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NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

ICS 97.120

CCS K 32

GB/T 22685-2021

Replacing GB/T 22685-2008

**Packaging and Label on Controls for Household and
Similar Use**

家用和类似用途控制器的包装和标志

Issued on: May 21, 2021

Implemented on: December 1, 2021

Issued by: State Administration for Market Regulation;

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

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Packaging and Label on Controls for Household and Similar Use

1 Scope

This Standard specifies the basic requirements for transport packaging, the technical requirements for packaging box, the requirements for packaging, the basic requirements for product packaging protection, test methods, the marks of packaging box, as well as the accompanying documents and inspection rules of controls and protectors for household and similar use.

This Standard is applicable to the transport packaging and marks of voltage, current and temperature controls and protectors for household and similar electrical appliances.

2 Normative References

Through the normative references in this text, the contents of the following documents constitute the indispensable clauses of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 191 Packaging - Pictorial Marking for Handling of Goods

GB/T 462 Paper, Board and Pulp - Determination of Moisture Content of Analytical Sample

GB/T 1931 Method for Determination of the Moisture Content of Wood

GB/T 2423.3 Environmental Testing - Part 2: Testing Method - Test Cab: Damp Heat, Steady State

GB/T 2828.1-2012 Sampling Procedures for Inspection by Attribute - Part 1: Sampling Schemes Indexed by Acceptance Quality Limit (AQL) for Lot-by-lot Inspection

GB/T 2829 Sampling Procedures and Tables for Periodic Inspection by Attributes (apply to inspection of process stability)

GB/T 4857.3 Packaging - Basic Tests for Transport Packages - Part 3: Stacking Test Methods Using a Static Load

GB/T 4857.4-2008 Packaging - Basic Tests for Transport Packages - Part 4:

3 Terms and Definitions

What is defined in GB/T 31269, and the following terms and definitions are applicable to this document.

3.1 Heat Preservation Carton

Heat preservation carton is a fiberboard box made of PS board (polystyrene) as the main material, together with aluminum foil and kraft paper, and with the functions of cold resistance, heat resistance and heat preservation.

3.2 Zipper Carton

Zipper carton is a fiberboard box that adopts super hard corrugated and tear-open design, which cannot be restored after opening.

3.3 Waterproof Carton

Waterproof carton is a fiberboard box coated with polyolefin, polycarbonate, polyamide, polyester and molten paraffin on the surface of the fiberboard, which can prevent the penetration of external water droplets.

4 Basic Requirements for Product Packaging

4.1 Products shall be qualified in the inspection, and have complete accessories and spare parts, instruction manual and certificate (or product warranty), and with proper protection and related packaging work before proceeding to the outer packaging.

4.2 The packaging materials shall be dry and tidy. The packaging materials in direct contact with the product shall have no corrosive effect or other adverse effects on the product.

4.3 The packaging environment shall be dry, clean and free of detrimental media. Product packaging shall be carried out at room temperature, with a relative humidity not greater than 85%.

4.4 Product packaging shall comply with the principles of firmness, economic efficiency and aesthetics.

4.5 Product packaging shall adopt different packaging forms, packaging materials and protection methods in accordance with product characteristics, and storage, transportation, loading and unloading conditions to achieve compact, well-protected, safe and reliable packaging.

4.6 From the date of shipment, under normal storage and transportation conditions,

h---the height of the packaging box itself, expressed in (cm);

S---the bottom area of the packaging box, expressed in (cm²).

5.2 Wooden Box

5.2.1 Requirements for materials

The materials of the wooden box shall comply with the following requirements:

- a) The moisture content of the materials shall be 23% ~ 30%;
- b) The wood shall manifest no phenomenon of decay, mildew, water collapse, damage or whole-piece sandwiching; the defects of the wood shall not affect the strength of its structure;
- c) The mass of the plywood shall be selected in accordance with the stipulations of GB/T 9846 and GB/T 19536;
- d) The fiberboard shall be selected in accordance with the stipulations of GB/T 12626 (all parts);
- e) The particleboard shall be selected in accordance with the stipulations of GB/T 4897;
- f) For wooden boxes with an outer packaging mass of over 25 kg, the thickness of the boxboard shall not be less than 12 mm;
- g) The wood packaging materials for export products need to be fumigated and insect-proof in accordance with the stipulations.

5.2.2 Requirements for box-nailing

The box-nailing shall comply with the following requirements:

- a) In accordance with the size and material strength of the boxboard, box stop and frame structural components, the steel nails for box-nailing shall be reasonably used;
- b) The box stop of the wooden box shall adopt zigzag-shaped cloth nails (see Figure 1);

The honeycomb fiberboard box shall comply with the stipulations of GB/T 31269.

5.4 Calcium Plastic Corrugated Box

5.4.1 Requirements for tear force

The tear force shall be not less than 80 N.

5.4.2 Requirements for low-temperature folding resistance

After the test, there shall be no cracks in the bending part of the sample. If there are cracks on one or more of them, then, it shall be determined as disqualified in the inspection.

5.4.3 Requirements for compression resistance of empty box

The compression resistance of two empty sample boxes shall be not less than 5,500 N.

5.5 Coated Box

The coated box shall comply with the stipulations of GB/T 10335.5.

5.6 Other Types of Packaging Box

The materials, molding and nailing of other types of packaging box, such as: heat preservation carton, zipper carton and waterproof carton, shall be determined by the demand-side and the supply-side through negotiation.

