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

**Part 3:  
Nuclear fuel cycle**

*Énergie nucléaire, technologies nucléaires et protection  
radiologique — Vocabulaire —*

*Partie 3: Cycle de combustibles nucléaires*



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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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary Information](#)

The committee responsible for this document is ISO/TC 85, *Nuclear energy, nuclear technologies, and radiological protection*.

This first edition cancels and replaces ISO 921:1997, of which it forms the subject of a technical revision.

ISO 12749 consists of the following parts, under the general title *Nuclear energy, nuclear technologies, and radiological protection*:

- *Part 2: Radiological protection*
- *Part 3: Nuclear fuel cycle*
- *Part 4: Dosimetry for radiation processing*

The following parts are under preparation:

- *Part 5: Reactors*

## Introduction

This part of ISO 12749 will provide terms and definitions for nuclear fuel cycle concepts dealing with specific subjects such as fuel fabrication, fuel characteristics, and nuclear criticality safety and with transport and radioactive waste related topics, excluding reactors operations. Terminological data are taken from ISO standards developed by TC 85/SC 5 and other technically validated documents issued by international organizations.

Unambiguous communication of nuclear energy 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 any subject regarding nuclear energy activities. Nuclear fuels for different power reactors are produced according to different designs. However, several concepts are present in all of them and need to be designated by common terms and described by harmonized definitions in order to avoid misunderstandings. In another nuclear fuel technology subfield, difficulties arise due to the wide variety of units employed to measure the fuel burnout level. Thus, to enhance comprehension, it is advisable to adopt unified measure units.

Conceptual arrangement of terms and definitions is based on concepts systems that show corresponding relationships among nuclear energy concepts. Such arrangement provides users with a structured view of the nuclear energy sector and will facilitate common understanding of all related 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.



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

## Part 3: Nuclear fuel cycle

### 1 Scope

This part of ISO 12749 lists unambiguous terms and definitions related to nuclear fuel cycle concepts in the subject field of nuclear energy, excluding reactor operations. It is intended to facilitate communication and promote common understanding.

### 2 Structure of the vocabulary

The terminology entries are presented in the conceptual order of the English preferred terms. The structure of each entry is in accordance with ISO 10241-1:2011.

All the terms included in this part of ISO 12749 deal exclusively with nuclear fuel cycle. When selecting terms and definitions, special care has been taken to include the terms that need to be defined, that is to say, either because the definitions are essential to the correct understanding of the corresponding concepts or because some specific ambiguities need to be addressed.

The notes appended to certain definitions offer clarification or examples to facilitate understanding of the concepts described. In certain cases, miscellaneous information is also included, for example, the units in which a quantity is normally measured, recommended parameter values, references, etc.

According to the title, the vocabulary deals with concepts belonging to the general *nuclear energy* subject field within which concepts in the **nuclear fuel cycle** sub-subject field are taken into account. See [Annex A](#) for the methodology used to develop the vocabulary.

