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

GB/T 46475-2025

**Estimation method of weighted absorbed dose from acute
exposure**

急性照射加权吸收剂量估算方法

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Nuclear Energy Standardization Technical Committee (SAC/TC58). This document was drafted by: China Institute of Atomic Energy, Nuclear and Radiation Safety Center of the Ministry of Ecology and Environment, and Rocket Force Specialized Medical Center. Tsinghua University, Nuclear Industry Standardization Research Institute, National Nuclear Emergency Response Technical Support Center, Nuclear Industry General Hospital, Guangzhou Lantaisheng Technology Co., Ltd. Company, Shanghai Nuclear Engineering Research and Design Institute Co., Ltd. The main drafters of this document are. Wang Chuangao, Song Weijie, Wang Wei, Xia Yihua, Chen Ling, Luo Zhiping, Pang Hongchao, Hou Lianjiao, Yan Yize, and Chen Qianlan. Wang Jiangxia, Yu Zhengwei, Li Fengsheng, Qiu Rui, Zhang Liang, Leng Haisheng, Chen Zhongmin, Dong Fangfang, Liu Xinjian, Luan Xuefei, Mi Zhengfeng, Liu Yulong, Bian Huahui Xiong Wenjun and Qiu Zhiliang. Methods for estimating weighted absorbed dose in acute irradiation

1 Scope

GB/T 46475-2025 is the Chinese national standard covering reconstructing the dose

someone received in a radiation accident - the organ doses weighted for the biological effect of the radiation involved, the contribution of neutrons alongside photons, and the estimation from dosimetry, biology and the scene itself. At 32,000 words. This is what decides the medical management of an exposed person. First edition. Issued on 31 October 2025, it has been in force since 31 October 2025.

This document establishes the principles for estimating the relative bioefficacy-weighted absorbed dose for acute irradiation and describes the estimation methods, including acute... The route of exposure, the RBE value used for deterministic effect evaluation, the internal radiation dose estimation, and the external radiation dose estimation. This document applies to the estimation of acute exposure dose in nuclear and radiation accident emergency management.

2 Normative references

This document has no normative references.

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Deterministic effect Radiation-induced health effects typically have a dose threshold; the higher the dose received, the more severe the effect. The larger. Note

1.If such an effect is fatal, life-threatening, or causes permanent damage that reduces quality of life, it is called a severe deterministic effect. Note

2.Dose thresholds are associated with the type of deterministic health effect, but not with individual differences among those exposed. Examples of deterministic effects include erythema, keratosis, and other adverse events. Blood system damage and acute radiation sickness. The deterministic effect is also known as a "harmful tissue reaction". [Source: GB 18871-2002, J3.2, with modifications]

3.2 Acute exposure High levels of radiation received within a short period of time under abnormal circumstances via external or internal radiation routes. The dose produced by such radiation... When certain biological effect thresholds are reached, deterministic effects will be triggered.

3.3 A relative standard for measuring the ability of different types of radiation to induce specific health effects is low energy density radiation that produces the same biological effects. LET (Leadership to Temperature) is the ratio of the dose caused by the reference radiation to the dose caused by the radiation under consideration.

3.4 ADT The average absorbed dose produced in an organ or tissue by external irradiation, weighted by RBE.

Note. The unit is joules per kilogram (J/kg), referred to as gray (Gy).

3.5 AD(Δ)T The dose of an organ or tissue (T) expected to receive an internal irradiation dose within time Δ , weighted by the RBE value.

Note. The unit is joules per kilogram (J/kg), referred to as gray (Gy).

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