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

GB/Z 41285.5-2022

**Non-destructive testing instruments - Radiation protection rules for the technical
application of sealed radioactive sources - Part5:Building precautionary
measures of radiation protection for the gamma radiography**

无损检测仪器 密封放射性源技术应用射线防护规则 第5部分：γ射线机的预防护
措施

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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 of Standardization Documents" drafted. This document is part 5 of GB /Z 41285 "Rules for Radiation Protection of Non-destructive Testing Instruments Sealed Radioactive Source Technology Application". GB /Z 41285 has published the following parts.

1. Fixed and mobile operation of gamma-ray machines.

3. Radiation protection measures for gamma ray machines during operation and transportation.

4. Manufacture and testing of removable equipment for gamma ray machines.

5. Precautions for gamma ray machines.

6. Inspection, maintenance and functional testing of removable equipment for gamma ray machines. Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents. This document is proposed by China Machinery Industry Federation. This document is under the jurisdiction of the National Standardization Technical Committee of Testing Machines (SAC/TC122). This document is drafted by: Suzhou CTI Testing Technology Co., Ltd., Shenzhen Guoji Instrument Co., Ltd., Liaoning Instrument Research Institute Co., Ltd. Ren Company, General Electric Detection and Control Technology (Shanghai) Co., Ltd., Edson (Xiamen) Electronics Co., Ltd. The main drafters of this document. Zeng Xiaohu, Pang Yan, Yu Zhijun, Kong Fanqin, Lin Junming, Wang Lin.

Gamma rays are electromagnetic waves with a shorter wavelength and higher energy than X-rays, and have extremely strong penetrating power. Gamma-ray flaw detection is the use of The penetration and linearity of gamma rays are used to detect flaws. Because of this, when the human body is irradiated by gamma-rays, the gamma-rays enter the human body.

The ionization effect occurs with the cells in the body, and the ions generated by the ionization will erode the organic molecules in the body, such as proteins, enzymes, etc. Once the main components of living cell tissues are destroyed, the normal chemical processes in the human body will be disturbed, and in severe cases, cells may die. Death. The purpose of this document is to provide structural protection, operating conditions and environment, protective measures, etc. information, and then put forward suggestions on industrial gamma ray protection, labor safety, labor hygiene and other issues, and provide suggestions on ray protection methods, personal safety, etc. play a normative role. GB /Z 41285 is intended to be composed of 5 parts.

- 1.Fixed and mobile operation of gamma-ray machines. The purpose is to clarify the basic protection of gamma-ray machine during fixed and mobile operation. protection rules and requirements.
- 3.Radiation protection measures for gamma ray machines during operation and transportation. The purpose is for the use and operation of the gamma ray machine Provide effective and reliable radiation protection measures during transportation.
- 4.Manufacture and testing of removable equipment for gamma ray machines. The purpose is to provide a seal for gamma ray machine manufacturing and inspection Guidelines for the use of radioactive materials, and the safety measures established to protect the safety of those involved.
- 5.Precautions for gamma ray machines. The purpose is to provide recommendations for preventive measures for gamma ray machine operation.
- 6.Inspection, maintenance and functional testing of removable equipment for gamma ray machines. The purpose is to improve the mobile gamma ray machine Suggestions are made on inspection cycle, annual maintenance, and functional inspection of equipment to ensure that equipment can operate safely. Nondestructive testing instruments Radiation protection rules for the technical application of sealed radioactive sources Part

1 Scope

GB/Z 41285.5-2022 is the Chinese national standard on non-destructive testing instruments - radiation protection rules for the technical application of sealed radioactive sources - part5:building precautionary measures of radiation protection for the gamma radiography, in the field of testing. The /Z suffix marks it as a guiding technical document: it does not prescribe requirements that can be certified against, but sets out the technique, the method or the state of the art that the standards bodies recommend following. It was issued on 9 March 2022 by the State Administration for Market Regulation; Standardization Administration of China. As a guiding technical document it carries no separate date of entry into force: it applies from publication. Classification: ICS 19.100, CCS N78. This page is published from the official record of the standard held by the Chinese standards

administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies safety precautions for movable radiation equipment. This document applies to the safety protection for the installation and use of gamma ray machines.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB 18871-2002 Basic standard for ionizing radiation protection and radiation source safety
GB /Z 41285.1 Radiation Protection Regulations for Technical Application of Sealed Radioactive Sources for Nondestructive Testing Instruments Part

1. Gamma Radiation Exposure Fixed and removable handling of phase units GB /Z 41285.4
Radiation Protection Rules for the Technical Application of Sealed Radioactive Sources for Nondestructive Testing Instruments Part

4. Gamma Radiation Exposure Manufacture and testing of movable devices for phase use

3 Terms and Definitions

The terms and definitions defined in GB /Z 41285.4 apply to this document.

4 Body Dose Value Limits

Radiation protection measures and radiation protection equipment and accessories should ensure that the body dose value conforms to the provisions of GB /Z 41285.1.

5 Division of the control area

5.1 Determination of dose values in the workplace Radiation protection equipment, radiation protection doors, radiation protection walls, fences, windows, and warning equipment need to be considered when delineating the control area. And its related accessories can ensure that the personal dose value at the entrance of the control area should comply with the limits in GB /Z 41285.1. Relevant work involved The calculation of the workplace dose value shall be calculated according to GB /Z 41285.1.

5.2 Radiation protection wall The floor and ceiling of the space shall be taken into account when delimiting the control area by means of fixed radiation protection walls. Calculate

Floors as per Chapter 6 and the thickness of the ceiling, and meet the requirements of 5.1.

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