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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 85, *Nuclear energy, nuclear technologies, and radiological protection*.

A list of all parts in the ISO 12749 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This document provides terms and definitions for basic concepts of nuclear energy, nuclear technologies, and radiological protection. Terminological data are taken from ISO standards developed by ISO/TC 85 and other technically validated documents, including the IAEA Glossary and vocabularies issued by different organizations Organization for Economic Co-operation and Development, Nuclear Energy Agency, Joint Committee for Guides in Metrology.

Unambiguous communication of nuclear energy and radiological concepts is crucial taking into account the relevant implications that may arise from misunderstandings with regard to equipment and materials involved in the standards dealing with these activities. In line with the international demand for harmonization of terminology regarding nuclear and radiological activities, this standard will contribute to provide general, cross-cutting terms and definitions to meet users´ requirements. It will also improve promotion, knowledge and use of international standards dealing with nuclear energy, nuclear technologies and radiological protection and will help experts developing technical standards to avoid overlapping and contradiction.

Arrangement of terms and definitions is based on concepts systems that show corresponding relationships among nuclear and radiological concepts. Such arrangement provides users with a structured view of the nuclear energy, nuclear technologies, and radiological protection sectors and will facilitate common understanding of all related concepts, see also Annex A. Besides, concepts systems and conceptual arrangement of terminological data will be helpful to any kind of user because it will promote clear, accurate and useful communication in fields like basic and applied sciences, technology, industry, health, safety, security and human resources training.

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Nuclear energy — Vocabulary —

Part 1: General terminology

1 Scope

This document contains the terms, definitions, notes to entry and examples corresponding to the basic concepts of the nuclear energy, nuclear technologies, and radiological protection subject fields.

It provides the minimum essential information for each cross-cutting concept represented by a single term.

NOTE A full understanding of concepts goes with a background knowledge of nuclear energy, nuclear technologies, and radiological protection. It is intended to facilitate communication and promote common understanding.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 Basic terms related to nuclear energy, nuclear technologies, and radiological protection

3.1.1
radioactivity
stochastic process whereby nuclei undergo spontaneous disintegration, usually accompanied by the emission of subatomic particles, or photons

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019, modified by adding “stochastic natural” at the beginning of the sentence, by replacing “atoms” with “nuclei”, by deleting “usually” and by replacing “radiation” with “subatomic particles, and/or photons”.]

3.1.2
activity
A
quotient of $-\mathrm{d}N$ by $\mathrm{d}t$, where $\mathrm{d}N$ is the change in the number of radioactive nuclei, at a particular energy state and at a given time, due to spontaneous nuclear transformations in the time interval $\mathrm{d}t$

[SOURCE: ICRU 85, 6.2, October 2011, modified by changing the order of the phrases, by deleting the word “mean”, by adding the word “radioactive”.]

Note 1 to entry: It is expressed as $A = -\mathrm{d}N / \mathrm{d}t$. Activity can be calculated as $A = \lambda N$, where λ is the *decay constant* (3.1.11) and N is the number of present radioactive nuclei.

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