EUROPEAN COMMISSION
DIRECTORATE-GENERAL HOME AFFAIRS

Directorate A: Internal security
Unit A.1: Crisis management - Terrorism

CBRN Glossary

The EU CBRN Action Plan, adopted in 2009, requires the Commission and the Member States to develop information tools for CBRN security. Apart from a web-portal in which good-practices on CBRN security could be shared (H.52; CBRN e-Community portal established by the Commission which gathers representatives of Member States and enables sharing of unclassified documents) and an Early Warning System (EWS) for incidents related to high risk CBRN materials (H.54; EWS has been developed by the Spanish authorities in cooperation with Europol), the Action Plan calls for establishment of a **database of resources which would contain applicable information on the nature of high-risk CBRN materials and their handling** (H.53). The CBRN Glossary is a first step in the implementation of this action. The currently implemented 2nd phase of the project will result in the development of an application for smartphones/tablets which could be used by first-responders.

The European Commission's intention is to achieve a **common understanding of terms related to CBRN area**. The Glossary is to be used not only in the European Union, but also outside its borders, e.g. during the implementation of the EU CBRN Risk Mitigation Centres of Excellence Initiative

The version which follows has been deprived of sensitive materials, therefore can be published on a public website. Organizations interested in having access to the complete CBRN Glossary – available in almost all official languages – should contact the European Commission at HOME-CBRN-AG@ec.europa.eu. Each request will be assessed and the full version will be released on a need-to-know basis.

Absorbed radiation dose

The absorbed radiation dose corresponds to the energy transferred by a radiation into the matter. The measurement unit is gray, symbol Gy. 1 Gy = 1 joule per kilogram.

See also Dose, Units RN

Acetyl cholinesterase

An enzyme that enables nerve signal transductions. The action of this enzyme is inhibited by nerve agents.

Activity, RN

The activity of an object is the number of radioactive disintegrations per second. The unit of activity is Becquerel, symbol Bq.

See also: Units RN

Acute illness

Is a disease with an abrupt onset and usually a short course.

ADR Classes / Classes of dangerous goods

Dangerous goods can be classified according to the primary hazards arising from the substance. This ADR scheme (*Accord européen relatif au transport international des marchandises Dangereuses par Route)* was published by the United Nations.

AEGL

Acute Exposure Guideline Levels. AEGL values represent toxicologically substantiated ceiling exposure levels for different relevant exposure periods (10 minutes, 30 minutes, 1 hour, 4 hours, 8 hours), for three different degrees of severity of toxic effects:
AEGL-1: threshold for notable discomfort;
AEGL-2: threshold for serious, long-lasting effects or an impaired ability to escape;
AEGL-3: threshold for lethal effects.
AEGL values take into account the general population, including susceptible individuals.

Aerosol

A suspension in a gaseous medium of small solid or liquid particles. A gaseous / solid Aerosol is referred to as dust, smoke or fume, a gaseous / liquid one as a mist. Aerosols have negligible falling velocity and can therefore remain viable and airborne for extended periods.

Aggravating factor

Describes the increase of the observed pathological phenomenon.

Agroterrorism

The deliberate malicious introduction of an animal or plant disease either against livestock/crops or into the food chain with the goal of generating fear, causing economic losses by disruption or damage of a country's agriculture, and/or undermining social stability

Alpha particle

The alpha particle emitted by a radioactive element is a nucleus of a Helium atom, containing two neutrons plus two protons. In general, external alpha contamination is not a critical danger as a few centimeters of air, paper, or the thin layer of dead skin cells form a sufficient shield against them. Inner contamination by ingestion, inhalation or injuries is more serious due to the high absorbed radiation dose on a short distance.

Ammonia

Colourless, pungent-smelling, toxic, lachrymatory gas.

Annual limit of intake

The Annual Limit of Intake (ALI) is the derived limit for the amount of radioactive material taken into the body of an adult worker by inhalation or ingestion in a year. The values for intake by ingestion and inhalation of selected radionuclides are given by the national competent authority derived from the recommendations of international organizations as e.g. the International Commission for the Radiological Protection (ICPR) or the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)

Anthrax

See: Bacillus anthracis

Antidote

A drug (with known mechanism of action) given to an intoxicated patient to counteract the toxic effects by modifying the toxicokinetics or toxicodynamics of the poison, and whose administration reliably produces a significant benefit.

Argus

General rapid alert system of the European Commission. Internal communication network and specific coordination process covering multisectoral crises. The Directorates General of the Commission exchange information, a CCC (crisis coordination committee) can be activated. Uses the Commission RAS (Rapid Alert Systems).

Assembly point

Or support and information point. A place where evacuees can gather in order to get further information, await directions for transport to rest centres or other destinations, and also for family regrouping.

Asymptomatic

A disease is considered asymptomatic if the host (human, animal or plant) is a carrier of the disease or infection but experiences or shows no symptoms.

Atom

The smallest part of any material that cannot be broken up by chemical means.

Atomic Number

The number of protons in a nucleus of an atom.

Atomic Energy

Energy released in nuclear reactions.

Awareness

Awareness is the state or ability to perceive, to feel, or to be conscious of events, objects or sensory patterns. In biological psychology, awareness is defined as a human's or an animal's perception and cognitive reaction to a condition or event.

Bacillus anthracis

Bacteria, whose spores cause a serious disease (Anthrax) in humans or animals. Infectious routes are cutaneous (skin contact), pulmonary (inhalation) or oral (ingestion). Clinical symptoms are dependent from infectious route. No known transmission between humans.

Background radiation

Background radiation is the level of radiation that is constantly present in the environment and is emitted from a variety of natural and artificial sources.

Bacteria

Living single cell organisms capable of reproducing themselves, many of them are capable to induce disease in humans, animals or plants

Basel Convention

Basel Convention – 1989 – UN - Regulates the 'environmentally sound management' (ESM) of hazardous and other wastes during their whole life-cycle. Parties inform each other of transboundary movements. Accidents are communicated via national focal points. Not applicable to radioactive waste.

Becquerel

A measure of the activity of a radioactive element. Symbol Bq, where 1 Bq = 1 disintegration per second.

See also Activity RN, Units RN

Beta particle

An electron or positron which has been emitted by an atomic nucleus in a nuclear transformation. Most beta particles can be stopped by a few millimeters of aluminum or glass.

See: Decay

Binary device

Or multicomponent device, chemical weapon or system, filled with relatively non-toxic initial substances (precursors).

Biocrime

A deliberate act of assault directed at a person. It is similar to an assault crime, except that instead of a conventional weapon, a pathogen or toxin is used.

Biodefense

Refers to short term, local, very robust biohazard response, which comprises the means or methods of preventing, detecting, or managing an attack involving biological weapons and measures of protection against emerging infections.

Biohazard/biological hazard

Infectious agents or hazardous biological materials that present a risk or potential risk to the health of humans, animals, plants, or the environment.

Biological agent

Biological agents shall mean micro-organisms (includes genetically modified organisms), cell cultures and parasites~~,~~ some of them may be able to provoke any infection, allergy or toxicity in humans, animals, or plants that can be used in bioterrorism or biological warfare.

Biological safety laboratory

Or BSL, a facility within which microorganisms, their components or their derivatives are collected handled and/or stored. Biological laboratories include clinical laboratories, diagnostic facilities, regional and/national reference centres, public health laboratories, research centres (academic, pharmaceutical, environmental, etc.) and production facilities (manufacturers of vaccines, pharmaceuticals, large scale GMOs, etc.) for human, veterinary and agricultural purposes. There are 4 levels of containment range from the lowest biosafety level 1 to the highest at level 4 defined by Council Directive 90/679/EEC.

Biological warfare

The deliberate use of disease-producing microorganisms, toxic biological products, or organic biocides by either nations or non-governmental bodies to induce death or disabilities in humans and/or animals and/or damage to plant crops, etc.

Biopreparedness

Biological all-hazard approach covering a broad scope of activities relating to the protection of humans, animals and/or plants health

Biorisk

Biorisk is the combination of the probability of occurrence of a particular adverse event leading to harm and the severity of that harm where the source of harm is a biological agent. The source may be an unintentional exposure, accidental release or loss, theft, misuse, diversion, unauthorized access, or intentional unauthorized release.

