

Radiation Measurements

	Radioactivity	Absorbed Dose	Dose Equivalent	Exposure
Common Units	curie (Ci)	rad	rem	Roentgen (R)
SI Units	becquerel (Bq)	gray (Gy)	sievert (Sv)	coulomb/kilogram (C/kg)

Standard Prefixes for Units of Measurements

Multiple	Prefix	Symbol
10^{18}	Exa	E
10^{15}	Peta	P
10^{12}	Tera	T
10^9	Giga	G
10^6	Mega	M
10^3	Kilo	K
10^2	Hecto	H
10^1	Deka	da
10^{-1}	deci	d
10^{-2}	centi	c
10^{-3}	milli	m
10^{-6}	micro	μ
10^{-9}	nano	n
10^{-12}	pico	p
10^{-15}	femto	f
10^{-18}	atta	a

The conversions were from the "HEALTH PHYSICS AND RADIOLOGICAL HEALTH" HANDBOOK, 4TH EDITION.

Commonly Used Units, Signs, Symbols, Conversion Factors and Constants

Conversion Factors

Multiply number of -	by -	to obtain number of
Radiological Units		
becquerel	2.703×10^{-11}	curies
becquerel	27.03	picocuries
curies	3.700×10^{10}	dis/sec (dps)
curies	2.220×10^{12}	dis/min (dpm)
curies	10^3	millicuries
curies	10^6	microcuries
curies	10^{12}	picocuries
curies	10^{-3}	kilocuries
curies	3.700×10^{10}	becquerel
nanocuries	37	becquerel
dis/min (dpm)	4.505×10^{-10}	millicuries
dis/min	4.505×10^{-7}	microcuries
dis/sec (dps)	2.703×10^{-8}	millicuries
dis/sec	2.703×10^{-5}	microcuries
gray	100	rad
kilocuries	10^3	curies
microcuries	3.700×10^4	dis/sec
microcuries	2.220×10^6	dis/min (dpm)
millicuries	3.700×10^7	dis/sec (dps)
millicuries	2.220×10^9	dis/min (dpm)
R	2.58×10^{-4}	C/kg of air (STP)
R	1	esu/cm ³ of air (STP)
R	2.082×10^9	ion pairs/cm ³ of air (STP)
R	1.610×10^{12}	ion pairs/g of air
R (33.7 eV/ion pr.)	7.02×10^4	MeV/cm ³ of air (STP)
R (33.7 eV/ion pr.)	5.43×10^7	MeV/g of air
R (33.7 eV/ion pr.)	86.9	ergs/g of air
R (33.7 eV/ion pr.)	2.08×10^{-6}	g-cal/g of air
R (33.7 eV/ion pr.)	=98	ergs/g of soft tissue

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Conversion Equivalence

1 curie = 3.7×10^{10} disintegrations per sec.		1 becquerel = 1 disintegration per sec.
1 millicurie (mCi)	equal	37 megabecquerels (MBq)
1 rad	equal	0.01 gray (Gy)
1 rem	equal	0.01 sievert (Sv)
1 roentgen (R)	equal	0.000258 coulomb/kilogram (C/kg)

megabecquerel (MBq)	equal	0.027 millicuries (mCi)
1 gray (Gy)	equal	100 rad
1 sievert (Sv)	equal	100 rem
1 coulomb/kilogram (C/kg)	equal	3,876 roentgens (R)

Conversion Factors

To Convert From	To	Multiply By
curies (Ci)	becquerels (Bq)	3.7×10^{10}
millicuries (mCi)	megabecquerels (Mbq)	37
microcuries (μ Ci)	megabecquerels (Mbq)	0.037
millirads (mrad)	milligrays (mGy)	0.01
Millirems (mrem)	microsieverts (μ Sv)	10
milliroentgens (mR)	microcoulombs/kilogram (μ C/kg)	0.258
becquerels (Bq)	curies (Ci)	2.7×10^{-11}
megabecquerels (Mbq)	millicuries (mCi)	0.027
megabecquerels (Mbq)	microcuries (μ Ci)	27
milligrays (mGy)	millirads (mrad)	100
microsieverts (μ Sv)	millirems (mrem)	0.1
microcoulombs/kilogram (μ C/kg)	milliroentgens (mR)	3.88

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