भारतीय मानक
Indian Standard

IS 16902 (Part 1) : 2023
ISO 12749-1 : 2020

परमाणु ऊर्जा — शब्दावली

भाग 1 सामान्य शब्दावली

Nuclear Energy — Vocabulary

Part 1 General Terminology

ICS 01.040.27; 01.040.13; 13.280; 27.120.01

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Price Group 9

Nuclear Energy for Peaceful Applications Sectional Committee, CHD 30

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 12749-1 : 2020 ‘Nuclear energy — Vocabulary — Part 1: General terminology’ issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Nuclear Energy for Peaceful Applications Sectional Committee and approval of the Chemical Division Council.

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 order to harmonizing the terminology regarding nuclear and radiological activities, this part of Indian Standard will contribute to provide general, cross-cutting terms and definitions to meet users’ requirements. It will also improve promotion, knowledge and use of national standards dealing with nuclear energy, nuclear technologies and radiological protection and will help experts developing technical standards to avoid overlapping and contradiction.

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, nuclear technologies, and radiological protection sectors and will facilitate common understanding of all related concepts, *see* 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 resource training.

This Indian Standard is published in several parts. The other parts in this series are:

Part 2 Radiological protection

Part 3 Nuclear fuel cycle

Part 4 Dosimetry for radiation processing

Part 5 Nuclear reactors

Part 6 Nuclear medicine

The text of ISO standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions and terminologies are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words `International Standard’ appear referring to this standard, they should be read as 'Indian Standard'; and

b) Comma (,) has been used as a decimal marker in the International Standard, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

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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.

Indian Standard

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.

Note 2 to entry: The special name for the unit of activity in the International System of Units is Becquerel (Bq), where 1 Bq = 1 s^{-1}. The use of the former unit Curie (1 Ci = 3,7 × 10^{10} Bq), is also accepted in many countries and in BIPM.

3.1.3
radiation
emission or transmission of energy in the form of waves or particles through space or through a material medium

Note 1 to entry: The term also applies to the radiated energy itself. Radiation includes electromagnetic, acoustic and particle radiation, as well as all forms of ionizing radiation.

[SOURCE: science.wolfram.com retrieved 5 December 2017, modified.]

3.1.4
ionizing radiation
radiation (3.1.3) capable of displacing electrons from atoms or molecules, thereby producing ions

Note 1 to entry: Ionizing radiation includes alpha radiation, beta radiation, neutron radiation, gamma or x rays, and cosmic rays.

[SOURCE: NCRP Composite Glossary
https://ncrponline.org/wp-content/themes/ncrp/PDFs/NCRP-Composite-Glossary.pdf]

3.1.5
radiation source
apparatus, substance or installation, that may cause radiation exposure, by emitting *ionizing radiation* (3.1.4) or releasing radioactive substances or materials

[SOURCE: ISO 12749-2:2013, 1.1.1 modified — by deleting the word “anything” and parenthesis to fulfil terminological requirement with regard to drafting of definitions.]

3.1.6
radiation processing
intentional irradiation of products or materials to preserve, modify or improve their characteristics

[SOURCE: ISO/ASTM 52628:2013, 3.1.12]

3.1.7
radiation shield
shielding
material interposed between a source of *radiation* (3.1.3) and persons, equipment or other objects, in order to attenuate the radiation

[SOURCE: ISO 12749-5:2018, 3.1.20, modified — by changing the verb “attenuate” by “reduce”.]

3.1.8
radionuclide
nuclide which is in an unstable state due to excess of internal energy and which will attain a stable state by emitting *radiation* (3.1.3)

Note 1 to entry: Radionuclides are either naturally occurring, such as ^{40}K, ^{235}U, ^{238}U, ^{232}Th and their radioactive *decay* (3.1.10) products, or produced by activation or other artificial means.

3.1.9
half-life
$T_{1/2}$
mean time taken for the activity of an amount of *radionuclide* (3.1.8) to become half its initial value

Note 1 to entry: $T_{1/2} = \ln 2/\lambda$, where λ is the *decay constant* (3.1.11).

3.1.10
decay
<radioactive> spontaneous nuclear transformation of one nuclide into a different nuclide or into a different energy state of the same nuclide

[SOURCE: NCRP Composite Glossary
https://ncrponline.org/wp-content/themes/ncrp/PDFs/NCRP-Composite-Glossary.pdf]

3.1.11
decay constant
λ
quotient of dP by dt, for a radionuclide in a particular energy state, where dP is the likelihood of a single nucleus undergoing a spontaneous nuclear transition from that energy state in the time interval dt

$$\lambda = \frac{dP}{dt} = -\frac{1}{N}\frac{dN}{dt}$$

where N is the number of nuclei of concern existing at time t and A is the *activity* (3.1.2)

Note 1 to entry: The decay constant is related to the radioactive *half-life* (3.1.9), $T_{1/2}$, of the radionuclide by the expression: $\lambda = \frac{\ln 2}{T_{1/2}}$

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019, modified — by changing the position of the phrase between commas to fulfil terminological requirement with regard to drafting of definitions.]