Biosafety

Measuring assembly (containment principles, technologies and practices) that are implemented to prevent the unintentional exposure to pathogens and toxins, or their accidental release

Biosecurity

Measuring assembly (access control, security procedures) to reduce the risk of transmission of infectious diseases and invasive alien species and to prevent the malicious use of dangerous pathogens, parts of them or toxins in direct or indirect act against humans, livestock or crops

Biosecurity hazard

Any hazard posing a risk to the biosecurity concept

Bioterrorism

The intentional release or dissemination by terrorist of biological agents (bacteria, viruses, or toxins) to cause fear, illness or death in people, animals or plants and/or disrupting social, economic or political stability

Blister agent

Chemical agent that causes blistering of the skin as well as severe skin, eye and mucosal pain and irritation. Larger doses can cause death

Blood Agent

Chemical agents that injure a person by interfering with cell respiration (the exchange of oxygen and carbon dioxide between blood and tissues). This is a descriptive term for the cyanides.

Boiling Point

Temperature at which a substance starts to change from the liquid into the gaseous physical state.

BTWC

BTWC - Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction – (1972)

Microbial, biological agents, toxins, unless for peaceful purposes; weapons, equipments, means of delivery to the agents for hostile purposes (art. I) cannot be developed, produced, stockpiled, acquired or retained by the Parties. They cannot be transferred (art. III) neither in the form of assistance to manufacture or acquire. Parties shall prohibit any actor to do that (art. IV) while the exchange of equipment and information for the peaceful use of the agents is supported (art. X). he Convention has a peer complaint-reporting system to the Security Council of the United Nations in case of suspected breach (art.VI) with an investigation mechanism. Following the review conferences, in cases of use of biological/toxin weapons, the United Nations Secretary-General shall start investigations (UNSC Resolution 620/1988) using its mechanism/guidelines A/44/561 as endorsed in resolution 45/57 of 1990.

BWC ISU Website

BWC ISU Website – with data on national biological defence research, outbreaks of infectious diseases, contacts, vaccine production facilities. Restricted access. It is updated via CBMs (Confidence Building Measures) information sent by States.

Cartagena Protocol on Biosafety

Cartagena Protocol on Biosafety – supplements the “Convention on Biological Diversity”. Sets procedures for handling, identification of LMO (living modified organisms) in transboundary movements. Also for cases of unintentional transboundary movements, emergency measures, illegal movements.

Casualties

Persons killed or physically or mentally injured by e.g. a CBRN accident or incident.

See: victims

Casualty collection point (CCP)

Or holding point, place at the edge of the inner safety perimeter where casualties are brought to for decontamination examination, initial treatment and/or decontamination.

Causative agent

The organism or toxin that is responsible for causing a specific disease or harmful effect

CBRN

CBRN is an acronym for chemical, biological, radiological, and nuclear issues that could harm the society through their accidental or deliberate release, dissemination, or impacts.

The term *CBRN* is a replacement for the cold war term *NBC* (nuclear, biological, and chemical), which had replaced the previous term *ABC* (atomic, biological, and chemical) that was used in the fifties. "N" covers the impact by an explosion of nuclear bombs and the misuse of fissile material, "R" stands for dispersion of radioactive material e.g. by a dirty bomb.

CBRN resilience

Is the ability to reduce the risk from CBRN attacks (UK definition) or the capacity to anticipate risks and to limit their impact in order to return to the previous state (US definition).

CBRNE

Is an acronym which includes beside CBRN explosive substances or events.

Chemical effects

Possible consequences of exposure of humans to chemical substances, including: illness due to interference with the biological processes (toxicity); damage due to destruction of the body tissue (corrosion/irritation), sensitization of skin or respiratory organs; induction of cancer (carcinogenicity), damage to the genetic information in egg and sperm cells (germ cell mutagenicity), impaired ability to create offspring or damage to the unborn child (reproductive toxicity or "repro-toxic").
Substances with have one or more of the latter three properties are also grouped as "CMR-substances".

Chemical Warfare Agents (CWA)

A group of toxic substances developed for military use.
They are intended to produce death or serious injury through their toxicological effects in exposed humans or animals and include

Chemical weapon

A weapon specifically designed to cause death or other harm through the toxic properties of chemicals. It consists of the substance or agent (CWA) and of some form of carrier or container (e.g. ammunition).

Chemical Weapons Convention

The Chemical Weapons Convention (CWC) is an arms control agreement. The Convention on the Prohibition of the Development, Production, Stockpiling, and use of Chemical Weapons and on their destruction – 1993 – Regulates the destruction of chemical weapons (art. IV) and shut down of production facilities (art. V). For preventing the spread of precursors and toxic chemicals that may be used as weapons, their development, production, acquisition, retaining, transfer and use are subjects to limits (art.VI) and inspections.
Implementation of the Convention is monitored by the OPCW – Organization for the Prohibition of Chemical Weapons.

Chlorine

Chlorine (Cl_2) is a toxic gas of characteristic stinging odour.

Clinical decontamination

The process where contaminated not mobile casualties are treated individually by healthcare professionals using purpose designed decontamination equipment. Also called Stretcher decontamination, casualty decontamination or non-ambulatory decontamination.

CLP Regulation

CLP Regulation - Regulation EC 1272/2008 for Classification, Labelling Packaging of Substances and Mixtures – Harmonizes rules in line with the UN Globally Harmonised system of Classification and Labelling of Chemicals (GHS) and Regulation 1907/2006 (REACH). Radioactive substances are exempted.

CMR Substances

See: chemical effects

Commission Regulation (EURATOM) No 302-2005

Commission Regulation (Euratom) No 302/2005 – Sets safeguards for civil 'nuclear materials' during the whole fuel cycle. Includes ores, source materials, special fissile materials, and 'waste', other 'categories' of nuclear material. Includes rules for exports, imports, shipments.

Committed effective dose

A person irradiated by ionizing radiation outside the body will receive a dose only during the period of irradiation. However following an intake by ingestion or inhalation, some radionuclides persist in the body and irradiate the various tissues for many years. The resulting total effective dose delivered over a lifetime (70 years for infants, 50 y for adults) is called the committed effective dose E.

See also: Effective dose coefficient

Concentration limits

Concentration limits – or exposure limit values - most commonly used in Civil Protection are: AEGL, ERPG, IDLH and ETW.

Contagious

1. Capable of being transmitted by direct contact or by handling clothing, etc. from one person to another, one animal to another and between people and animals
2. Contaminated with the causative agent
3. Harbouring or spreading the causative agent of a transmissible disease

Containment (confinement)

Process by which possible release, discharge or spill of a toxic substance or the spread of an infectious agent during normal use or after an accident is prevented by appropriate action

Contamination

Presence or transfer of hazardous chemical, biological or radioactive substances / materials on humans, mobile and immobile objects, soil and water.

Contingency

Future event or circumstance that is regarded as likely to occur, or as influencing present action usually causing problems or making further plans and arrangements necessary.

Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency

Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency (1986) IAEA – Sets co-operation among States Parties and IAEA in case of nuclear accidents or radiological emergencies. National points of contact are named by the States, to deal with requests for exchanging information, experts, equipment and methodologies. System: IAEA - International Response System.

Convention on Early Notification of a Nuclear Accident

Convention on Early Notification of a Nuclear Accident (1986) IAEA – For nuclear or radioactive accidents involving facilities or activities. States must notify and report information about the event. IAEA acts as a hub. Points of contact are established.

Convention on mutual assistance and cooperation between customs administrations

The purpose of the Convention – also called Naples II Convention - is the prevention, detection, prosecution and punishment of infringements of national and Community customs provisions through enhanced cooperation and mutual assistance between national customs services.

The cross border cooperation includes, amongst others, prevention, investigation and prosecution in cases of illicit traffic of nuclear material or materials or equipment intended for the manufacture of atomic, biological and/or chemical weapons.

Convention on Nuclear Safety – IAEA

Convention on Nuclear Safety – IAEA – 1994 - States operating land-based nuclear power plants must maintain a high level of safety by setting legal benchmarks and regulatory bodies for their implementation. Emergency preparedness plans have to be set up.

Convention on the Physical Protection of Nuclear Material

Convention on the Physical Protection of Nuclear Material - IAEA - 1980 - Regulates international transport, domestic use storage and transport of nuclear material for peaceful purposes. Sets three categories of material, with different protection measures. Provides for recovery and response in case of unauthorized removal.

