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

GB/Z 41285.6-2022

**Non-destructive testing instruments - Radiation protection rules for the technical
application of sealed radioactive sources - Part 6: Inspection, service and
functional test of mobile apparatus 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6部分： γ 射线机用可移动
设备的检验、维护和功能检测

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and Definitions
- 4 Inspection cycle

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 6 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, Liaoning Rail Transit Vocational College, Edson (Xiamen) Electronics Co., Ltd., General Electric Detection and Control Technology (Shanghai) Co., Ltd., Shanghai Yinghua Nondestructive Testing Technology Co., Ltd. The main drafters of this document. Zeng Xiaohu, Guo Bing, Yu Zhijun, Cai Jing, Lin Junming, Kong Fanqin, Li Bo, 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
- 6.Removable equipment for gamma ray machines Inspection, maintenance and functional testing

1 Scope

GB/Z 41285.6-2022 is the Chinese national standard on non-destructive testing instruments - radiation protection rules for the technical application of sealed radioactive sources - part 6:inspection,service and functional test of mobile apparatus 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 the inspection period, annual maintenance, inspection of the source support before loading and functional inspection of the equipment for the portable gamma ray machine. This document applies to inspection, maintenance and functional testing of portable radiographic equipment.

Note. The user should carry out the test operation according to the functional equipment manual of the equipment, and carry out inspection and maintenance according to the conditions, types, time and parts specified by the manufacturer. Functional test.

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 /Z 41285.4
Nondestructive Testing Instruments - Radiation Protection Regulations for Technical Application of Sealed Radioactive Sources - Part

3 Terms and Definitions

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

4 Inspection cycle

On the basis of continuous maintenance in accordance with the manufacturer's requirements, an inspection should be carried out every three years in accordance with the requirements of the local relevant departments. response The entire radiographic equipment is inspected, and the inspected parts are marked for identification at any time. The radiographic equipment shall contain the following documents.

- Packaging license;
- Proof of equipment structure in accordance with GB /Z 41285.4;
- Proof of the most recent source change and source support protection performance;
- A record of the results of the last regulatory inspection and subsequent maintenance records by the manufacturer;
- Operation guide;

---Re-examination certificate. The radiation equipment has been verified by the relevant departments for its equipment integrity, wear, and deviations and omissions of related safety measures. For half-life exceeding 100d radionuclides (such as Co60), the source should also be checked. Inspection shall be carried out in accordance with the list in Appendix A. The final result should be completed in the appropriate column of this checklist. In addition, it should be Check again and record in the table in Appendix B.

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