3.2 Terms related to nuclear energy

3.2.1
nuclear energy
energy released by *nuclear fission* (3.2.2) or fusion

3.2.2
nuclear fission

particle, usually with an associated release of energy

Note 1 to entry: The nucleus usually has a high mass number, together with an intermediate or low average-binding-energy-per-nucleon; hence, an inherent instability exists, and the fission fragments are usually highly unstable.

[SOURCE: ISO 12749-5:2018, 3.1.1]

3.2.3
nuclear fusion
reaction in which two atomic nuclei combine to form a heavier atomic nucleus with the release of energy

[SOURCE: “Collins Dictionary”. 2019 (Retrieved: November 06, 2019)]

Note 1 to entry: Nuclear fusion occurs with very light element nuclei, like ^{2}H, ^{3}He, etc.

3.2.4
chain reaction
self-sustaining reaction in which the fission of nuclei of one generation of nuclei produces particles that cause the fission of at least an equal number of nuclei of the succeeding generation

3.2.5
nuclear fuel
fissionable nuclear material in the form of fabricated elements for loading into the reactor core of a civil nuclear power plant or research reactor

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019]

3.2.6
nuclear fuel cycle
operations associated with the production of *nuclear energy* (3.2.1)

Note 1 to entry: The nuclear fuel cycle includes the following stages:

a) mining and processing of uranium or thorium ores;

b) conversion;

c) enrichment of uranium;

d) manufacture of *nuclear fuel* (3.2.5);

e) uses of the nuclear fuel;

f) reprocessing and recycling of spent fuel;

g) temporary radioactive material storage of spent fuel and *radioactive waste* (3.5.2) from fuel fabrication (and reprocessing and disposal of spent nuclear fuel [open fuel cycle] or high-level waste (closed fuel cycle*);*

h) any related research and development activities;

i) transport of radioactive material;

j) all waste management activities [including *decommissioning* (3.5.8) relating to operations associated with the production of nuclear energy].

[SOURCE: ISO 12749-3, 3.1.1.1]

Note 2 to entry: Reactor operation and other activities at a reactor site are not addressed in this part of ISO 12749, but are addressed in ISO 12749-5.

3.2.7
nuclear reactor
special device having an inventory of *nuclear fuel* (3.2.5) material containing fissionable nuclides and often neutron moderating, neutron absorbing and cooling materials, all of them geometrically arranged in a particular neutron multiplicative configuration designed and built for having the capability of initiating, maintaining and extinguishing a controlled, self-sustaining *nuclear fission* (3.2.2) *chain reaction* (3.2.4), under adequate safety conditions

3.3 Terms related to safety

3.3.1
radiation safety
recognition, evaluation and control of risks due to radiation exposure

Note 1 to entry: Control of the sources of *radiation* (3.1.3) and the exposure to radiation to protect people and the environment from unnecessary exposure and the deleterious effects of exposure to radiation.

[SOURCE: NCRP Composite Glossary, modified — by deleting “concerned with”.]

3.3.2
nuclear safety
achievement of proper operating conditions, prevention of accidents and mitigation of accident consequences, resulting in protection of workers, the public and the environment from undue *radiation risks* (3.3.7)

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019]

3.3.3
radiological protection
radiation protection
protection of people and the environment from harmful effects of exposure to *ionizing radiation* (3.1.4) and the means for achieving such protection

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019 modified — by adding "and the environment" and changing the demonstrative pronoun "that" with "such protection".]

3.3.4
radioactive contamination
radioactive substances on surfaces, or within solids, liquids, or gases (including the human body), where their presence is unintended or undesirable, or the process giving rise to their presence in such places

[SOURCE: IAEA Safety Glossary, 2016 Revision, June 2016]

3.3.5
radiological monitoring
radiation monitoring
measurement (3.4.1) of *dose* (3.3.6), dose rate or *activity* (3.1.2) for reasons relating to the assessment or control of exposure to *radiation* (3.1.3) or exposure due to radioactive substances, and the interpretation of the results

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019]

3.3.6
dose
measure of the energy deposited by *radiation* (3.1.3) in a target

[SOURCE: IAEA Safety Glossary, 2016 Revision, June 2016]

Note 1 to entry: When unspecified, dose refers to quantity of absorbed dose, measured in gray (1 Gy = 1 $J \cdot kg^{-1}$

Note 2 to entry: Depending upon the context in which it is used, the generic term dose may also refer to equivalent dose, effective dose or other dose-related quantities.