Convention on the Transboundary Effects of Industrial Accidents (UNECE) 1992

Convention on the Transboundary Effects of Industrial Accidents (UNECE) 1992– In case of industrial accident (not radiological or nuclear), regulates States' response, assistance, exchange of information. A notification system (IAN - UN/ECE Industrial Accident Notification System) is in place.

Council Decision 87/600/Euratom

Council Decision 87/600/Euratom– For early exchange of information in case of a radiological emergency. The Commission acts as a hub among National Authorities. The State where the emergency happened must provide information.

Council Directive 2006/117/Euratom

Council Directive 2006/117/EURATOM. Supervision and control of intra and extra Community shipments of radioactive waste and spent fuel, for disposal or reprocessing. Countries have to appoint surveillance authorities.

Council Directive 2009/71/Euratom

Council Directive 2009/71/Euratom – establishing a Community framework for the nuclear safety of nuclear installations – It covers all civil nuclear facilities other than those with nuclear reactors. States must establish a national legislative, regulatory and organisational framework for nuclear safety, national regulatory authorities. The licence holders have to conduct periodical self-assessments.

Council Regulation (EC) No 428/2009

Council Regulation (EC) No 428/2009 sets up a Community regime for export, transfer, transit and brokering of dual use items. The items are listed in Annex I and Annex IV of the regulation. A secure information exchange regime between the competent authorities of the Member States is set up

Council Regulation (Euratom) No. 1493/93

Council Regulation (EURATOM) No. 1493/93. Shipments of sealed sources, radioactive waste are regulated by a system of prior declaration and confirmation by competent Authorities of each state. Includes a post shipment information procedure.

Curie

A Curie (Ci) is the unit corresponding to the activity of 1g of radium. It corresponds to 37 thousand million disintegrations per second. The Curie has been replaced by the Becquerel.

See also: Units RN

Cyanide

A cyanide (Hydrogen Cyanide: AC or Cyanogen Chloride CK) is a chemical compound that contains the cyano group.

D-value

The *D* value is the activity of a specified radionuclide which, if not under control, could cause severe health effects in the short term, including death, for a range of scenarios that include both external exposure from an unshielded source and internal exposure following dispersal of the source material. The categorization system has five levels, with sources in Category 1 being the most 'dangerous', at the lower end, sources in Category 5 are the least dangerous.

Decay

The spontaneous transformation of one nuclide into a different nuclide. Decay may involve the emission of alpha particles, beta particles, neutrons and/or gamma rays from the nucleus. A decay process is characterized by a half-life (i.e. the time for half of the atoms of a radioisotope to undergo decay). Also called: radioactive disintegration.

Decision No 2119/98/EC

Decision No 2119/98/EC – created a Community Network for the epidemiological surveillance and an Early Warning and Response System (EWRS – reshaped by Commission Decision 2000/57/EC).

See ECDC

Decommission

The process of removing a nuclear facility from service by a reduction of the residual radioactivity to a level that permits the release of the property for unrestricted use or maintenance under the protection for reasons of public health and safety.

Decontamination

The reduction of C, B, R&N contamination of the surfaces of living organisms, soil, water or objects.

See also: Responder Decontamination

Decontamination agent (humans)

a powder or liquid that can be applied to the skin. It absorbs and/or destroys the hazardous substance.

Decontamination area

The area where the decontamination is carried out. Set up at the border between inner and outer safety perimeter. All victims, personnel and equipment leaving the inner safety perimeter have to undergo decontamination

Decontamination examination

or triage, or decon-examination, process of assessment of casualties and allocation of priorities for decontamination and life support by medical or ambulance staff at the casualty collection point.

Depleted uranium

Depleted uranium is Uranium containing less of the isotope Uranium 235 than in the natural Uranium (0.72%). Depleted uranium delivers very low radiation doses per unit of mass. It has a high chemical toxicity.

See also: Uranium 238

Detection

In nuclear, biological, and chemical (NBC) environments, the act of locating CBRN hazards or discovering or perceiving the presence of (biological agents, diseases, etc.)

Diagnosis

The act or process of identifying or determining the nature and cause of a disease or injury through evaluation of patient history, examination of symptoms and signs, and review of laboratory data by a medical provider

Diphosgene

A colourless, highly toxic volatile liquid. Odour like phosgene.

Directive 2008/98/EC on waste

Directive 2008/98/EC on waste. Regulates the waste-cycle, from the health protection point of view, including recycling. Refers to the European Waste Catalogue (EWC), (Directive2000/532/EC). Hazardous waste, its mixing and labelling are covered, waste oils are included. Radioactive waste and decommissioned explosives are excluded.

Directive 2010/80/EU

Directive 2010/80/EU – List of defence related products
Items listed on the Common Military List of the European Union (CMLEU) shall be subject to authorisation and licensing procedure. CMLEU includes some biological agents and radioactive material (CMLEU ML7 a) adapted for use in war, chemical war fare agents (CMLEU ML7 b) precursors and key precursors(CMLEU ML7 c), equipment for military use, for the dissemination of the materials and substances (CMLEU ML7 e).

Directive on the control of high-activity sealed radioactive sources and orphan sources

Council Directive 2003/122/EURATOM on the control of high-activity sealed radioactive sources and orphan sources. The Directive regulates marking and traceability of high activity sources, recovering of orphan sources. An international cooperation and information exchange system is scheduled, National competent Authorities are designated.

Dirty bomb

Uses the force of conventional explosives to scatter chemical, biological and or radioactive substances/material. The device is intended to cause contamination, economic and physical harm.

See also: radiological dispersion device (RDD)

Disease

An unhealthy condition of the body (or a part of it) or the mind (illness, sickness) presented by symptoms peculiar to it.

Chronic diseases are diseases of long duration (3 months or more) and generally slow progression.

Nosocomial disease is a disease acquired in a hospital, especially in reference to an infection.

Disinfection

The necessary process of destruction and killing of pathogenic and other kinds of microorganisms by physical or chemical means. Disinfection is less effective than sterilization; it does not ensure the margin of safety associated with sterilization processes.

Dispersion

Spread of radioactive particles, chemical substances or biological agents. Parameters such as weather (especially temperature and wind), substance properties (like volatility and specific weight: lighter or heavier than air) and topographical conditions have great influence on the dispersion.

Dissemination

A spreading abroad for some fixed purpose or with some definite effect, e.g. disease progression by expanding step by step in a population

Dose

See Dose C&B, Dose RN and Absorbed radiation dose

Dose C&B

Is the absorbed dose, measured in weight (gram, milligram or µg)

Dose RN

A general term for the amount of radiation absorbed over a period of time.

See also: Absorbed radiation dose, Lethal dose

Dual use-item

Items, including software and technology, which can be used both for civil and military purposes. It includes all items, which can be used in the manufacture of weapons. A list of controlled dual-use items is set out in Annex I to the EU Council Regulation 428/2009.

ECDC

ECDC - European Centre for Disease Prevention and Control – (Regulation 851/2004) Agency to identify, assess, threats to human health from communicable diseases. Monitors and ensures the integrated operation of the already existing "Dedicated surveillance networks" on diseases and the following "Community Network". Maintains databases(s) on epidemiological surveillance.

ECHA

ECHA - European Chemicals Agency. The Helsinki-based ECHA opened for business in June 2008. ECHA manages the EU's Registration Evaluation and Authorisation and Restriction of Chemical Substances (REACH) regulation. This regulation is designed to provide additional information on chemicals, to ensure their safe use, and to ensure competitiveness of the European industry. ECHA will also provide information on chemicals and technical and scientific advice.

ECHEM Portal OECD

eChem Portal OECD (Organization for Economic Cooperation and Development). Public database and search engine in other participating databases. Gives access to information on properties of chemicals (physical chemical properties, ecotoxicity and toxicity of the substances).

ECURIE

European Community Urgent Radiological Information Exchange (ECURIE) - system for early notification and exchange of information in case of radiological or nuclear emergency. Nationally operated by a network of Contact Points (CPs) and Competent Authorities (CAs) via specific software (CoDecS).
ECURIE is a 24h radiological emergency notification and information exchange system in case of a major nuclear accident or radiological emergency. The legal basis for participation in ECURIE by the EU Member States is the EU Council Decision 87/600/Euratom. The Radiation Protection unit of DG ENER is responsible for ECURIE management and development. The unit maintains a 24h preparedness service in order to activate the system in the event of a nuclear or radiological emergency.

