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Translated by: www.ChineseStandard.net

Wayne Zheng et al.

Email: Sales@ChineseStandard.net

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GBZ

NATIONAL STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

GBZ 125-2009

Replace GBZ 125-2002 and GBZ 137-2002

Radiological Protection Requirements for Gauges Containing Sealed Radioactive Source 含密封源仪表的放射卫生防护要求

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Foreword

This Standard is formulated in accordance with the requirements of "Law of the People's Republic of China on Prevention and Control of Occupational Diseases".

Full text of this Standard is compulsory.

This Standard replaces "Radiological Protection Standards for Gauges Containing Sealed Radioactive Source" (GBZ 125-2002) and "Specifications of Radiological Protection Monitoring for Gauges Containing Sealed Radioactive Source" (GBZ 137-2002). From the date of implementation, GBZ 125-2002 and GBZ 137-2002 shall be abolished simultaneously.

Compared with GBZ 125-2002 and GBZ 137-2002, the main changes in this Standard are as follows:

- COMBINE GBZ 125-2002 and GBZ 137-2002 into this Standard;
- QUOTE GB 18871 for relevant contents such as "ionizing radiation mark";
- ADD relevant requirements of radioactive source safety and accident emergency requirements.

Appendix A of this Standard is normative; Appendixes B and C are informative.

This Standard was proposed by the Professional Committee for radiological health protection standard of Ministry of Health.

This Standard was approved by the Ministry of Health of the People's Republic of China.

Chief drafting organizations: Beijing Center for Disease Control and Prevention.

Chief drafting staffs: Li Yachun, Wang Shijin and Kong Yuxia.

The previous standards replaced by this Standard are as follows:

- GB 16368-1996;
- GBZ 125-2002;
- GBZ 137-2002;
- WS/T 185-1999.

Radiological Protection Requirements for Gauges Containing Sealed Radioactive Source

含密封源仪表的放射卫生防护要求

1 Scope

This Standard specifies the radiological protection requirements and safety requirements of detection instruments of source container and sealed radioactive source (hereinafter referred as “sealed source”); and requirements of radiological protection testing and inspection.

This Standard is applicable to those detection instruments with sealed source and based on particle fluence measurement (hereinafter referred as “detection instrument”); such as the level gage, densimeter, hygrometer and nuclear scale.

2 Normative References

The provisions of following standards, through reference of this Standard, constitute the provisions of this Standard. For dated documents, subsequent amendments (excluding corrigenda) or revisions are not applicable to this Standard. However, all parties who enter into agreement according to this Standard are encouraged to study if the latest editions of these documents are applicable. For undated documents, the latest editions are applicable to this Standard [[Translator: All following documents are undated](#)].

GB 4075 "Sealed Radioactive Source - General Requirements and Classification"

GB 11806 "Regulations for the Safe Transport of Radioactive Material"

GB 14052 "Radionuclide Gauges - Gauges Designed for Permanent Installation"

GB 18871 "Basic Standards for Protection against Ionizing Radiation and for the Safety of Radiation Source"

GBZ 128 "Specifications of Individual Monitoring for Occupational External Exposure"

GBZ/T 208 "Classification of Radioactive Source Based on Dangerous Index"

5.3.2 The radiation protection and safety acceptance test of new-purchased detection instrument shall be carried out according to this Standard.

5.3.3 At the regular use place of detection instrument, source container shall be fixed firmly and reliably; it shall adopt security protection measures to avoid the lost of sealed source; PREVENT people entering into the useful beam area between source container and tested substances.

5.3.4 The operation staffs related to the installation, inspection and maintenance of sealed source must be familiar with the structure of source container; GRASP the skills of radiation protection; OBTAIN the qualification certificate of radiation staff; and ACQUIRE authorization of operation.

5.3.5 According to GBZ 128, radiation operation staffs in supervision area; and radiation operation staffs during the reloading of radioactive source of various instrument and the maintenance of source related to instrument shall be subject to personal dose monitoring.

5.3.6 Decommissioned sealed source shall be managed strictly as the radioactive dangerous articles; they shall be sent back to manufacturer or transmitted to the preservation department of decommissioned source and be provided with permanent records.

5.3.7 “ionizing radiation warning sign” (see GB 18871) shall be set up clearly at striking position of use-place of detection instrument’s source container.

5.4 Transportation requirements

The transportation of sealed source and source container containing sealed source shall comply with the requirements of GB 11806.

5.5 Accident emergency requirements

5.5.1 For instrument and its used sealed source, the hazard index and corresponding hazard classification of radioactive source shall be judged according to GBZ/T 208 and according to the contingent radiation accident risk; so as to provide basis for accident emergency preparation. The hazard classification of major detection instruments are listed in Appendix C.

5.5.2 According to the situations of production, utilization, storage of sealed source and instrument, and the contingent radiation accident risk, and according to the classification requirements of radiation accident specified by the nation, corresponding radiation accident emergency plan shall be formulated; and emergency preparation shall be well done.

Appendix B

(Informative)

Catalogue of Radiation Protection and Safety Management System

B.1 The reference catalogue of radiation protection and safety management system for the organizations which manufacture and use the instrument with sealed source is as follows:

- 1) Radiation protection management organization and the responsibilities;
- 2) License management system for radiation source and instrument;
- 3) The standing book of radiation source and detection instrument, and management system for manufacturing, utilization, storage and decommissioning;
- 4) The management system for radiation operational staffs;
- 5) Safety operation, maintenance and safety inspection system;
- 6) The dose-monitoring system for the device, site and staffs;
- 7) The emergency treatment plan for radiation accident;
- 8) Protection, safety evaluation and annual summarization system for radiation source and detection instrument.

Translation References and Original Chinese Documents

[1] GBZ 125-2009 Radiological protection requirements for gauges containing sealed radioactive source.

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Contact: Wayne Zheng, Sales@ChineseStandard.net

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

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