3.3.7
radiation risk
detrimental health effect of exposure to *radiation* (3.1.3) and any other safety related risk

Note 1 to entry: Radiation risks might arise as a direct consequence of:

— exposure to radiation;

— the presence of radioactive material, including radioactive waste, or its release to the environment;

— a loss of control over a *nuclear reactor* (3.2.6) core, nuclear *chain reaction* (3.2.4), radioactive source or any other source of radiation.

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019, modified — by splitting the text into a definition and a note to entry.]

3.4 Terms related to measurement

3.4.1
measurement
process of experimentally obtaining one or more quantity values that can reasonably be attributed to a quantity

[SOURCE: JCGM 200:2012]

3.4.2
measurand
quantity intended to be measured

[SOURCE: JCGM 200:2012]

3.4.3
measurement uncertainty
non-negative parameter characterizing the dispersion of the quantity values being attributed to a measurand, based on the information used

Note 1 to entry: *Measurement* (3.4.1) uncertainty includes components arising from systematic effects, such as components associated with corrections and the assigned quantity values of measurement standards, as well as the definitional uncertainty. Sometimes estimated systematic effects are not corrected for but, instead, associated measurement uncertainty components are incorporated.

[SOURCE: JCGM 200:2012, modified by deleting 3 notes.]

3.4.3.1
combined standard measurement uncertainty
combined standard uncertainty
standard *measurement uncertainty* (3.4.3) that is obtained using the individual standard measurement uncertainties associated with the input quantities in a measurement model

Note 1 to entry: In case of correlations of input quantities in a measurement model, covariances must also be taken into account when calculating the combined standard measurement uncertainty; see also GUM:1995, 2.3.4.

[SOURCE: JCGM 200:2012]

3.4.4
coverage factor
number larger than one by which a combined standard *measurement uncertainty* (3.4.3) is multiplied to obtain an expanded measurement uncertainty

Note 1 to entry: A coverage factor is usually symbolized k (see also ISO Guide 98-3:2008, 2.3.6).

[SOURCE: JCGM 200:2012]

3.4.5
expanded measurement uncertainty
expanded uncertainty
product of a combined standard *measurement uncertainty* (3.4.3) and a factor larger than the number one

Note 1 to entry: Factor in this definition refers to a coverage factor and depends upon the type of probability distribution of the output quantity in a measurement model and on the selected coverage probability. The factor depends upon the type of probability distribution of the output quantity in a measurement model and on the selected coverage probability.

Note 2 to entry: Expanded measurement uncertainty is termed “overall uncertainty” in paragraph 5 of Recommendation INC-1 (1980) (see the GUM) and simply “uncertainty” in IEC documents.

[SOURCE: JCGM 200:2012]

3.4.6
measurement error
error of measurement
error
measured quantity value minus a reference quantity value

Note 1 to entry: The concept of 'measurement error' can be used both

a) when there is a single reference quantity value to refer to, which occurs if a calibration is made by means of a measurement standard with a measured quantity value having a negligible *measurement uncertainty* (3.4.3) or if a conventional quantity value is given, in which case the measurement error is known, and

b) if a measurand is supposed to be represented by a unique true quantity value or a set of true quantity values of negligible range, in which case the measurement error is not known.

Note 2 to entry: Measurement error should not be confused with production error or mistake.

[SOURCE: JCGM 200:2012]

3.4.7
bias
measurement bias
estimate of a systematic *measurement error* (3.4.6)

[SOURCE: JCGM 200:2012]

3.4.8
measurement repeatability
repeatability
measurement precision under a set of repeatable *measurement* (3.4.1) conditions

[SOURCE: JCGM 200:2012 (VIM), 2.21]

3.4.9
precision
dispersion of *measurements* (3.4.1) with respect to a measure of location or central tendency

[SOURCE: ISO 21243:2008]

3.4.10
measurement reproducibility
reproducibility
closeness of the agreement between the results of *measurements* (3.4.1) of the same measurand carried out under changed conditions of measurement

3.4.11
detection limit
smallest true value of the measurand which ensures a specified probability of being detectable by the *measurement* (3.4.1) procedure

[SOURCE: ISO 11929-2:2019, 3.13, modified — Notes 1 and 2 have been deleted.]

3.4.12
background
measurement (3.4.1) instruments that is independent of *radiation* (3.1.3) contributed by the *radiation source* (3.1.5)

3.4.13
outlier
measurement (3.4.1) result that deviates markedly from others within a set of measurements results

[SOURCE: ISO/ASTM 51707:2015, 3.1.24]

3.4.14
reference quantity value
reference value
quantity value used as a basis for comparison with values of quantities of the same kind

Note 1 to entry: A reference quantity value can be a true quantity value of a measurand, in which case it is unknown, or a conventional quantity value, in which case it is known.