Effective dose coefficient

The radiotoxicity of a nuclide is determined by its effective dose coefficient $e(T)$, which accounts for radiation and tissue weighting factors, metabolic and biokinetic information. The quantity T is the integration time in years following intake. For adults, the integration time is 50 years.

See also: Equivalent dose RN, Committed effective dose

Electron

An electron is a stable subatomic particle that has a negative electrical charge.

Endemic

The continual, low-level and low-frequency presence of disease in a community or an infectious agent within a given geographic region or population (human, animal or plant).

Epidemic

The occurrence of more cases and fast spreading of a disease than would be expected in a given area or among a specific group of people during a given time period.

An epidemic is not a characterization of how many members or what proportion of the population is infected but is defined by how fast it is growing.

Epidemiology

The study of the incidence and distribution of diseases, and of their control and prevention

Epizootic

An outbreak or epidemic of disease in animal populations affecting many animals of one kind at the same time, e.g. avian flu in fowl, foot and mouth disease in cattle

Equivalent Dose RN

The equivalent dose is used to reflect the damage done in biological systems by different types of radiation. It is expressed by the absorbed dose multiplied with a factor which depends on the type of radiation and the considered organ.

See: Sievert

ERPG

Emergency Response Planning Guidelines (ERPG) are air concentration guidelines for single exposures to agents and are intended for use as tools to assess the adequacy of accident prevention and emergency response plans. ERPG are issued by the American Industrial Hygiene Association AIHA.

ESIS

See European Chemical Substances Information System

ETW

See: AEGL-2

EU CBRN-Action Plan

Developed by DG HOME of the European Commission, with the overall goal to reduce the threat and damage from CBRN incidents to the citizens of the European Union.

EU WMD-MC

EU WMD-MC – Council of the European Union - Weapons of Mass Destruction Monitoring Centre –Coordination centre for the EU actions against trafficking and proliferation of weapons of mass destructions CBRN-based. Created after the EU WMD Action Plan – June 2003.

European Chemical Substances Information System

European Chemical Substances Information System (ESIS) – Pre-Reach System (Directive 67/548/EEC as amended) providing details on chemicals. Main sub databases:
EINECS (European Inventory of Existing Commercial chemical Substances)
ELINCS (European List of Notified Chemical Substances)

EURDEP

EURDEP - European Radiological Data Exchange Platform - Network for exchanging automatic monitoring data. (Recommendation 2000/473/Euratom).

Euvac.net

Euvac.net - European surveillance network for vaccine-preventable diseases. (Decision No. 2119/98/EC) Co-founded by ECDC as a network for the epidemiological surveillance and control of communicable diseases in the European Community.

Exemption Levels RN

Radioactivity levels are established by a regulatory body, expressed in activity concentration, total activity, dose rate or radiation energy. Below a certain level a source of radiation may be granted exemption from regulatory control, i.e. exempted from notification, registration or licensing.

Exposure

Process by which a CBRN substance/material becomes available for absorption, swallowing, breathing, toughing the skin or eyes to humans.

Exposure may be short term (acute exposure), medium-term or long-term (chronic exposure).

FFP Masks

Filtering Facepiece Particle masks are respiratory protection of high quality against dust, solid and liquid aerosol.

Find

A method of discovery involving accidental find of uncontrolled material, which is not deliberately searched for, and without the use of radiation detection equipment (e.g. orphan source).

Fissile material

In nuclear engineering, a fissile material is one that is capable of sustaining a chain reaction of nuclear fission. In the arms control context, the term "fissile" is used to describe materials that can be used in the fission primary of a nuclear weapon. These are materials that sustain an explosive fast fission chain reaction. Uranium-233, Uranium-235, Plutonium-239 and Plutonium-241 are fissile materials.

Flammability

Measure of how easily a material ignites at normal temperatures.

Foodterrorism

An act or threat of deliberate contamination of food and feed with chemical, biological or radio nuclear agents for the purpose of causing injury or death to civilian population and/or disrupting social, economic or political stability

Foodborne disease

A disease of an infectious or toxic nature caused by or thought to be caused by the consumption of food or water

Gamma radiation

Gamma rays are a type of high energy ionizing radiation which may be emitted in the process of spontaneous disintegration of unstable atomic nuclei. Gamma photons have about 10,000 times as much energy as the photons in the visible range of the electromagnetic spectrum. Because of their high energy they can cover hundreds to thousands of meters in air before spending their energy. They can pass through many kinds of materials, including human tissue. Very dense materials, such as lead, are commonly used as shielding to slow or stop gamma photons.

GHS

The Globally Harmonized System of Classification and Labelling of Chemicals or GHS is an internationally agreed upon system set to replace the various different classification and labelling standards used in different countries. The GHS will use consistent criteria for classification and labelling on a global level.

Gray (Gy)

Gray (Gy) is the SI measurement unit of absorbed radiation dose due to ionizing radiation (1 Gy = 100 rad=1J/kg).

Half-life

The time in which one half of the atoms of a particular radioactive element disintegrate measured in time units (seconds, days, years millenniums)

Harmful substance

Substance that, following contact with an organism can cause illness or adverse effects either at the time of exposure or later in the life of the present and future generations

Hazard

An accidental or naturally occurring phenomenon with the potential to cause physical or psychological harm to humans including loss of life, damage or losses of property, and/or disruption to the environment or to structures (economic social, political) upon which a community's way of life depends.

HAZMAT

Is an acronym for hazardous materials.

See also: hazard

Health effect

Health effects or health impacts are changes in health or any derivation in the normal function resulting from exposure to an external agent, source or stimuli. Health effects are an important consideration in many areas, such as hygiene, pollution studies, and workplace safety, nutrition and health sciences in general.

Health hazard

Any factor or exposure that may adversely affect health

Hedis

Hedis – EU Web-based portal for disease outbreaks and health emergencies. For each new crisis a dedicated sub-portal is generated with information related to the threat (actors, maps, actions. Has an Interactive Disaster Analysis System and Hospitals database.

HPVC

High production volume chemicals, they are placed on the market in volumes greater than 1.000 tonnes per year.

Host

A person or an animal that can be infected by an infectious agent under natural (as opposed to experimental) conditions.

Hot zone

See: Inner safety perimeter

IAEA

The International Atomic Energy Agency (IAEA) is an UN organization that seeks to promote the peaceful use of nuclear energy, and to inhibit its use for any military purpose, including nuclear weapons. Though established independently of the United Nations through its own international treaty, the IAEA Statute, the IAEA reports to both the UN General Assembly and Security Council.

Identification

The clear and qualitative determination of which CBRN substance/material is present.

IDLH

Immediately **D**angerous to **L**ife and **H**ealth (IDLH) is a reference threshold defined by the U.S. National Institute for Occupational Safety and Health (NIOSH). Concentrations below IDLH shall allow unprotected exposure up to 30 minutes without suffering severe health effects. Other than for ERPG or AEGL thresholds, no severity levels are defined.

Illicit trafficking of RN materials

The unauthorized receipt, possession, use, transfer or disposal of nuclear materials and other radioactive sources, whether intentional or unintentional and with or without crossing international borders.

Impact

The strong and noticeable effect or influence on something or someone. In the context with CBRN often used to describe the effect of a CBRN release.

Incapacitating agent

"Psychoactive" agent that produces temporary physiological or mental effects, or both, which may persist for hours or days after exposure, rendering individuals incapable of concerted effort in performing their assigned duties.

Incidence

Number of new cases of illness commencing, or of persons falling ill, during a given period in a specific population: usually expressed as a rate.

