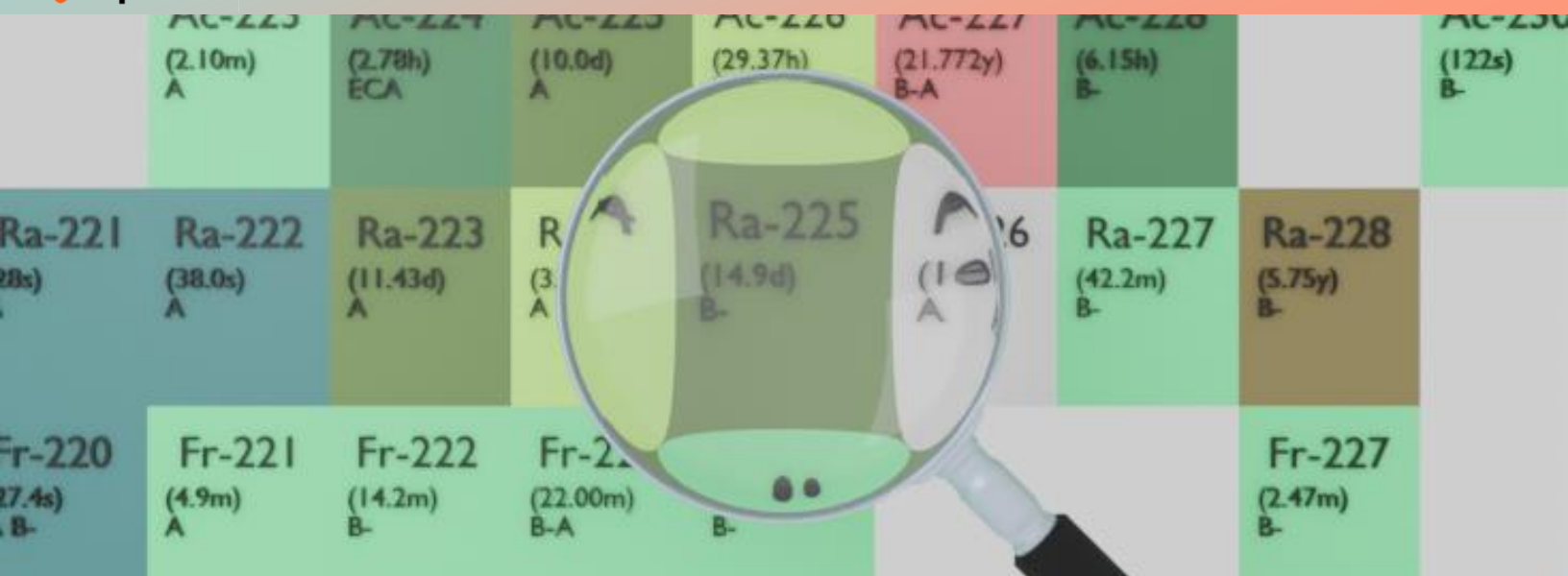




RADIUM-225

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ra-225
Atomic number (Z): 88
Mass number (A): 225
Neutron number (N): 137

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 14.9 [d]
Decay constant: 5.3843×10^{-7} [1/s]
Daughters: Ac-225 (100.0%)
Radioactive daughters: Ac-225

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.10496 [MeV]
Mean photon energy: 0.01446 [MeV]
Air kerma rate constant, Γ_{10} : 5.144×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 5.144×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.682×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000×10^0 [Gy $\cdot$ kg/Bq $\cdot$ s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-, \beta+, e-}$: 1.682×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 2.317×10^{-15} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

Dose point kernel source: **Graves, et al. Medical Physics. 2019 Nov.; 46(11):5284-5293.**

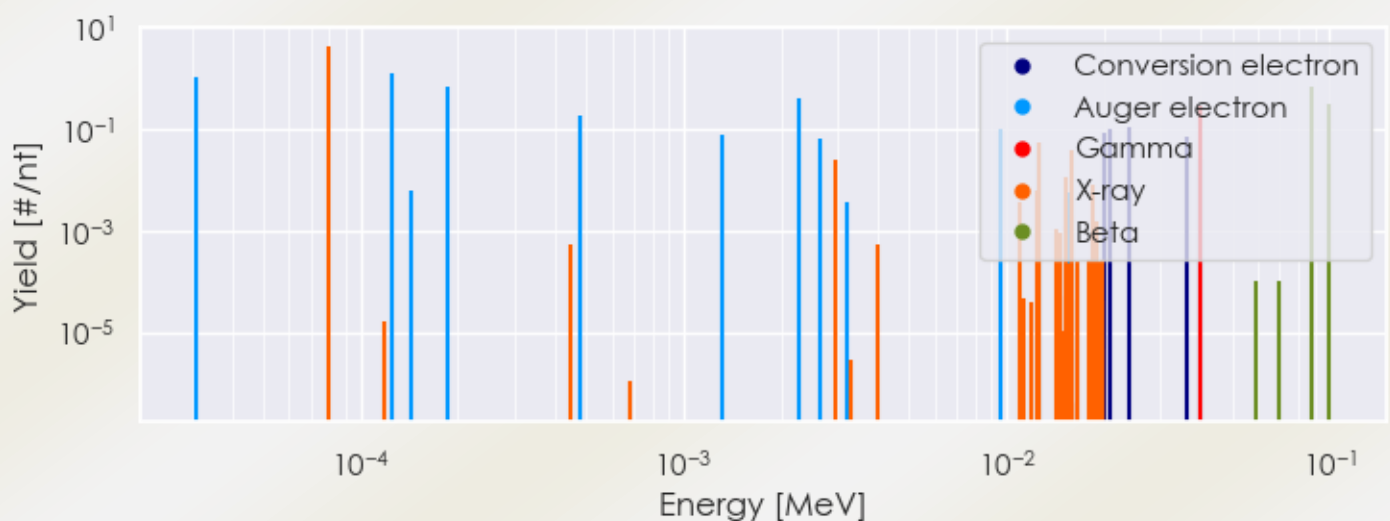
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Ra-225 DPK.csv

