

SI-81 (22.3m) CB+	SI-82 (25.36d) EC	SI-83 (32.41h) ECB+	SI-84 (STABLE)	SI-85 (64.84d)	SI-86 (STABLE)	SI-87 (STABLE)	SI-88 (STABLE)	SI-89 (50.53d) B-
Rb-80 (13.4s) CB+	Rb-81 (4.576h) ECB+	Rb-82 (1.273m) ECB+	Rb-83 (8.02d) EC	Rb-84 (32.77d) ECB+B-	Rb-85 (10.756y) B-	Rb-86 (18.642d) B-EC	Rb-87 (4.923E10y) B-	Rb-88 (17.78m) B-
Kr-79 (35.04h) CB+	Kr-80 (STABLE)	Kr-81 (2.29E+5y) EC	Kr-82 (STABLE)	Kr-83 (STABLE)	Kr-84 (STABLE)	Kr-85 (10.756y) B-	Kr-86 (STABLE)	Kr-87 (76.3m) B-

RUBIDIUM-84

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Rb-84
Atomic number (Z): 37
Mass number (A): 84
Neutron number (N): 47

RADIOACTIVE DECAY

Decay modes: β^- , β^+ , Electron capture
Half-life: 32.77 [d]
Decay constant: 2.4481×10^{-7} [1/s]
Daughters: Kr-84 (96.2%), Sr-84 (3.8%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.16334 [MeV]
Mean photon energy: 0.90769 [MeV]
Air kerma rate constant, Γ_{10} : 3.661×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 4.710×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 2.617×10^{-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, $\Delta_{\beta,\beta^+,e^-}$: 2.617×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.454×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

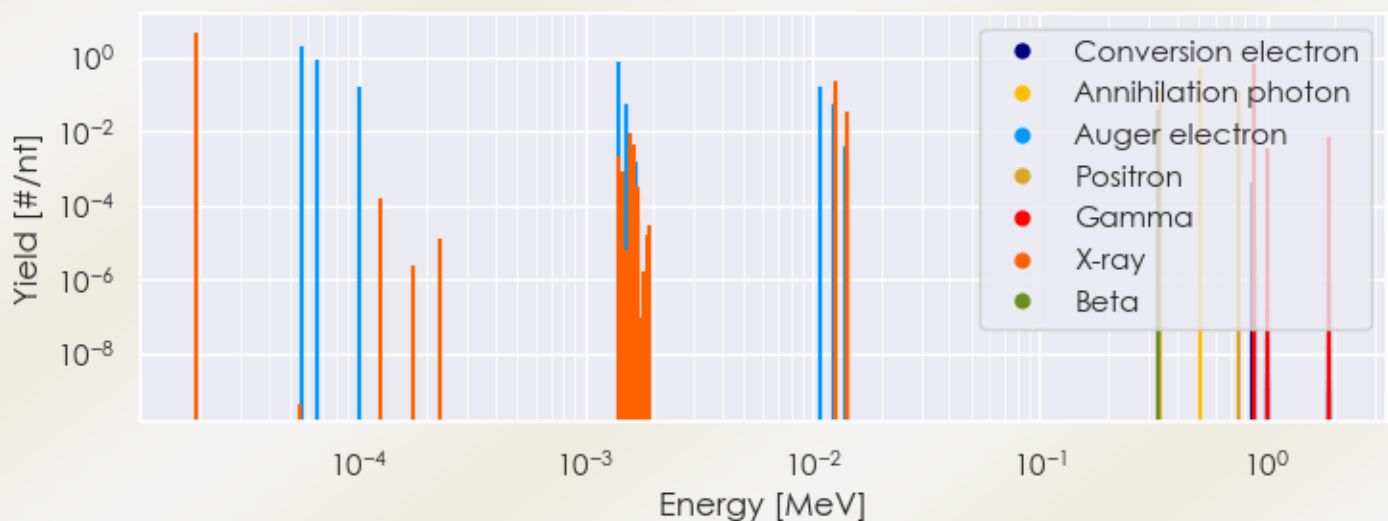
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Rb-84 DPK.csv

SUMMARY SPECTRA (PLOT)

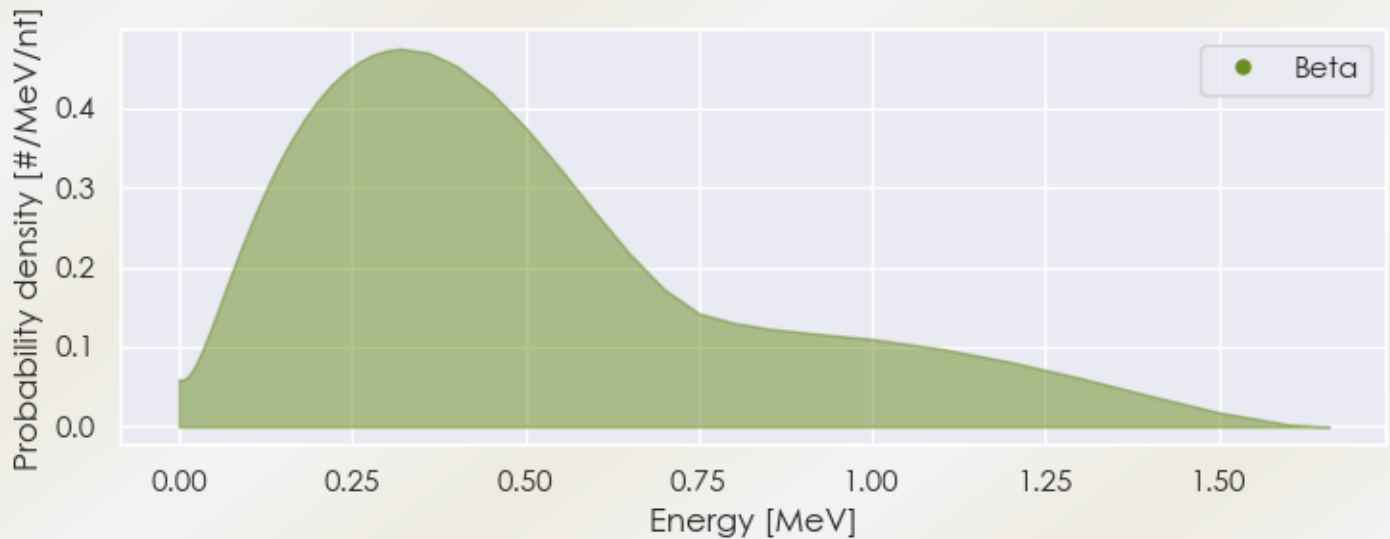
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Rb-84 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/Rb-84 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/Rb-84 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.93810e-05	4.676e+00	X-ray
1.25517e-02	1.144e-01	X-ray
1.26066e-02	2.205e-01	X-ray
1.40649e-02	1.609e-02	X-ray
1.40730e-02	3.138e-02	X-ray
5.11000e-01	5.421e-01	Annihilation photon
8.81604e-01	6.898e-01	Gamma
3.32782e-01	3.800e-02	Beta
3.38774e-01	1.400e-01	Positron
7.56686e-01	1.310e-01	Positron

5.62901e-05	2.045e+00	Auger electron
6.55324e-05	8.041e-01	Auger electron
9.99398e-05	1.524e-01	Auger electron
1.40735e-03	7.136e-01	Auger electron
1.51224e-03	5.159e-02	Auger electron
1.07980e-02	1.631e-01	Auger electron
1.23371e-02	5.176e-02	Auger 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/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6