Incident commander

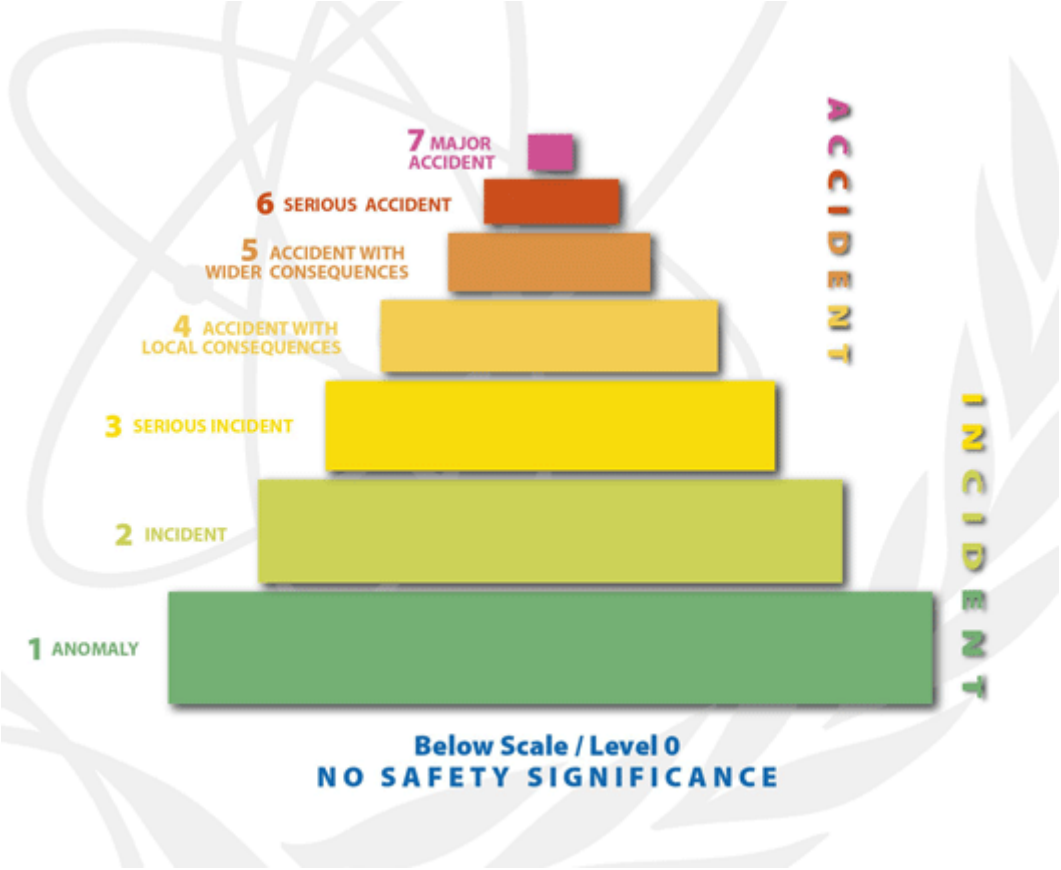
The responsibilities of commanders in police, fire brigade and medical services and the organisational structure of cooperation between the partners differ from state to state. Please contact your authority for more information.

Incubation period

The time from the moment of inoculation (exposure to the infecting organism or toxin) to the appearance of clinical manifestations (onset of disease) of a particular infectious disease.

INES

The International Nuclear and Radiological Event Scale (INES) is a tool for promptly communicating to the public nuclear accidents. Each increasing level is ten times more severe than the previous level.



Infectious / infectious agent

Is a biological agent such as viruses, bacteria, prion, parasites, or fungus that causes disease to its host (pathogen)

Infectious dose 50% (ID50)

Infectious dose (ID) is the amount of pathogen (measured in number of microorganisms) required to cause an infection in the host.
Infectious dose 50% (ID 50) is the amount of pathogen (quantity or concentration) required to cause an infection in half the hosts of a tested population after specified test duration.

Inner Safety Perimeter

Or danger zone or hot zone. Most hazardous zone where the initial CBRN release occurs or – in the direction of wind - disperses to. Only emergency response personnel wearing appropriate PPE is allowed to enter. Without detailed information about the situation the incident commander sets up initial inner perimeters depending on national standards.

Insecticides

Any substance or mixture of substances intended for preventing, destroying, repelling, or lessening the damage of any insects. Insecticides particularly toxic to humans are e.g. organophosphates or carbamates.

Intended use

The use of substances according to their designated purposes e.g. a chemical for synthesis or as a dyestuff or e.g. bacteria for the production of cheese.

Intentional use

Is the deliberate, malicious use of CBRN substances/materials with the intention to harm the society.

International Convention for the Suppression of acts of Nuclear Terrorism

Under this UN Convention of 2005, States have an obligation to criminalize a wide range of activities involving nuclear or other radioactive material. Article 2.1 establishes as offences the unlawful and intentional possession, use, threat, attempt or participation in acts involving radioactive material (in this convention, *radioactive material* includes nuclear material*)* with the intent to cause death, serious bodily injury or property damage. The convention sets up coordination rules for criminal proceedings, evidence exchange, and post crisis management.

Ion mobility spectrometer

Abbreviation: IMS. Measurement device for the detection of chemical contamination in very low concentrations (ppb to some ppm). Very effective in detecting and identifying Chemical Warfare Agents.

Ionizing radiation

Ionizing radiation is radiation with enough energy to remove tightly bound electrons from the orbit of an atom, causing the atom to become charged or ionized. Examples are alpha particles, gamma rays, X-rays and neutrons.

Isotope

Different forms of an element (or types of atom) having the same number of protons in their nuclei but a different number of neutrons. Isotopes of the same element have identical chemical properties. However, they may differ in their stability. Some decay and emit radiation.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management – IAEA – 1997 Covers management, transboundary movements , disposal of spent fuel and spent radioactive waste from civilian reactors and some military or defence programmes.
Each country has a regulatory body for the implementation. Emergency plans are set up.

Key component

See: precursor

Labels

To give first information, labels of dangerous substances provide a description of the content; a pictogram and a short hazard description.

See GHS, Type "A" package

Latency

The time delay between exposure and begin of symptoms.

Lethal dose

Amount of a substance or physical agent (radiation) that causes death when taken into the body by a single absorption (denoted by LD).

The median lethal dose, LD50, is the dose required to kill half the members of a tested population after specified test duration.

See also: Dose

Lethality

1. The fact of something being lethal; the ability of something to kill
2. The rate of death of organisms exposed to a toxic substance or radiation.

Lewisite

Lewisite is an organo-arsenic compound. Pure Lewisite is colourless and odourless. Technical grade of lewisite is a yellow or brown liquid with a distinctive odour that has been described as similar to scented geraniums.

Localisation

Localisation is the exact place of a CBRN contamination or the presence of a nuclear or other radioactive source.

LPVC

Low production volume chemicals. They are Chemicals placed on the market in volumes between 10 tonnes and 1.000 tonnes per year per producer/importer.

Mass decontamination

The planned and structured procedure using purpose designed decontamination equipment used in the vicinity of a C, B or R&N incident for the decontamination of a large number of casualties.

MedISys

MedISys (Medical Intelligence System) EU internet monitoring and analysis system. Identifies potential threats to public health. 'Threats' can be chemical, biological and radionuclear, and include communicable diseases.

MIC

MIC – Monitoring and Information Centre – EU tool of the "Community Mechanism for Civil Protection" (European Civil Protection - Council Decision 2007/779/EC - EURATOM). Has a 24/7 communication hub, facilitates Member States' co-operation in civil protection assistance. Communications are made using the "Common Emergency Communication and Information System" (CECIS)

Microorganism

Any organism, such as bacteria, viruses, parasites and some fungi that can be seen only with a microscope.

Monitoring

A continuous or periodic process of qualitatively or quantitatively determining the presence or absence of CBRN substances.

Morbidity

The proportion of sickness or of a specific disease in a geographical locality.
Morbidity can be measured in terms of three units:
1. Proportion of persons who are ill in a given population,
2. The illnesses (periods or spells of illnesses) that these persons experienced,
3. The duration (days, weeks, etc.) of these illnesses.

Mortality rate

The number of deaths in a given population or subpopulation in a given period.

Multilateral Export control Regimes

Multilateral Export Control Regimes (MECR) are systems coordinating national policies on export controls:

- Australia Group (1985) – common lists for dual use chemical manufacturing facilities, equipment, technology; dual use biological equipment, chemical weapon precursors and biological agents,
- Missile Technology Control Regime (1987) – controls on items contained in the Equipment, Software and Technology annex to the MTCR guidelines;
- Nuclear Suppliers Group (1975) – nuclear and nuclear-related exports;
- Wassenaar Arrangement (1995) – transfer of conventional armaments and dual use goods and technologies;

Mustard

See: Sulphur mustard

Naples II Convention

See: Convention on mutual assistance and cooperation between customs administrations

Nerve Agents

Nerve agents represent a group of chemical warfare agents.

Neutron

It is an elementary particle and part of the atom. It has no electrical charge.