Note 2 to entry: A reference quantity value with associated *measurement uncertainty* (3.4.3) is usually provided with reference to

a) a material, e.g. a certified reference material,

b) a device, e.g. a stabilized laser,

c) a reference measurement procedure, and

d) a comparison of measurement standards.

[SOURCE: JCGM 200:2012]

3.4.15
calibration
operation under specified conditions that, in a first step, establishes a relation between the quantity values with measurement uncertainties provided by *measurement* (3.4.1) standards and corresponding indications with associated measurement uncertainties and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication

[SOURCE: JCGM 200:2012, modified.]

3.4.16
metrological traceability
property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the *measurement uncertainty* (3.4.3)

[SOURCE: JCGM 200:2012]

3.4.17
metrological traceability chain
traceability chain
sequence of *measurement* (3.4.1) standards and calibrations that is used to relate a measurement result to a reference

Note 1 to entry: A metrological traceability chain is defined through a calibration hierarchy.

Note 2 to entry: A metrological traceability chain is used to establish metrological traceability of a measurement result.

Note 3 to entry: A comparison between two measurement standards may be viewed as a calibration if the comparison is used to check and, if necessary, correct the quantity value and *measurement uncertainty* (3.4.3) attributed to one of the measurement standards.

[SOURCE: JCGM 200:2012]

3.4.18
standard test conditions
range of values of a set of influence quantities under which a calibration or a determination of response is carried out

[SOURCE: ISO 21909-1:2015]

3.5 Terms related to radioactive waste management and decommissioning

3.5.1
radioactive waste
material for which no further use is foreseen that contains or is contaminated with *radionuclides* (3.1.8)

Note 1 to entry: For legal and regulatory purposes, waste is considered to be radioactive if the concentrations or activities are greater than clearance levels as established by the regulatory body.

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019, modified by splitting the wording into a definition and a note to entry to fulfil a terminological requirement with regard to the drafting of definitions.]

3.5.2
waste matrix
part of the waste from inside a waste package in which the radioactive substances are dispersed

[SOURCE: ISO 6962:2004, 3.5]

3.5.3
waste package
product of conditioning that includes the waste form and any container(s) and internal barriers, as prepared for handling, transportation, storage and/or disposal

Note 1 to entry: The internal barriers may be absorbing materials and liner.

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019 modified by splitting the wording into a definition and a note to entry to fulfil a terminological requirement with regard to the drafting of definitions.]

3.5.4
representative sample
sample taken from a process of the material in that process or that quantity of material which is considered to possess the average characteristics of the material

Note 1 to entry: Samples of waste are used to determine the scaling-factor parameters for the target waste stream. A representative sample is meant to closely resemble the characteristic nuclide content and activity proportions of the target waste stream.

[SOURCE: ISO 21238:2007, 2.5]

3.5.5
composite sample
mixture of samples from different containers such that the mass ratio of the samples is equal to the ratio of the material masses contained in the containers

EXAMPLE Series of samples taken over a given period of time and weighted by collection rate; or a combined sample consisting of a series of discrete samples taken over a given period of time and mixed according to a specified weighting factor, such as stream flow or collection rate.

[SOURCE: ISO 21238:2007, 2.6]

3.5.6
waste form
waste in its physical and chemical form after treatment and/or conditioning, resulting in a solid product, prior to packaging

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019]

3.5.6.1
homogeneous waste
radioactive waste that shows an essentially uniform distribution of activity and physical contents

EXAMPLE Flowable wastes such as concentrates, solidified liquids and spent resins, in which the *radioactivity* (3.1.1) may reasonably be assumed to be uniformly distributed over the volume or flowable wastes uniformly mixed with a solid matrix.

[SOURCE: ISO 21238:2007, 2.12]

3.5.6.2
heterogeneous waste
radioactive waste that does not meet the definition of homogeneous waste, including solid components and mixtures of solid components, such as dry active waste and cartridge filters

[SOURCE: ISO 21238:2007, 2.13]

3.5.7
radioactive waste management
all administrative and operational activities involved in the handling, pre-treatment, treatment, conditioning, transport, radioactive material storage, and disposal of *radioactive waste* (3.5.1)

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019, modified — by splitting the wording into a definition and a note to entry to fulfil a terminological requirement with regard to the drafting of definitions.]

3.5.8
decommissioning
administrative and technical actions taken to allow the removal of some or all of the regulatory controls from a facility

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019]

3.5.9
decommissioning plan
document containing detailed information on the proposed *decommissioning* (3.5.8) of a facility

[SOURCE: IAEA Safety Glossary, 2018 Revision, June 2019]

Annex A
(informative)

Methodology used in the development of the vocabulary

A.1 General

The cross-cutting concepts contained in this document, related to nuclear energy, nuclear technologies and, radiological protection concepts contained in this standard require the use of

— clear technical descriptions, and

— a coherent and harmonized vocabulary that is easily understandable by all potential users.

