

ICS 27.200

CCS J 73



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 9237-2017

**[Including 2019XG1, 2020XG2] Refrigerating systems and heat
pumps -- Safety and environmental requirements**

Issued on: December 29, 2017

Implemented on: July 1, 2018

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China, Standardization
Administration of the People's Republic of China**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB 9237-2001 "Safety Requirements for Mechanical Refrigeration Systems for Refrigeration and Heating", compared with GB 9237-2001, except

The main technical changes outside the editorial changes are as follows.

---Adjusted the "use category" of the refrigeration system, and renamed it "classification of the use space", adjusted by the original A~E five use categories

Use space for a, b, c;

---Adjusted the classification of the refrigeration system;

--- Increased the classification of refrigeration system installation sites;

--- Modified the classification of refrigerants, directly using the classification method of GB/T 7778-2017;

--- Added requirements for the amount of refrigerant that can enter the space of use and calculation of the volume of space;

--- Added requirements related to heat transfer fluids;

--- Revised the 2001 version of the "design and manufacture of equipment" requirements;

--- Added requirements for the installation of refrigeration equipment;

--- Revised the 2001 version of the "use requirements";

--- Revised the 2001 version of the "running" requirements, adding new requirements for maintenance, overhaul and recycling;

--- Removed the 2001 edition of Appendix A, and revised it to a new content "Installation site and charge of refrigeration system", clearly flammable

Restrictions on the use of refrigerants;

--- Modified and improved Appendix B, and added relevant information on refrigerant safety classification;

--- Added Appendix C~Appendix R.

This standard uses the redrafting method to modify the ISO 5149-1~5149-4:2014 "Refrigeration System and Heat Pump Safety and Environmental Requirements"

Four parts.

This standard has more structural adjustments than ISO 5149:2014. This standard and ISO 5149:2014 are listed in Appendix R.

The chapter number is compared to the list.

There are technical differences between this standard and ISO 5149:2014. The corresponding technical differences and their causes are given in Appendix Q.

Watch list.

This standard also made the following editorial changes.

--- Removed the foreign flange standard for reference in 10.2.3.2 and revised it to refer to China's chemical industry standards;

--- In the notes of 10.2.3.3 and 10.2.3.8, the foreign copper pipe standards for reference are deleted and revised to refer to the country of China.

Standard GB/T 17791;

--- Revised the name of Appendix A, from "installation place of refrigeration system" to "installation place and charge amount of refrigeration system";

--- Removed the formula for using imperial units in Appendix J, leaving only the formula for the International System of Units.

This standard was proposed by the China Machinery Industry Federation.

This standard is under the jurisdiction of the National Refrigeration and Air Conditioning Equipment Standardization Technical Committee (SAC/TC238).

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Introduction

The chlorofluorocarbon (CFC) problem has accelerated the introduction of alternative refrigerants for industrial production. The emergence and fullness of new refrigerants and mixtures on the market

The introduction of new security levels has contributed to the revision of this standard.

The purpose of this standard is to promote the safe design, construction, disposal, installation and operation of refrigeration systems. This standard is directly related to the refrigeration system

Life and property safety at the site and its vicinity. It includes specifications for the entire manufacturing system.

This standard is used to reduce the hazards of refrigeration systems or refrigerants to life, property and the environment. These hazards and the physical and chemical properties of refrigerants

The temperature and pressure of the refrigeration and refrigeration cycles are closely related (see Appendix C).

Pay attention to common phenomena that cause damage to the compression system, such as high temperature exhaust, liquid hammer, mishandling, and corrosion, corrosion, and heat.

The mechanical strength of the force, fatigue stress, liquid hammer, vibration, etc. is weakened.

Corrosion requires special consideration of the special conditions of the refrigeration system due to alternating frosting, defrosting or covering insulation.

In addition to R717, the refrigerants normally used are heavier than air. The refrigerant vapor should be prevented by properly arranging the vents and exhaust ports.

The gathering. Mechanical ventilation by an oxygen-deficient alarm or refrigerant alarm is required in all equipment rooms.

Refrigeration systems and heat pump safety and environmental requirements

1 Scope

This standard specifies the personal and property safety requirements and environmental protection requirements related to refrigeration systems and heat pumps, and establishes refrigeration systems.

Procedures for operation, maintenance, overhaul, and refrigerant recovery.

This standard specifies the classification and selection principles of refrigeration systems and heat pumps and the limits of refrigerant charge.

This standard also specifies the requirements for the design, construction, and installation of refrigeration systems (including piping, components, materials, and auxiliary equipment that are directly connected to them).

Preparation), as well as requirements related to testing, commissioning, marking and documentation. Secondary heat transfer in addition to safety devices associated with refrigeration systems

The requirements for the loop are not included in this standard.

This standard also specifies the safety requirements associated with the installation site, which may be due to the needs of the refrigeration system and its accessories.

Yes, but not necessarily directly related.

The safety and environmental requirements specified in this standard also relate to the operation, maintenance and overhaul of refrigeration systems, as well as various refrigerants and systems.

Recycling, reuse and disposal of refrigerant oils, heat transfer fluids, refrigeration systems and their components.

This standard applies to.

- a) fixed or mobile refrigeration systems of all sizes, including heat pumps;
- b) secondary cooling or heating system;
- c) the installation location of the refrigeration system;
- d) parts or added parts that have been replaced after adopting this standard, if their functions and capabilities have changed before and after;
- e) New refrigeration systems, retrofits of legacy systems, variant systems, systems for