 4706.1-2005 is applicable except as follows.

25.1 ADD:

In addition to being fitted with appliance inlets conforming to the provisions of GB 17465.1 (eqv IEC 60320-1), other input inlets provided with appliances shall be provided with cord assemblies.

25.7 ADD:

The power cord sheathing of appliances intended for outdoor use shall be line No.57 of GB 5013.1 (eqv IEC 60245).

26 Terminals for external conductors

This clause of GB 4706.1-2005 is applicable.

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