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NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB/T 21001.2-2015 / ISO 23953-2:2005

Replacing GB/T 21001.2-2007

Refrigerated display cabinets - Part 2: Classification, requirements and test conditions

(ISO 23953-2:2005, IDT)

制冷陈列柜

第 2 部分：分类、要求和试验条件

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Foreword

GB/T 21001 “Refrigerated display cabinets” consists of 3 parts:

- Part 1: Vocabulary;
- Part 2: Classification, requirements and test conditions;
- Part 3: Test rating.

This Part is Part 2 of GB/T 21001.

This Part is drafted according to the rules given in GB/T 1.1-2009 and GB/T 20000.2-2009.

This Part replaces GB/T 21001.2-2007 “Refrigerated display cabinets - Part 2: Classification, requirements and test conditions”. Compared with GB/T 21001.2-2007, the main differences of this Part are as follows:

- MODIFY the requirements for the installation location of temperature sensors;
- REARRANGE the order of Table 3 according to the moisture content;
- ADD the requirements for the relation BETWEEN cabinet placement AND air movement direction of vertical refrigerated cabinets and semi-vertical refrigerated cabinets;
- DELETE the test package with a dimension of 37.5 mm × 100 mm × 200 mm and a quality of 750 g in Table 4 of 5.3.1.4;
- ADD the content of new clause 5.3.1.6 “Alternative for filling test packages”;
- ADD the placement requirements for the air deflector of vertical plug-in cabinets and Figure 10 in 5.3.2.1;
- MODIFY the requirements about air movement direction when the door is opened on the second and third paragraphs of 5.3.2.2;
- DELETE the test package with a dimension of 37.5 mm × 100 mm × 200 mm in 5.3.2.3.1;
- ADD relevant requirements for the use of European standard pallets at the end of 5.3.2.3.1;
- MODIFY the tolerance on the loading height in 5.3.2.3.2 a);
- ADD the explanatory notes for refrigerated cabinet for sensitive foodstuffs in

This Part has the following editorial modification:

- ADD the content of ISO 23953-2:2005's amendment Amd.1:20012 (E).

This Part was proposed by the Ministry of Commerce of the People's Republic of China.

This Part shall be under the jurisdiction of the National Standardization Technical Committee on Refrigeration (SAC/TC 119).

Drafting organizations of this Part: Internal Trade Engineering Design & Research Institute, Dalian Sanyo Cold Chain Co., Ltd., Qingdao Haier Special Freezer Co., Ltd., Hisense Rongsheng (Guangdong) Freezer Co., Ltd., Yindu Kitchen Equipment Co., Ltd., Guangdong Star Refrigeration Equipment Co., Ltd., Qingdao Haier Carrier Refrigeration Equipment Co., Ltd., AHT Refrigeration Equipment System (Changshu) Co., Ltd., Shanghai Highly Nakano Refrigeration Equipment Co., Ltd., Jiangsu Snow Electrical Appliance Co., Ltd., Qingdao Hairong Commercial Cold Chain Co., Ltd., Shandong Xiaoya Retail Equipment Co., Ltd., Aucma Co., Ltd., Shandong Fergus Electrical Appliance Co., Ltd., Hoshizaki Electric (Suzhou) Co., Ltd., Shanghai General Fushi Refrigeration Equipment Co., Ltd., Epta (Qingdao) Commercial Facilities Co., Ltd., Changshu Der Electrical Appliance Co., Ltd., Wenling Arctic Ocean Fresh Refrigerated Cabinet Plant, Beijing Synergy Vacuum Glazing Technology Co., Ltd., Tianjin University of Commerce, Jimei University, Beijing University of Technology, China Refrigeration Institute, National Quality Supervision and Inspection Center for Commercial Refrigeration Equipment.

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This Part was first-time issued in July, 2007. This is the first revision.

Refrigerated display cabinets – Part 2: Classification, requirements and test conditions

1 Scope

This Part of GB/T 21001 specifies requirements for the construction, characteristics and performance of refrigerated display cabinets used in the sale and display of foodstuffs. It specifies test conditions and methods for checking that the requirements have been satisfied, as well as classification of the cabinets, their marking and the list of their characteristics to be declared by the manufacturer.

This Part is not applicable to refrigerated vending machines or cabinets intended for use in catering or similar non-retail applications; nor does it cover the choice of the types of foodstuffs chosen to be displayed in the cabinets.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 21001.1-2015 Refrigerated display cabinets - Part 1: Vocabulary (ISO 23953-1:2005 + Amd.1:2012 (E), IDT)

ISO 817 Refrigerants - Designation system

ISO 9050 Glass in building - Determination of light transmittance, solar direct transmittance, total solar energy transmittance and ultraviolet transmittance, and related glazing factors

IEC 60335-2:89 Safety of household and similar electrical appliance - Part 2: Particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant condensing unit

EN 378-2 Refrigerating systems and heat pumps - Safety and environmental requirements - Part 2: Design, construction, testing, marking and documentation

EN 60335-1 Safety of household and similar electrical appliances - Part 1: General requirements

during the running-in period (see also 5.3.2.4) at a temperature equal to the lower limit of the M-package temperature class with a tolerance (0°C, +2°C).

1 000 g packages and 500 g packages should be used.

To complete the loading, use test packages of the following sizes as fillers:

- 25 mm × 100 mm × 200 mm.

The test packages shall be arranged so as to form an even level.

Each refrigerated shelf area shall be loaded with test packages arranged in such a way that they form rows with a length of 200 mm by the depth of the cabinet in the direction of the airflow in the cabinet.

A clearance of 25 mm ± 5 mm shall be left between package rows and adjacent to the internal end walls of the cabinet.

It is permitted to use partitions with a thickness of approximately 25 mm to position the packages on condition that they have minimal effect on normal airflow and minimal thermal conduction.

Lengthways, any remaining spaces shall be filled with test packages to obtain one or two adjustment rows of which the width can measure from 100 mm up to 300 mm.

Depth-wise, any remaining spaces of less than 25 mm wide shall be filled with wooden vertical dividers, placed approximately midway along the space between two M-packages.

For roll-in cabinets or multi-deck cabinets with a loading height above 500 mm (see Figure 25), some wood loading may be used. The thickness of each layer is not specified. (EXAMPLE: Varnished pieces of exterior grade beech plywood with good water resistance, 200 mm × 50 mm by the depth of loading.) If not otherwise stated in the manufacturer's handbook/instructions or marked inside the cabinet, the packages and the wood shall be loaded on standard Euro pallets (1200×800×144) mm or, if not applicable, on a similar tray of the same height. The surface of the pallet should be covered by a sheet of plastic or carton so that the packages can be loaded properly. If the cabinet is designed for the use of special storage trolleys, these trolleys shall be used for testing. In this case, the M-packages shall be positioned as specified in Figure 25, but inside the trolleys.

Note: Sensitive foodstuff loading type can be possible only for the top part (shelves) of this type of cabinet.

Metallic grids can be used to support the test package loading on M-package rows and the adjacent ones.

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