Concepts are not independent of one another, and an analysis of the relationships between concepts within the fields of energy efficiency and renewable energy sources and the arrangement of them into concept systems is a prerequisite of a coherent vocabulary. Such an analysis was used in the development of the vocabulary specified in this document. Since the concept diagrams employed during the development process may be helpful in an informative sense, they are reproduced in A.3.

A.2 Concept relationships and their graphical representation

A.2.1 General

In terminology work, the relationships between concepts are based on the three primary forms of concept relationships indicated in this annex: the hierarchical generic (A.2.2), the partitive (A.2.3), and the non-hierarchical associative (A.2.4).

A.2.2 Generic relation

Subordinate concepts within the hierarchy inherit all the characteristics of the superordinate concept

(parent) and coordinate (sibling) concepts (e.g. the relation of mechanical mouse, optomechanical mouse and optical mouse to computer mouse).

Generic relations are depicted by a fan or tree diagram without arrows in Figure A.1 (ISO 704:2009, 5.5.2.2.1, Example 1, modified).

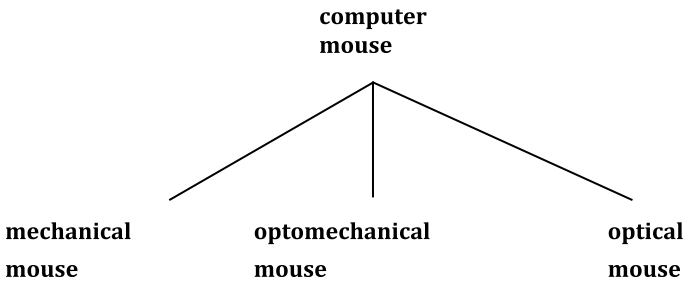

Figure A.1 — Graphical representation of a generic relation

A.2.3 Partitive relation

Subordinate concepts within the hierarchy form constituent parts of the superordinate concept, (e.g. mouse button, mouse cord, infrared emitter and mouse wheel may be defined as parts of the concept

optomechanical mouse). In comparison, it is inappropriate to define red cord (one possible characteristic of mouse cord) as part of an optomechanical mouse.

Partitive relations are depicted by a rake without arrows in Figure A.2 (ISO 704:2009, 5.5.2.3.1, Example 1, modified). Singular parts are depicted by one line, whereas multiple parts are depicted by double lines.

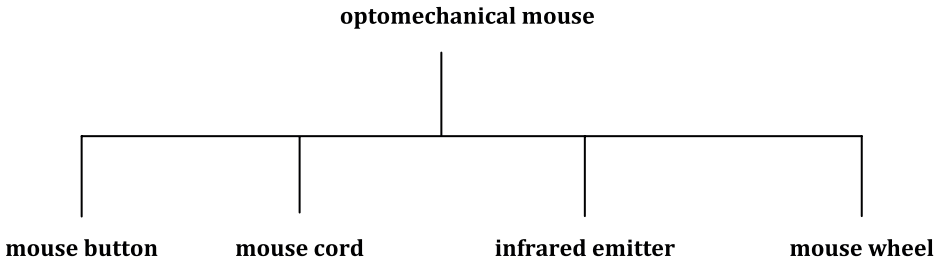

Figure A.2 — Graphical representation of a partitive relation

A.2.4 Associative relation

Associative relations cannot provide the economies in description that are present in generic and partitive relations but are helpful in identifying the nature of the relationship between one concept and another within a concept system (e.g. cause and effect, activity and location, activity and result, tool and function, material and product). Besides, associative relations are the most commonly encountered in terminology practical work, as they correspond to the concepts relations established in the real world.

Associative relations are depicted by a line with arrowheads at each end in Figure A.3 (ISO 704:2009, 5.6.2, Example 1, modified).

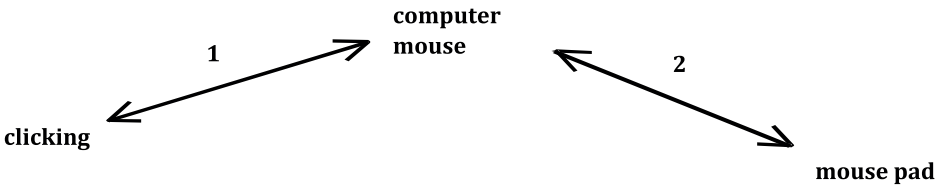

Figure A.3 — Graphical representation of an associative relation

A.3 Concept diagrams

Figures A.4 to A.8 show the concept diagrams on which the thematic groups of the general terminology are based. Notations in the following diagrams show the position of each concept according to generic, partitive and associative relationships.

