

RADIOLOGICAL UNITS

Unit	Symbol	Brief Description	Use
Curie	Ci	3.7×10^{10} disintegrations per second (2.22×10^{12} DPM)	Special unit of activity
Becquerel	Bq	1 disintegration per second	SI unit of activity
Roentgen	R	2.58×10^{-4} C/kg. (photons in air)	Special unit of exposure; applies only to gamma and x radiation
Rad	rad	0.01 J/kg (100 ergs/g)	Special dose unit; applies to any radiation
Gray	Gy	1 J/kg.	SI unit of dose (Equals 100 rads)
Dose Equivalent	H	Dose x Q x any other modifying factors	Radiation protection
Quality Factor	Q	Biological effectiveness related to type of radiation	Radiation protection
Rem	rem	Rad dose x Q x any other modifying factors	Special unit of human dose equivalent
Sievert	Sv	Gy x Q x any other modifying factors	SI unit of human dose equivalent (Equals 100 rem)

RELATIONSHIP BETWEEN SPECIAL AND SI UNITS

Activity:	$1 \text{ Ci} = 3.7 \times 10^{10} \text{ Bq} = 2.22 \times 10^{12} \text{ DPM}$
Exposure:	$1 \text{ R} = 2.58 \times 10^{-4} \text{ C/kg.}$ The special unit for exposure is the Roentgen. There is no SI unit for exposure; it is simply expressed in C/kg.
Dose:	$100 \text{ rads} = 1 \text{ Gy}$
Dose Equivalent:	$100 \text{ rems} = 1 \text{ Sv}$
KeV:	Kilo (1000) electron volts
MeV:	Mega (1,000,000) electron volts
	$1 \text{ MeV} = 1000 \text{ keV}$
	$1 \text{ KeV} = .001 \text{ MeV}$
	$1 \text{ Ci} = 3.7 \times 10^{10} \text{ Bq} = 37 \text{ GBq}$
	$27 \text{ uCi} = 1 \times 10^6 \text{ Bq} = 1 \text{ MBq}$
	$1 \text{ rad} = 0.01 \text{ Gy} = 10 \text{ mGy}$
	$1 \text{ rem} = 0.01 \text{ Sv} = 10 \text{ mSv}$