NORM

Naturally **O**ccurring **R**adioactive **M**aterial (NORM). Radioactive material containing no significant amounts of radionuclides other than naturally occurring radionuclides, such us uranium, thorium, potassium and any of their decay products, such as radium and radon.

NPT

NPT – Treaty on the non proliferation of nuclear weapons – IAEA (1968) – is a treaty to limit the spread (proliferation) of nuclear weapons. Currently there are 189 states party to the treaty, five of which are recognized as nuclear weapon states: the United States, Russia, the United Kingdom, France, and China.

The treaty comprises rules on non-proliferation, disarmament, and the right to peacefully use nuclear technology.

Nuclear attribution

The process of tracing the origin of nuclear or radioactive material used in illegal activities, to determine the point of origin and routes of transit involving such material, and ultimately to contribute to the prosecution of those responsible.

See: nuclear forensics

Nuclear forensics

The analysis of intercepted illicit nuclear or radioactive material and any associated material to provide evidence for nuclear attribution.

Nuclear material

Nuclear material refers to uranium, plutonium, and thorium, in any form. This is differentiated further into "source material", consisting of natural and depleted uranium, and "special fissionable material", consisting of enriched uranium (uranium 235), uranium-233, and plutonium-239.

See also radioactive material

Nuclear Medicine

Nuclear medicine is a branch of medicine and medical imaging that uses radionuclide and relies on the process of radioactive decay in the diagnosis and treatment of diseases (i.e. radiotherapy).

Nuclear Safeguards

The safeguards system comprises an extensive set of technical measures to verify the correctness and the completeness of the declarations made by States about their nuclear material and activities.

See: IAEA, NPT

Nuclear security

Implementation of the Nuclear Security covers three areas:

- Prevention to protect nuclear and other radioactive material and facilities and transports from malicious acts.
- Detection of and response to malicious acts involving nuclear and other radioactive material
- Information coordination and analysis which includes evaluation, cooperation with bilateral and multilateral support programs, and information collection.

Nuclide

A species of atom, characterized by its mass number A, atomic number Z, and nuclear energy state. Radioactive nuclides are referred to as radionuclides or radioisotopes.

Occurrence (case)

In epidemiological terms means frequency of a disease without defining incidence or prevalence.

OECD Chemical Safety, Directories and Databases on Chemicals

OECD Chemical Safety, Directories and Databases on Chemicals – portal grouping databases divided per typology of substance. Some entries are:

- EXICHEM (Existing Chemicals) Pointer Database (replaced by eChemPortal)
- OECD's New Industrial Chemicals Information Directory
- OECD Integrated High Production Volume (HPV) Chemicals Database – assessment and investigation of HPV chemicals
- International Directory for Emergency Response Centres - contains a list of contact points in the countries specialized in the response area.
- Pollutant Release and Transfer Registers (PRTR) databases
- OECD's Database on Chemical Risk Assessment Models

Origin of infection

Source of an infectious disease, for example a sick person or animal, a germ carrier (in the incubation period), permanent shedders or non-living pathogen reservoirs (water, soil, dust, food) from which an infectious agent passes to a host.

Orphan source

The term "orphan source" generally refers to a source which poses sufficient radiological hazard to warrant regulatory control, but which is not under regulatory control because:

- It is in an uncontrolled condition that requires removal to protect public health and safety from a radiological threat
- Controlled or uncontrolled, but for which a responsible party cannot be readily identified.
- Controlled, but the material's continued security cannot be assured.
- In the possession of a person, not licensed to possess the material
- In the possession of a State radiological protection program for the sole purpose of mitigating a radiological threat because the orphan source is in one of the conditions described in one of the first four bullets and for which the State does not have a means to provide for the material's appropriate disposition

See also: Directive on the control of high-activity sealed radioactive sources and orphan sources

Outbreak

Synonymous with "epidemic". The term is alternatively used to describe a localised (as opposed to generalised) epidemic.

Outer Safety Perimeter

Or shut-off zone. The area where the rescue service personnel mainly work. Unauthorised entry is prohibited. No special PPE is necessary in this area. Without detailed information about the situation the incident commander sets up initial outer perimeters, depending on national standards.

Pandemic

An epidemic occurring over a very wide area (countries or continents) and usually affecting a large proportion of the population (human and/or animals).

Panzootic

Is a pandemic in animals, a disease that is spread over large distances across many continents, and affects a significant portion of the animal population.

Pathogen / pathogenic agent

The ability of an organism or infectious particle causing serious disease or illness to its host (humans, animals or plants).

Pathogenicity

The quality of infectious agents to produce pathological changes or disease.

Percutaneous

"Through the skin". Refers to route of entry of a substance into the body.

Persistency

Resistance of substances against chemical or biological degradation. Substances with high persistence can contaminate areas for a long period if no decontamination measures are taken.

Personal Protection Equipment

See: PPE

Photo ionisation detector

Abbreviation: PID. Measurement device for the detection of chemical vapours in the air. Allows detection of a broad range of TICs, in particular organic substances, and gives information about increasing or decreasing of concentration. Cannot be used to identify substances.

Physical State

Qualitatively different appearances of substances, i.e. solid, liquid, gaseous. The Physical state of a substance depends on the actual temperature and pressure.

Phytopathology

The scientific study of plant diseases and their control caused by pathogens (infectious diseases) and environmental conditions

Plutonium

The chemical element plutonium (Pu) is a radioactive element with the atomic number 94, produced when uranium is irradiated in a reactor. It is used primarily in nuclear weapons and, along with uranium, in mixed-oxide (MOX) fuel for reactors.

Polonium

The chemical element Polonium (Po), atomic number 84, is a silver-gray semi-metal. This highly radioactive element occurs in uranium ores.

PPE

Abbreviation for Personal Protective Equipment. Specialised equipment consisting of respiratory protection, protective suit, hard hats, boots and gloves. To be worn by staff during work to prevent exposure or contamination.

Precursor

Any chemical reactant, which takes part in the production of a toxic chemical, is a precursor. The most important precursor is called key component.

See also: toxic chemical

Prevalence

Number of instances of disease cases (new and existing) in a given population at a designated time

Prevention

All medical measures, health or other actions (e.g. social, political, economic) that reduce exposure or other risks, prevent the onset of a disease or a health event or limit the development, exacerbation, and ensure its demise.

Prevention RN

In the RN field, the term “prevention” is also used to describe the first line of protection against nuclear terrorism.
Prevention includes measures to protect nuclear and other radioactive materials against theft or other form of loss of control, illegal possession, smuggling, and unauthorized use, as well as measures to protect nuclear installations and transport against sabotage and other malicious acts that can result in radiation exposure to the general public or the environment.

Preventive medicine (prophylaxis)

Preventive medicine or preventive care refers to measures taken to avert and avoid diseases (or injuries) rather than curing them or treating their symptoms.

Quarantine

Enforced isolation or restriction of free movement imposed to prevent the spread of contagious disease to others, alternatively, to isolate a person who does not have a disease during a disease outbreak, in order to prevent that person from catching the disease.

Radiation

Radiation is a form of energy. There are two basic types of radiation: ionizing and non-ionizing radiation. The difference between these two types is the amount of energy they have. Ionizing radiation (energy more than 5 eV) has the ability to ionize atoms, which means that electrons could be removed from the atoms. Non-ionizing radiation (energy less than 3 eV), like i.e. UV-light and visible light could not ionize atoms.

Radioactive material

Material containing radioactive isotopes that give off radiation as they decay.
A report of IAEA defines: “radioactive material shall mean any material having a specific activity greater than 70 Becquerel/kg“.

Radioactive source

A radioactive source can be of natural or artificial origin (manufactured source). A manufactured source of radiation is typically used for industrial, research, or medical applications, i.e. Iodine-131(^{131}I) for radioisotope therapy of thyroid cancer, Caesium-137 (^{137}Cs) or Cobalt-60 (^{60}Co) for industrial radiography in non destructive testing and inspecting materials for hidden flaws.

See: nuclear medicine

Radioactivity

The spontaneous emission of radiation, generally alpha particles or beta particles, often accompanied by gamma rays, from the nucleus of an unstable isotope; also, the rate at which radioactive material emits radiation.

Radioisotope

Radionuclides are often referred by physicists as radioisotopes in nuclear medicine.

Radiological dispersion device (RDD)

A device that spreads radioactive material by exploding a conventional (non-nuclear) explosive.

