



**Absorbed Dose:** When ionizing radiation passes through matter, some of its energy is

**BREMSSTRAHLUNG:** Electromagnetic (x-ray) radiation associated with the deceleration of charged particles passing through matter. Usually associated with energetic beta-emitters such as  $^{32}\text{P}$ .

**FILM BADGE:** Packet of photographic film worn by personnel, which provides an approximate measure of radiation exposure for personnel monitoring, purposes. The badge may contain two or more films of different sensitivities, and it may contain filters that shield parts of the film from certain types of radiation.

**FILTER, PRIMARY:** A sheet of material, usually metal, placed in a beam of radiation

**HALF-LIFE, PHYSICAL (radiological) ( $T_r$ ):**

**MAXIMUM PERMISSIBLE DOSE EQUIVALENT (MPD):** The maximum dose equivalent that a person, or specified parts of a person's body, shall be allowed to receive in a specified period of time (quarter or year).

**MAXIMUM PERMISSIBLE CONCENTRATION (MPC):** That amount of a particular radioactive material in the air, water, or food that might be expected to result in the MPD to the person consuming that material at the standard rate of intake (based on a standard person).

**MEV (MeV):** Energy acquired by a particle of one electronic charge in passing through a potential difference of one million volts (MV).

**NEUTRON (SYMBOL n):** An uncharged elementary particle, with a mass slightly greater than that of a proton, that is found in the nucleus of every atom heavier than hydrogen. A free neutron is unstable and decays with a half-life of about 13 minutes into an electron, proton and a neutrino. Neutrons sustain the fission chain reaction in a nuclear reactor.

**NUCLEAR REGULATORY COMMISSION (NRC):** Federal agency responsible for licensing, inspection, and enforcement of regulations pertaining to the use of sources of ionizing radiation.

**PERSONNEL MONITORING DEVICES:** These devices are used to determine by either physical or biological measurements, the amount of ionizing radiation to which an individual has been exposed. The most common monitoring method is the use of a film badge.

**QUALITY FACTOR (QF):** The factor by which the absorbed dose is multiplied to obtain a quantity that expresses on a common scale, for all ionizing radiation, the radiation dose received by exposed persons.

**RAD:** The unit of absorbed radiation dose equal to 100 ergs per gram of absorbing material.

**RADIATION AREA:** An area, accessible to personnel, in which there exists ionizing radiation at such levels that a major portion of the body could receive in any one hour a dose in excess of 5 mrem, or in any five consecutive days a dose in excess of 100 mrem.

**RADIATION PROTECTION INSTRUMENT:** A device that detects and records the characteristics of ionizing radiation.

**RADIATION PROTECTION OFFICER (RPO):** A person trained in radiological science who is responsible for the protection of persons from the harmful effects of ionizing radiation. Also referred to as health physicist or radiation safety officer.

**RADIATION PROTECTION SURVEY:** Evaluation of the radiation hazards incident to the production, use or existence of radioactive materials or other sources of ionizing radiation. Such evaluation customarily includes a physical survey of the disposition of materials and equipment, measurements or estimates of the levels of radiation that may be involved, and a sufficient knowledge of processes using or affecting these materials. With this information, it is possible to predict hazards resulting from expected or possible changes to materials or equipment.

**RADIOACTIVE DECAY (DISINTEGRATION):** The spontaneous transformation of one nuclide into a different nuclide or into a different energy state of the same nuclide. The process results in a decrease, with time, of the number of the original radioactive atoms in a sample. It involves the emission from the nucleus of alpha particles, beta particles (or electrons), or gamma rays; or the nuclear capture or ejection of orbiting electrons; or fission. Also called radioactive disintegration.

**RADIOACTIVITY:** The spontaneous decay or disintegration of an unstable atomic nucleus, usually accompanied by the emission of ionizing radiation. (Often shortened to “activity”.)

**RADIOISOTOPE (RADIOACTIVE MATERIAL):** A radioactive isotope. An unstable isotope of an element decays or disintegrates spontaneously, emitting radiation. More than 1300 natural or artificial radioisotopes have been identified.

**RADIOTOXICITY:** A term referring to the potential of an isotope to cause damage to living tissue by absorption of energy from the disintegration of the radioactive material introduced into the body.

**REM:** The special unit of dose equivalence ( $\text{rem} = \text{rads} \times \text{QF}$ ). Also, one millirem (mrem) is equal to  $\frac{1}{1000}$  rem.

**RESTRICTED AREA (CONTROLLED AREA)** 10 CFR 20.1703(a)(2)(B) - 28.32m(mr)C / (ia)6(ei)-2(s)

## **THERMOLUMINESCENT DOSIMETER (TLD):**