SUMMARY SPECTRA (PLOT)

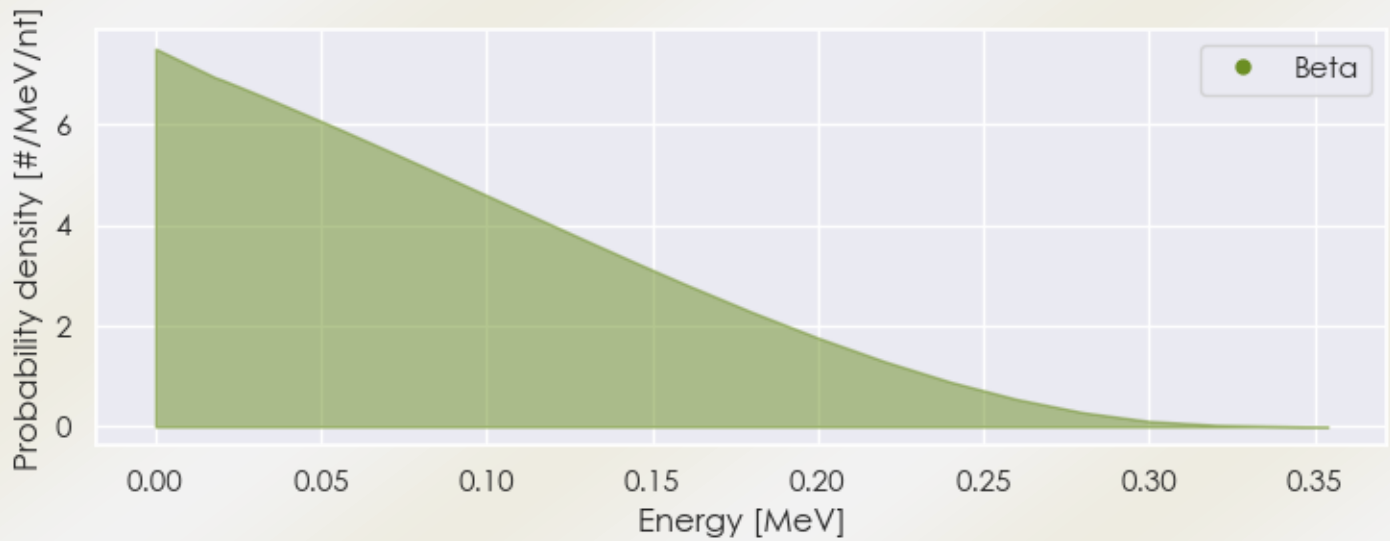
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Ra-225 Summary Spectrum.csv

BETA SPECTRA (PLOT)

Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated beta spectra file here: www.mirdsoft.org/products/MIRDspecs/Ra-225 Beta Spectrum.csv

TABULATED DATA

SUMMARY SPECTRA (TABLE)

Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**

Note: Radiations with yield < 0.01 are excluded from the table, but are available in the linked *.csv data.

Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Ra-225 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
7.95617e-05	4.512e+00	X-ray
2.97177e-03	2.404e-02	X-ray
1.26589e-02	5.452e-02	X-ray
1.52434e-02	1.117e-02	X-ray
1.57834e-02	3.750e-02	X-ray
4.00000e-02	3.000e-01	Gamma
8.77214e-02	6.949e-01	Beta
1.00082e-01	3.049e-01	Beta
3.11068e-05	1.028e+00	Auger electron
1.25209e-04	1.222e+00	Auger electron

1.86188e-04	6.787e-01	Auger electron
4.78256e-04	1.793e-01	Auger electron
1.31799e-03	7.796e-02	Auger electron
2.26392e-03	3.956e-01	Auger electron
2.65420e-03	6.554e-02	Auger electron
9.56088e-03	1.020e-01	Auger electron
1.25890e-02	5.012e-02	Auger electron
2.01520e-02	8.683e-02	Conversion electron
2.08370e-02	9.746e-02	Conversion electron
2.41170e-02	1.138e-01	Conversion electron
3.60961e-02	7.442e-02	Conversion electron
4.00000e-02	2.467e-02	Conversion electron

USEFUL LINKS

Isotope decay characteristics are periodically updated as better measurements can be made - changes that may not be reflected on this page. Please see useful links:

National Nuclear Data Center (NNDC): <https://www.nndc.bnl.gov/nudat3/mird/>

International Atomic Energy Agency (IAEA) Livechart: <https://www-nds.iaea.org/relnsd/vcharthtml/VChartHTML.html>

REFERENCE LINKS

ICRP Report 107: <https://www.icrp.org/publication.asp?id=ICRP%20Publication%20107>

Graves et al. Dose Point Kernels: <https://doi.org/10.1002/mp.13789>

MIRD Decay Schemes 2nd Edition: https://sites.snmmi.org/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6