See also: dirty bomb, TIR

Radionuclide

An isotope of an element that decays or disintegrates spontaneously, emitting radiation. Approximately 3000 natural and artificial radioisotopes have been identified.

See: NORM, Nuclear medicine

Radiotoxicity

The radiotoxicity (as opposed to chemical toxicity) of a substance refers to its potential capacity to cause damage to living tissue due to its ionizing radiation.

See also: Effective dose coefficient

RAS-Bichat

The Rapid Alert System-Task Force on Biological and Chemical Agent Attack (RAS-Bichat) – EU programme for cooperation on preparedness and response.
Mechanism for information exchange, consultation and coordination in health-related issues for attacks with biological and chemical agents.

REACH

Reach - Regulation of the European Parliament and of the Council (1907/2006) - it standardizes the registration, evaluation, authorisation and restriction of all already existing (phase-in) and new (non-phase-in) chemical substances. Information about the properties of substances is stored in a database (REACH-IT) run by the European Chemical Agency (ECHA). Radioactive, custom subject substances and non-isolated intermediates are excluded.

Reactivity

A substance's tendency to undergo chemical reactions. The opposite of reactive is inert.

Recontamination

The post-process introduction of a biological contaminant into a product, a substance or on an object after it has been effectively sterilised.

Reservoir

Any host or carrier that harbours pathogenic organisms, without injury to itself and serves as a source from which other susceptible hosts can be infected. The infectious agent primarily depends on the reservoir for its survival.

Regulation (EC) No 689/2008

Regulation (EC) No 689/2008. Implemented the Rotterdam Convention, involving

- some of the chemicals subject to the prior informed consent (PIC) procedure,
- some hazardous chemicals banned or restricted within the Community or a Member State, and
- all chemicals when exported in relation to their classification, packaging and labelling.

Countries have to designate national authorities.
Not applicable to radioactive materials and substances, wastes, chemical weapons under the dual use regime and genetically modified organisms.

Rescue

Is the assisted removal of people unable to remove themselves from an area of greatest danger to a place of relative or complete safety.

Resolution 1540

Resolution 1540 (United Nations Security Council - Non-proliferation of weapons of mass destruction 2004) – UN Member States must impede non-State actors to develop, acquire, manufacture, possess, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery. States have to control materials and their illicit trafficking.

Respiratory protection

Two types of devices provide respiratory protection: the air purifying respirator by using various kinds of filters (see FFP masks) and the air-supplied respirator providing clean, respirable air from another source. This includes self contained breathing apparatus (SCBA).

Responder Decontamination

Preliminary cleaning of emergency personnel, including their clothing, other persons and equipment.

Ricin

Toxin extract from plant (castor beans) listed in the Chemical Weapons Convention. Act as a poison.

Riot Control Agent

Riot control agents are compounds that cause temporary incapacitation by irritation of the eyes and irritation of the upper respiratory tract. They are often called irritants, irritating agents, and harassing agents; the general public usually calls them "tear gas".

Risk

The probability of adverse effects caused by a hazardous phenomenon or substance in an organism, a population, or an ecological system.

Risk assessment

Overall process of hazard identification (identification of a risk source capable of causing adverse effects to humans or the environment) and hazard characterization (quantitative evaluation of the nature of the adverse health effects associated with the hazard), exposure assessment (evaluation of the likely exposure of man and/or the environment to risk sources) and risk characterisation (estimation, including attendant uncertainties, of the probability of occurrence and severity of known or potential adverse health effects in a given population).

Risk factor

A variable that increases the probability of disease or harm to health (e.g. genetic makeup or personal history)

Risk Management

The process, distinct from risk assessment, of weighing policy alternatives, in consultation with all interested parties, considering risk assessment and other factors relevant for the health protection of workers and consumers, the protection of the environment and for the promotion of fair trade practices, and, if needed, selecting appropriate prevention and control options.

Risk population / Population at risk

Population likely to develop a given disease under given conditions.

Rotterdam Convention

Rotterdam Convention on the prior informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998) – Some banned or severely restricted chemicals and severely hazardous pesticide formulations might be listed in Annex III of the Convention, and subject to the “Prior Informed Consent” (PIC) Procedure for imports and exports. National Authorities are appointed. The convention does not cover radioactive materials, wastes, chemical weapons.

Safety perimeter

CBRN incidents require quick set up of a spatial structure. Safety perimeters are set up by the incident commander. The area of safety perimeters depends on specific situation (threat, weather conditions, etc.). Outside of safety perimeters no adverse effects for unprotected persons should occur.

The safety perimeter is divided into inner safety perimeter and outer safety perimeter. The decontamination area is located at the border between both areas.

Inner and outer safety perimeters will be adjusted accordingly as soon as a thorough situation assessment is conducted.

Sample

A small part selected for inspection or analysis.

Sampling

The act, process, or technique of selecting a suitable sample;

1. the act, process, or technique small parts are taken as samples - following defined sampling procedures - for inspection or analysis in order to obtain reliable information about the nature and composition of CBRN substances or contaminated material or
2. Selecting a representative part of a population for the purpose of determining parameters or characteristics of the whole population.

Sarin (GB)

An organophosphate CWA (nerve-agent). In pure form clear, colourless and tasteless liquid without odour.

Secondary contamination

or cross-contamination: the exposure to hazardous substances through contact with contaminated people or objects.

Security

See Biosecurity, nuclear security

Self contained breathing apparatus (SCBA)

Is a respirator with face mask providing regular clean air compressed into cylinders carried on the user's back.

See also: FFP

Seveso II – Directive

SEVESO II – Directive 2003/105/EC - Regulates establishments where certain dangerous substances are processed or stored. The activity's operator must set preventive measures, and provide information in case of accidents. Every State must appoint a Competent Authority. Not applicable to ionizing radiations, transport, some waste-fill sites.

Shielding

Materials (lead, concrete, etc.) used to block or attenuate radiation in order to protect humans and equipment.

Sievert

The equivalent dose of radiation that harms human health due to its biological effects is measured in Sievert (Sv). It is defined by multiplying the absorbed radiation dose with a weighting factor depending on the radiation type.

See also: Units RN, Gray

Soman (GD)

An organophosphate CWA (nerve-agent). In pure form clear, colourless to yellowish-brown liquid.

Special nuclear material (SNM)

Uranium enriched in the isotope Uranium-233 or Uranium-235 and Plutonium.

Specific protection measure

Any active action taken to protect oneself from the adverse effect of the exposure to or the contamination by substances or biological agents e.g. vaccination and preventive treatment

See: Vaccine

Staging area

Also called tactical holding area (UK) or marshalling area (UK). A place where units, materials, etc are gathered before being called to the scene. Ambulances can park here.

Stockholm Convention

Stockholm Convention on Persistent Organic Pollutants (2001) UN. It regulates the production, use, import and export of Persistent Organic Pollutants (POPs). These are chemical substances that persist in the environment and pose a risk of causing adverse effects to human health and the environment. National focal points have to be appointed for information exchange.

Strain

An organism that is different from other organisms of the same species due to genetic differences, a genetic variant or subtype of a microorganism

Sulphur mustard

Synonyms: S-Lost, HD, Yperite. Pure sulphur mustards are colourless, viscous liquids at room temperature.

See: Blister agent

Symptom

Any subjective evidence of a disease or an effect induced by a substance as perceived by the affected subject or evidenced by an observer.

Tabun (GA)

An organophosphate CWA (nerve agent). It is a clear, colourless, and tasteless liquid with a faint fruity odour.

Target population

1. Population or group to which the results of a study should be applicable;
2. Population or group to which/for whom an intervention or epidemiological health program is intended.

Tear agent

Or tear gas,

see Riot control agent

Test tubes

Test tubes are simple analytical devices to determine the airborne concentration of chemical substances. More than 160 test tubes for different substances are available. Usually standard equipment of CBRN teams.

Threat

The likelihood of occurrence of a hazard or event with a harmful effect. In contrast to risk, a threat is not related to the impact it may cause. In the context of public health, a threat is defined as a substance, condition or event, which by its presence has the potential to rapidly harm an exposed population, sufficiently lead to a major crisis.

Threat assessment

Set of investigative and operational techniques that can be used by authorities to identify and examine vulnerable areas of the society and identify, assess, and manage the risks of targeted violence and its potential perpetrators.

