

ICS 19.100
CCS N78



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

GB/Z 41285.3-2022

**Non-destructive testing instruments - Radiation protection rules for the technical
application of sealed radioactive sources - Part 3: Organization of radiation
protection during handling and transport for 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3部分：γ射线机在操作和
运输过程中的射线防护措施

Issued on: March 9, 2022

Implemented on: March 9, 2022

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

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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 3 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: China Testing and Certification Group Co., Ltd., Edson (Xiamen) Electronics Co., Ltd., Liaoning Instrument Research Institute Co., Ltd., Institute of Applied Electronics, Chinese Academy of Engineering Physics, Guangdong Zhengye Technology Co., Ltd., Shanghai Yinghua Testing Section Technology Co., Ltd., General Electric Testing and Control Technology (Shanghai) Co., Ltd., Dandong Nondestructive Testing Equipment Co., Ltd., Bohai Shipyard Group Co., Ltd. Ltd. The main drafters of this document. Bao Tongwei, Lin Junming, Yu Zhijun, Chen Hao, Zhang Wenjuan, Li Bo, Kong Fanqin, Dong Diangang, Liu Chunwei.

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
- 3.Gamma ray machine during operation and transportation Radiation Protection Measures

1 Scope

GB/Z 41285.3-2022 is the Chinese national standard on non-destructive testing instruments - radiation protection rules for the technical application of sealed radioactive sources - part 3: organization of radiation protection during handling and transport for 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 rules for the operation of radioactive sources and radiation equipment and their inspection rules, the operation of radioactive sources in unfamiliar factories or facilities, road Licensing transportation regulations, verification of radiation measurement equipment and radiation protection guidance, etc. This document applies to the use and transportation of sealed radioactive source technology application equipment.

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 11806-2019 Regulations for Safe Transport of Radioactive Materials

GB 18871-2002 Basic standard for ionizing radiation protection and radiation source safety

3 Terms and Definitions

There are no terms and definitions that need to be defined in this document.

4 Operation and inspection rules of radioactive sources and radiation equipment

4.1 General The operation of radioactive sources in NDT requires the permission of the relevant regulatory agency. For stationary detection operations (storage, detection chamber/detection location) Requires local regulatory authority to permit the site of operation.

4.2 License to operate (license conditions) The operating license is as described in 4.3, 4.4, 4.5. The operating license usually contains the following.

- For permanent supervision during use (see 4.15);
- determine the individual dose (see 4.8);
- measure site dose during mobile operations;
- Implement radiation protection regulations;

- Functional inspection of radiation equipment (see 4.14);
- emergency equipment;
- Preventive protection measures. Additional things to be determined in the operating license.

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