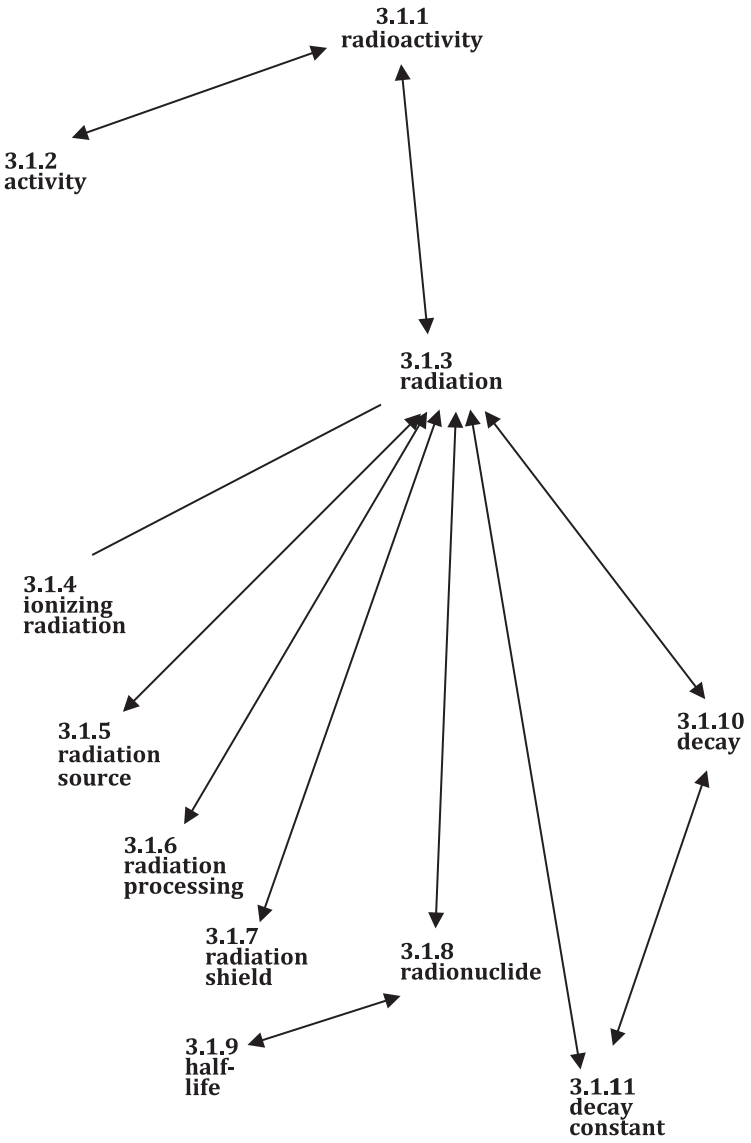

Figure A.4 — 3.1 Basic terms related to nuclear energy, nuclear technologies, and radiological protection

