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Nuclear energy, nuclear technologies, and radiological protection — Vocabulary —

Part 2: Radiological protection

Énergie nucléaire, technologies nucléaires et protection radiologique — Vocabulaire —

Partie 2: Radioprotection

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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.*

This second edition cancels and replaces the first edition (ISO 12749-2:2013), which has been technically revised.

The main changes are as follows:

— Merging of the headings “Terms related to radiological monitoring” and “Terms related to measurement”.

— Addition of the heading “Terms related to emergency”.

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 will provide terms and definitions for general nuclear energy concepts dealing with radiological protection and other related concepts. These concepts include protection for human health and the environment; radiation measurement methods and instruments; and the prevision or direct determination of the effect of ionizing radiation on the body.

Terminological data are taken from ISO standards developed and revised by ISO/TC 85/SC 2 and other technically validated documents such as the IAEA Basic Safety Standards, ISO/IEC 80000-10, ICRP, ICRU 51, ICRU 85a, VIM and BIPM.

Unambiguous communication of radiological protection 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 this subject. The market of radiological protection is a heterogeneous one because it comprises equipment designed, built and operated along the safe practices defined by the radiological protection specialists. This market also includes nuclear reactors, nuclear fuel cycle, cosmic radiation, scientific research industrial applications, nuclear medicine and radiotherapy, and instruments to monitor both personnel and facilities and sites. In view of the foregoing, and the large number of people involved who have different levels of scientific and technical knowledge, there can be widely divergent understandings and assumptions about concepts. The results are poor communication, high risk of accidents and duplication of effort as different groups are going to define concepts according to their perspectives.

Conceptual arrangement of terms and definitions is based on concepts systems that show corresponding relationships among radiological protection concepts. In Annex A there is a detailed explanation of this subject. Such arrangement provides users with a structured view of this special sub domain within the nuclear energy sector and will facilitate common understanding of radiological protection concepts. 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. At the end of this document an alphabetical index shows the terms followed by their corresponding notation.

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Nuclear energy, nuclear technologies, and radiological protection — Vocabulary —

Part 2: Radiological protection

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1 Scope

This document defines terms and definitions related to radiological protection concepts in the subject field of nuclear energy, nuclear technology and the different nuclear applications. 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 https://www.iso.org/obp

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

3.1 General terms related to radiological protection

3.1.1
radiological protection
radiation protection
protection of people and the environment from the harmful effects of exposure to ionizing radiation and the means for achieving such protection while allowing its beneficial uses

[SOURCE: IAEA. IAEA safety glossary: 2018 edition. Vienna: IAEA, 2019. p. 278, modified — "and the environment" and "while allowing its beneficial uses" was added and the demonstrative pronoun "that" was replaced with "such protection".]

Note 1 to entry: People include workers, patients and members of the public.

Note 2 to entry: Environment includes biota, waters, lands, and air.

3.1.2
radiation source
source
apparatus, substance or installation, that can cause *radiation exposure* (3.3.1), by emitting ionizing radiation or releasing radioactive substances or materials

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