6 Requirements for Packaging

6.1 Product Placement and Packaging

The requirements for the placement and packaging of the product are as follows:

- a) When placing the product, the center of gravity should be centered and lowered as much as possible to increase the stability. Products with a high center of gravity shall be horizontally placed. For products whose center of gravity significantly deviates from the center, corresponding balancing measures shall be taken;
- b) The product or the inner packaging box shall be firmly padded and fixed inside the outer packaging box. In the packaging box, the product shall not be shifted or loose. The modes of fixation include: plugging with shock-proof materials, positioning and fastening with wooden blocks, and tightening with screws, etc. The shock-proof cushion and the bottom board of the box shall not be less than 10 mm. If necessary, in accordance with the stipulations of GB/T 8166,

- a) When corrugated box is used for the outer packaging, apply moisture-proof coatings, for example, varnish and white wax on the outer surface of the box (except for paper sheets that have received moisture-proof treatment and wood pulp-holding kraft paper sheets). In accordance with the product characteristics, select moisture-proof padding in the box. During sealing, use pressure-sensitive tapes or sturdy kraft papers to seal the joints of the upper and lower openings and the joints at both ends;
- b) When a wooden box is used for the outer packaging, and the inner packaging has no moisture-proof packaging, the inner top shall be sealed with linoleum, asphalt paper, wax paper or equivalent moisture-proof materials;
- c) The selection, dosage and disposal of moisture-proof materials and desiccants in the packaging shall be considered in accordance with the product characteristics, storage and transportation conditions, and the requirements for packaging modes and packaging validity period, and comply with the relevant stipulations of Appendix A in GB/T 5048-2017;
- d) For the coated products, when covered or wrapped with polyvinyl chloride plastic films, measures shall be taken to prevent them from coming into direct contact with the paint layer;
- e) When the outer packaging does not have moisture-proof measures, or the wood chips and paper chips are not dried, the wood chips and paper chips cannot be used as the padding of the product.

7.1.2 After the moisture-proof package is subjected to the damp heat test specified in 8.3, the appearance quality and related performance of the product shall comply with the requirements specified in the product standard; there shall be no condensation in the box.

7.1.3 When the customers put forward the request for waterproofing, the packaging shall comply with the stipulations of GB/T 7350.

7.2 Anti-rust Requirements

7.2.1 The easily rusty metal surface on the product shall be packaged in accordance with Grade-2 in GB/T 4879-2016. When the anti-rust period is 1 year, the dirt and oil stains shall be removed, then, be cleaned, sealed and packaged.

7.2.2 After receiving the damp heat test specified in 8.3, the appearance of the rust-proof packaging product shall not manifest any phenomenon of condensation, mildew or rust; the relevant technical performance shall comply with the corresponding standards.

7.3 Shock-proof Requirements

8.3 Damp Heat Test

In accordance with the stipulations of GB/T 2423.3, conduct the test. The test duration is: for corrugated box, 2 d; for wooden box, 4 d. After the test, after recovering for 2 h under room-temperature condition, open the box to check the product.

8.4 Compression Resistance and Shock-proof Tests

8.4.1 Compression resistance test

8.4.1.1 Compression resistance of empty box

In accordance with the stipulations of 3.5.1 in GB/T 4857.4-2008, conduct the test. The empty box is not adjusted for temperature and humidity; the pressure load shall be determined in accordance with Formula (1).

8.4.1.2 Compression resistance of package

It may be carried out through direct stacking test or compression test. Before and after the test, the height h of the package shall be recorded. See the specific requirements below:

- a) Packages for the direct stacking test are not adjusted for temperature and humidity. In accordance with the stipulations of GB/T 4857.3, conduct the test; the test duration is 7 d;
- b) Packages for the compression test must firstly be adjusted for temperature and humidity. Under the conditions of an indoor temperature of $(20 \pm 2) ^\circ\text{C}$ and a relative humidity of 60% ~ 70%, place it for 48 h. At room temperature, restore it for 24 h, then, conduct the compression test; the test duration is: for carton, 2 d; for wooden box, 4 d.

During the compression test, the stress surface of the box is "2" side.

The total load of direct stacking and applied pressure is shown in Formula (2).

$$F = KG \frac{(H - h)}{h} = 2G \times \left(\frac{3.5 - h}{h} \right) \times 9.8 \quad \dots\dots\dots (2)$$

Where,

F ---the total load of stacking or applied pressure, expressed in (N);

K ---the deterioration coefficient in transportation and storage, which shall take 2;

G ---the mass of package, expressed in (kg);

H ---the maximum storage height allowed in storage, expressed in (cm), which shall

h; carry out the test under this condition. If it cannot be carried out under this condition, the specimen may be taken out and tested within 5 min. Use tape to seal the upper cover and lower bottom of the box being tested. Then, place it flat between the two pressing plates of the testing machine, so that the center line of the specimen coincides with the center vertical line of the two pressing plates of the testing machine. The test speed is (10 ± 2) mm/min. Record the pressure value, accurate to 1 N.

8.5.4 For particleboard and other types of packaging materials, the physical and mechanical property test shall be conducted in accordance with the relevant requirements.

9 Marks and Accompanying Documents of Packaging Box

9.1 Shipping Marks and Colors

9.1.1 The shipping marks and colors shall comply with the stipulations of GB/T 6388.

9.1.2 In addition to what is mentioned above, there shall also be the following marks:

- a) Manufacturer's name, trademark and product name;
- b) Model, specification and quantity;
- c) Necessary marks required by relevant national departments;
- d) Maximum dimensions of the box (length $\times$ width $\times$ height), cm;
- e) Gross weight and net weight (if necessary), kg;
- f) Exit-factory No. or contract No. (if necessary, add box No.);
- g) Packing date (year, month).

9.2 Pictorial Marking for Packaging of Goods

The pictorial marking for packaging of goods shall comply with the relevant stipulations of GB/T 191.

9.3 Position of Marks

9.3.1 "1", "3" sides (front and back)

Indicate the product name, model and specification, quantity, and name of the receiving and dispatching organization, etc. (see Figure 4).

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