

ICS 27.120
CCS F 50



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

GB/T 4960.4-2025

Replacing GB/T 4960.4-1996

**Glossary of nuclear science and technology - Part 4:
Radionuclides**

核科学技术术语 第4部分：放射性核素

Issued on: October 31, 2025

Implemented on: October 31, 2025

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

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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. This document is Part 4 of GB/T 4960, "Nuclear Science and Technology Terminology". GB/T 4960 has already published the following parts.

- 1.Nuclear Physics and Nuclear Chemistry;
- 2.Fission Reactors;
- 3.Nuclear Fuel and the Nuclear Fuel Cycle;
- 4.Radionuclides;
- 5.Radiation Protection and Radiation Source Safety;
- 6.Nuclear Instrumentation;
- 7.Nuclear Material Control and Safeguards;
- 8.Radioactive Waste Management;
- 9.Magnetic Confinement Fusion. This document replaces GB/T 4960.4-1996 "Nuclear

Science and Technology Terminology - Radionuclides". Compared with GB/T 4960.4-1996, except for... Aside from structural adjustments and editorial changes, the main technical changes are as follows:

---Added radionuclides (see 3.1), naturally occurring radionuclides (see 3.2), artificial radionuclides (see 3.3), and reference sources (see 3.4). 5.1.4), source efficiency (see 5.2.9), self-absorption (see 5.2.10), collimator (see 5.2.14), leachability (see 5.2.17), leakage (see 5.2.19), line source (see 5.2.21), area source (see 5.2.22), flat plate source (see 5.2.23), immunoradioanalytical kit (see...23). 5.3.5), process dosage (see 6.1.11), dosage non-uniformity (see 6.1.12), minimum effective dose (see 6.1.13), and maximum tolerable dose. Dosage (see 6.1.14), nuclear medicine (see 6.2.1.4), single-photon emission computed tomography (see 6.2.1.8), positron emission tomography (PET) Computed tomography (see 6.2.1.9), boron neutron capture therapy (see 6.2.1.15), and radionuclide patch therapy (see...). 6.2.1.16), Ingestion (see 6.2.1.17), Absorption (see 6.2.1.18), Deposition (see 6.2.1.19), Retention (see 6.2.1.20), and Clearance. (See 6.2.1.21), excretion (see 6.2.1.22), expiratory induction (see 6.2.1.23), particle therapy (see 6.2.2.3), irradiated food (see 6.2.1.23). 6.3.13) and 31 other terms and definitions;

---The following sections have been removed. radioactive tracers (section 2.2 of the 1996 edition), stable tracers (section

1 Scope

GB/T 4960.4-2025 is the Chinese national standard covering the vocabulary of radionuclides - the decay modes and the half-life, the activity and specific activity, the daughter products and secular equilibrium, the carrier-free and the labelled compound, and the terms used in production and in dosimetry. It replaces GB/T 4960.4-1996, a terminology twenty-nine years old, and is already in force. Issued on 31 October 2025, it has been in force since 31 October 2025, replacing GB/T 4960.4-1996.

This document defines the terminology and definitions related to radionuclides in the field of nuclear science and technology. This document applies to the general field of radionuclides, the preparation of radionuclides, radionuclide products, and the application of radionuclides. Drafting standards and technical documents, translating literature, and facilitating domestic and international exchanges.

2 Normative references

This document has no normative references.

3 General Terminology

3.1 Radionuclides Nuclide that is a radioactive, unstable atomic nucleus that can

spontaneously emit radiation (such as alpha rays, beta rays, gamma rays, etc.).

3.2 Natural radionuclides Nuclide that exists naturally in nature and undergoes spontaneous radioactive decay.

Note. Based on their origin, they are divided into three categories. naturally occurring radioactive isotopes (uranium series, thorium series, and actinium series) (such as ^{238}U in the uranium series, ^{232}Th in the thorium series, and ^{235}U in the actinium series) and... Its decay products (such as ^{234}Th , ^{228}Ra , and ^{231}Th); nuclides produced by cosmic rays interacting with the Earth's atmosphere (such as ^3H and ^7Be); and non-series long-lived... Nucleotides (such as ^{40}K , ^{87}Rb , etc.).

3.3 Radioactive nuclides are artificially synthesized using reactors or charged particle accelerators.

4 Terminology for the Preparation of Radionuclides

4.1 target The material that is bombarded by nuclear energy in a nuclear reaction.

Note. Targets generally have the following characteristics.

- a) High target nucleus content;
- b) Contains no impurities with a large reaction cross-section;
- c) It possesses good chemical stability, thermal stability, and radiation stability;
- d) The thickness of the target meets the requirements.

4.2 internal target A target placed in the vacuum chamber of an accelerator and directly irradiated by a stream of particles.

Note. The internal target is one of the components of an accelerator that produces radionuclides.