TIC

Toxic Industrial Chemicals, Chemicals used in industrial operations or research which have adverse effects on human health or on the environment if released. Some TICs can be used as CWA, e.g. chlorine or phosgene.

TIM

Toxic industrial material. Industry-associated materials with harmful effects on humans; they can be subdivided into toxic industrial biologicals (TIBs), toxic industrial chemicals (TICs) and toxic industrial radiologicals (TIRs).

TIR

Toxic Industrial Radiologicals, radioactive materials used in industrial operations or research which have adverse effects on human health or on the environment if released. TIRs can be used as Radiological dispersion device or dirty bomb.

Toxic

Ability to cause injury to living organisms as a result of physicochemical, poisonous interaction.

Toxic chemical (CBRN)

The Chemicals Weapon Convention defines a toxic chemical as any chemical which through its chemical action on life processes can cause temporary incapacitation, permanent harm or death to humans or animals. It does not matter, whether the toxic chemical is produced in facilities, in munitions or elsewhere. All toxic chemicals are included, regardless of their origin or of their method of production.

Toxicity

Toxicity is the degree to which a substance can damage an organism. Toxicity can refer to the effect on a whole organism or on a part of this organism, such as a cell (cytotoxicity) or an organ (organotoxicity).
Depending on the timeframe, there is:
(1) acute toxicity = harmful effects through a single or short-term exposure to a substance or mixture;
(2) chronic toxicity = harmful effects of repeated or continuous exposure to a substance or mixture.

Toxic effects are dose-dependent. T. is therefore measured by a quantity of a substance required to achieve a given effect.
This can be expressed by a "lethal dose" LD50, the dose that kills 50 per cent of the exposed population, expressed usually in milligrams (mg) per kilo bodyweight or by an "incapacitating dose" ID50 that incapacitates 50 per cent of the exposed population.

For exposure to an aerosol or vapour the dose can be expressed by multiplying time and concentration. The result is the "concentration time" Ct (expressed as mg. min/m3). The term LCt50 is often used to denote the vapour or aerosol exposure (Ct) necessary to cause death in 50% of the population exposed.

Toxicokinetics

Toxicokinetics is the study of the absorption, distribution, metabolism, and elimination of a poison. Simply stated, toxicokinetics is what the body does to the poison.

Toxicodynamics

Toxicodynamics is the study of the cellular and molecular mechanisms of action of a poison. Simply stated, toxicodynamics is what the poison does to the body.
The defining factors for any toxic effect are toxicity, latency and persistency of the toxic substance.

Toxin

A complex and poisonous organic substance, especially a protein, that is produced naturally by living cells or organisms such as a microbe, animal or plant or synthetically. A Toxin is capable of causing disease when introduced into the body tissues but is often also capable of inducing neutralizing antibodies or antitoxins

Transport of dangerous goods, core Legislation

Adr2011 – (1957) - Unece United Nations Economic Commission for Europe - European Agreement Concerning the International Carriage of Dangerous Goods by Road

Adn2009 – (2000) - Unece European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways - provisions on substances' carriage in packages or bulk.

Directive 2008/68/EC – on inland transport of dangerous goods

Directive 98/91/EC – For motor vehicles and their trailers for the transport of dangerous goods by road

Directive 95/50/EC - Checks on the transport of dangerous goods by road. Allows the Authorities of the Member States to exchange data.

Directive 2002/59/EC - Notification of dangerous or polluting goods on ships, intervention in the event of incidents and accidents at sea.

Marpol 73/78 - International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 – IMO- Annex II (1987) is referred to transport of chemicals in bulk. Annex III is for packed harmful substances (1992)

Its stated object is to preserve the marine environment through the complete elimination of pollution by oil and other harmful substances and the minimization of

accidental discharge of such substances. As of 31 December 2005, 136 countries, representing 98% of the world's shipping tonnage, are parties to the Convention.

Triage

See: Decontamination examination

Trigger list

A list of sensitive items to which export controls apply.

See also Zangger Committee

Type "A" package

A transport package used for the transport of relatively small, but significant, quantities of radioactive material. The packages are required to maintain their integrity during normal transport conditions. Because it is assumed that this type of package could be damaged in a severe accident and that a portion of their contents may be released, the amount of radionuclides they can contain is limited by the IAEA Regulations. Type A packages are used to transport radionuclides for medical purposes and also for some nuclear fuel cycle materials.

Type "B" packages are required for the transport of highly radioactive material e.g. unencapsulated radioisotopes for medical and research uses or spent nuclear fuel.

See also Labels

UN Number

UN number is a four-digit number for the labelling of hazardous substances in international transport. Most hazardous substances possess an unique UN number (e.g. UN1017: chlorine). Some UN numbers denote groups of substances (e.g. UN1993: Flammable liquid n.o.s.). The complete list of UN numbers can be found in the ADR/RID regulation.

Units RN

See: Becquerel, Curie, Gray, Sievert

Uranium

Uranium (U) is very dense, heavy and silvery-white metal, found naturally as ore in deposits. It is composed of three major isotopes, uranium 238 (more than 99%), uranium 235 (0.72%), and uranium 234 (0.005%).

Exposure to uranium can result in both chemical and radiological toxic effects. Chemical toxicity: Uranium is very toxic after ingestion or inhalation, main target organ is the kidney.

See also: uranium 235, uranium 238

Uranium 235

Naturally occurring uranium contains 0.72% of Uranium 235 (^{235}U). It is used to fuel nuclear reactors (3-5 % enrichment typically) or to produce nuclear weapons (90% or more enrichment). ^{235}U is the fissile isotope of uranium. It has a half-life of 703.8 million years.

See: Fissile Material

Uranium 238

Naturally occurring uranium contains 99.284% of the Uranium 238 (^{238}U) isotope. It is non fissile.

See: Depleted Uranium

Vapour

Synonym for the gaseous physical state of a substance that is normally a liquid at usual environmental temperatures. Vapours can like gases easily be dispersed over long distances.

Vapour Pressure

Property which describes a substances tendency to evaporate at a given temperature. It increases with increasing temperature. The higher the vapour pressure, the easier a substance can form vapours. Examples (at 20°C): Ethyl ether 58,5 kPa, Water 2,3 kPa, Mustard gas 0,015 kPa. (kPa = Kilopascal)

Vaccine

A suspension of attenuated or killed microorganisms. Vaccines are used to artificially induce immunity against a disease and thus prevent, meliorate or treat the infectious diseases but being incapable of causing severe infection.

Vector

Any agent (person, animal, insect) that carries and transmits an infectious agent from one organism to another.

Vesicants

See blister agent

Victims

Victims in a CBRN event are exposed to CBRN substances but not necessarily injured.

See: casualties

Virulence

1. Ability of a pathogen to multiply causing disturbances or injuries;
2. The degree of pathogenicity.

Virus

Living agents capable of reproducing only in a host cell and spreading disease by moving from host to host

Volatility

Tendency of a substance to evaporate and to form vapours. The volatility of a substance is described by its vapour pressure.

Vomiting agent

A Riot control agent that produces nausea and vomiting effects. It can also cause coughing, sneezing, pain in the nose and throat, nasal discharge, and tears.

VX

The VX nerve agent is the most well-known of the V-series of nerve agents (CWA, Organophosphate).

Weapons of Mass destruction

WMD - Weapons of Mass destruction - are chemical, biological, nuclear or large explosive munitions with the capacity to kill large numbers of human beings.

See: Resolution 1540, EU-WMD-MC

Weapon-Grade

Nuclear material which is most suitable to making nuclear weapons, such as uranium when highly enriched (up to 93% of uranium 235) or plutonium whose isotopic content in ^{239}Pu exceeds 90%.

2005 World Health Assembly Resolution

WHA.58.1 – 2005 World Health Assembly Resolution – Sets World Health Organization's collaboration with other international agencies for reducing the public health impact of emergencies, disasters, crises. Multispectral cooperation (medical, judicial, public order, rescue, social services, others).

X-rays

or Roentgen-rays, penetrating electromagnetic radiation, which has wavelengths much shorter than those of visible light. X-rays are emitted by electrons, outside the nucleus of an atom, as they (the electrons) loose energy.

Zangger Committee

The committee drafted a trigger list to specify the nuclear equipment subject to safeguards verification under the provisions of NPT article III.2.

Zoonosis

Disease or infection that is transmitted naturally between vertebrate animals and human vice versa