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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 42125.3-2024

Safety requirements for electrical equipment for measurement, control and laboratory use - Part 3: Particular requirements for refrigerating equipment

测量、控制和实验室用电气设备的安全要求 第3部分：制冷设备的特殊要求

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Standardization Administration of the PRC

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1.Structure and drafting rules for standardization documents" Drafting. This document is Part 3 of GB/T 42125 "Safety requirements for electrical equipment for measurement, control and laboratory use". The following parts have been published.

1.General requirements;

2.Particular requirements for laboratory equipment for heating materials;

3.Particular requirements for refrigeration equipment;

4.Particular requirements for climate and environmental tests and other temperature regulation equipment;

5.Particular requirements for laboratory centrifuges;

7.Safety requirements for hand-held and hand-operated probe assemblies for electrical measurement and test;

10.Particular requirements for insulation resistance measurement and dielectric strength test equipment;

14.Particular requirements for automatic and semi-automatic equipment for laboratory use for analytical and other purposes;

18.Particular requirements for control equipment;

19.Particular requirements for electric control valve actuators. This document is equivalent to IEC 61010-2-011.2019 "Safety requirements for electrical equipment for measurement, control and laboratory use Part 2-011 Part

1.Special requirements for refrigeration equipment. The following minimal editorial changes have been made to this document.

--- To coordinate with the existing standard, the name of the document is changed to "Safety requirements for electrical equipment for measurement, control and laboratory use Part 3. Particular requirements for refrigeration equipment";

1 Scope and Purpose

GB/T 42125.3-2024 carries the particular safety requirements for laboratory refrigerating equipment within the Chinese adoption of the IEC 61010 series. Laboratory refrigeration is a distinct hazard case from domestic: the appliances hold flammable solvents and volatile chemicals, they run unattended for years, they increasingly use flammable hydrocarbon refrigerants, and an ultra-low temperature freezer stores irreplaceable biological material whose loss is the real consequence of a failure. The standard modifies the general requirements clause by clause: the marking and documentation, the protection against electric shock, the protection against mechanical hazards and against those arising from the moving parts and the doors, the resistance to mechanical stress, the prevention of the spread of fire and the temperature limits, the protection against hazards from fluids, from released gases and substances and from explosion, which for a flammable refrigerant charge in an enclosed cabinet is the central requirement, the components and interlocks, and the tests that verify each. It takes effect on 1 November 2026.

Except for the following, Chapter 1 of GB/T 42125.1-2024 is applicable.

1.1.1 Equipment to which this document applies replace. Replace the second paragraph with the following. This document specifies the special safety requirements for the following types

c) of electrical equipment and their accessories, regardless of whether these equipment and their accessories are intended to be used. Wherever the equipment contains a

refrigeration system and directly controls the refrigeration system, whether the refrigeration system is an integral part of the equipment or It is independent of the device. This document specifies all requirements for refrigeration systems using no more than 150g of flammable refrigerant per stage. For flammable refrigerants injected in excess of this amount, additional requirements beyond the current scope of this document apply. Increase. Add the following after the last paragraph. NOTE 101 Examples of refrigeration equipment include, but are not limited to, laboratory equipment such as laboratory refrigerators, freezers, and refrigerated display cabinets. Equipment, in whole or in part, may fall within the scope of this document and of one or more other parts of IEC 61010. In certain cases, the requirements of those other parts also apply. In particular, if the equipment is intended to be used as a centrifuge, the requirements of IEC 61010-2-020 apply. However, if the equipment includes a cooling system and a heating function, when they are combined they may create additional hazards that are more severe than when they are separated. When risks arise, IEC 61010-2-012 may apply instead of this document. Further information is provided in the selection process flow chart (Figure 102) and guidelines in the Introduction.

1.1.2 Equipment not included in the scope of this document Increase. Add the following new item after item j). aa) Transcritical refrigerant systems (using CO2) or systems using ammonia (NH3) as the refrigerant.

1.2 Purpose

1.2.1 Aspects included in the scope of this document replace. Replace the first paragraph with the following. The purpose of this document is to ensure that refrigeration equipment is designed and constructed in a manner that provides operators with information on the specific hazards associated with refrigeration systems. Provide adequate protection for personnel, bystanders, trained maintenance personnel and the surrounding environment. Increase. Add the following note after the existing note. NOTE 101 A list of hazards associated with refrigeration systems and refrigerants is given in Appendix BB.