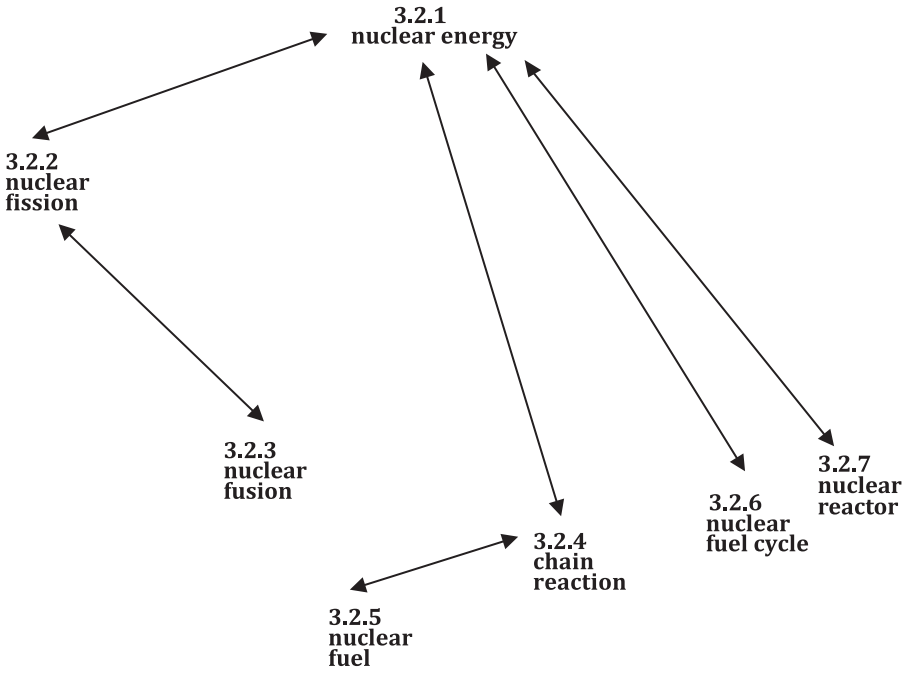

Figure A.5 — 3.2 Terms related to nuclear energy

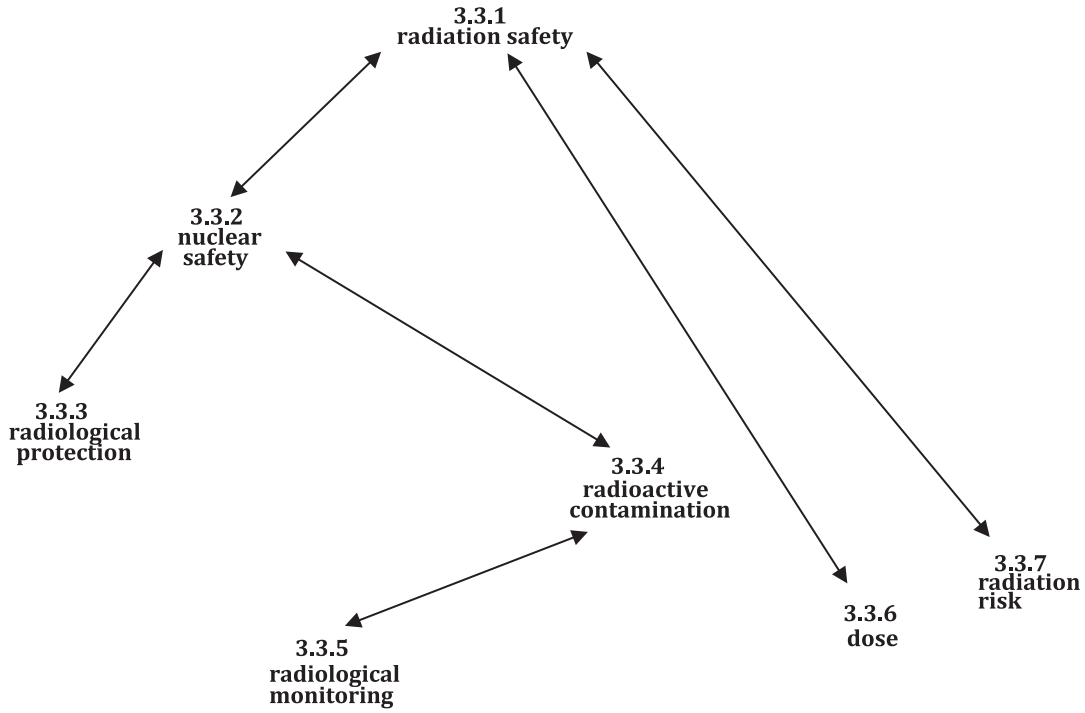

Figure A.6 — 3.3 Terms related to safety

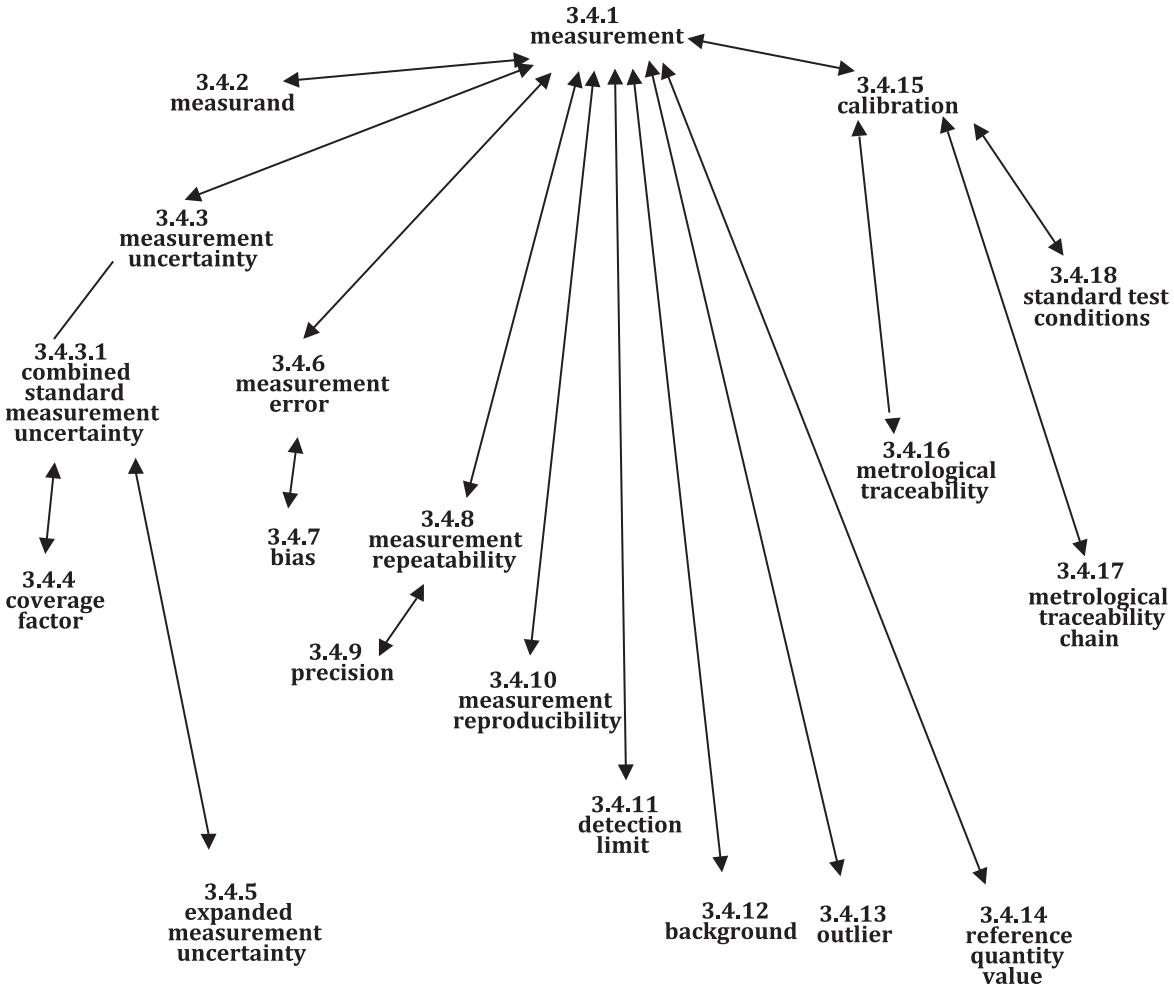

