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Part 3: Nuclear installations, processes and technologies

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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 12749-3:2015), which has been technically revised.

The main changes are as follows:

— addition of new concepts;

— modification of definitions;

— change of sources.

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

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This document will provide terms and definitions for concepts associated with nuclear installations, processes, and technologies. These include specific subjects such as the nuclear fuel cycle; ex-reactor nuclear criticality safety, analytical methodologies, transport of radioactive materials, characterization of materials, radioactive waste management, and decommissioning of nuclear installations. Excluded topics are specific enabling technologies and techniques for non-peaceful applications, sealed sources, radiation processing, nuclear power plants and research reactors (with regard to nuclear criticality safety while fuel is loaded in the reactor core). Terminological data are taken from ISO standards developed by ISO/TC 85/SC 5 and other technically validated documents issued by the International Atomic Energy Agency (IAEA) or other international organizations.

Unambiguous communication of concepts associated with nuclear installations, processes, and technologies is crucial to prevent misunderstandings or misinterpretations of terms used in documents developed by ISO/TC 85/SC 5. In line with the international demand for harmonization of terminology regarding nuclear and radiological activities, this document will contribute by providing terms and definitions to meet the requirements of users and industry. It will also improve promotion, knowledge and use of international standards dealing with nuclear installations, processes and technologies and will help experts developing technical standards to avoid overlapping and contradiction.

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. Difficulties can also arise due to the wide variety of units of measure employed. Thus, to enhance comprehension as well as comparability, it is advisable to adopt unified units of measure.

Arrangement of terms and definitions is based on concepts systems that show corresponding relationships among the various concepts. Such arrangement provides users with a structured view of the nuclear installations, processes, and technologies sector and will facilitate common understanding of all related concepts. In addition, 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.