Figure A.7 — 3.4 Terms related to measurement

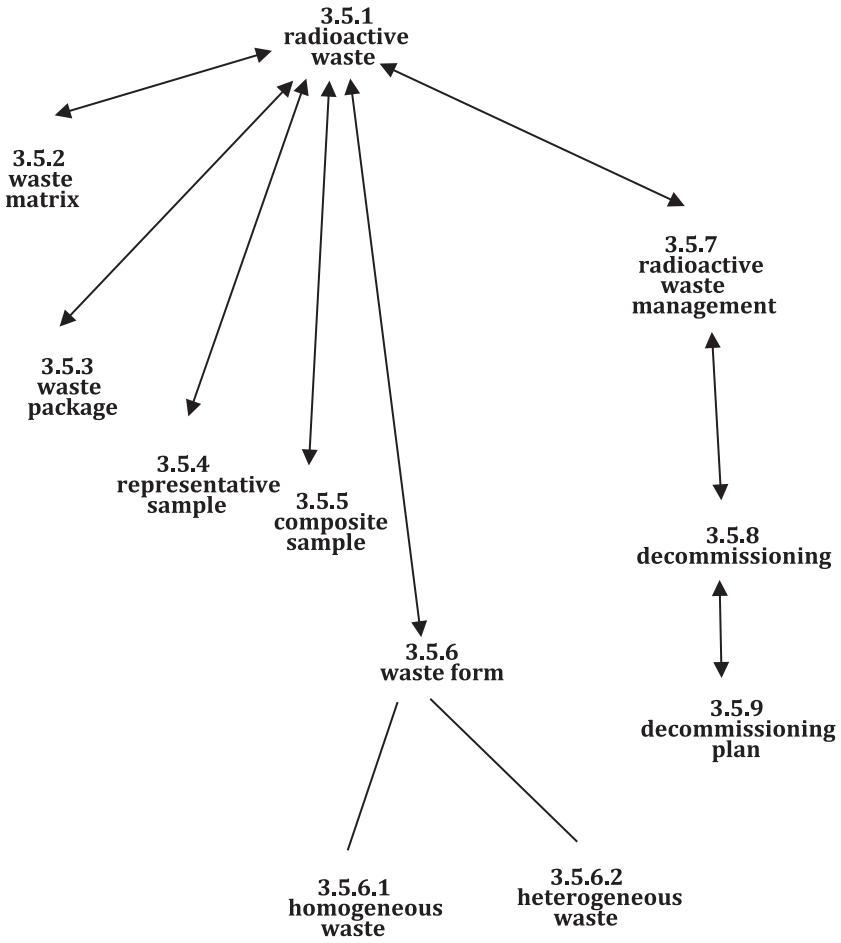

Figure A.8 — 3.5 Terms related to radioactive waste management and decommissioning

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