

SI-77 (2.25m) ECB+	SI-80 (106.3m) ECB+	SI-81 (22.3m) ECB+	SI-82 (25.36d) ECB+	SI-83 (32.41h) ECB+	SI-84 (STABLE)	SI-85 (64.84d) EC	SI-86 (STABLE)	
Rb-77 (3.77m) ECB+	Rb-78 (17.66m) ECB+	Rb-79 (22.9m) ECB+	Rb-80 (3.83m) ECB+	Rb-81 (4.576h) ECB+	Rb-82 (1.27m) EC	Rb-83 (86.2d) EC	Rb-84 (32.77d) ECB+B-	Rb-85 (STABLE)
Kr-76 (14.8h) EC	Kr-77 (74.4m) ECB+	Kr-78 (2.84m) ECB+	Kr-79 (35.04h) ECB+	Kr-80 (2.29m) EC	Kr-81 (STABLE)	Kr-82 (STABLE)	Kr-83 (STABLE)	Kr-84 (STABLE)

RUBIDIUM-81

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Rb-81
Atomic number (Z): 37
Mass number (A): 81
Neutron number (N): 44

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 4.576 [h]
Decay constant: 4.2076e-05 [1/s]
Daughters: Kr-81m (95.7%), Kr-81 (4.31%)
Radioactive daughters: Kr-81m, Kr-81

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.12223 [MeV]
Mean photon energy: 0.50813 [MeV]
Air kerma rate constant, Γ_{10} : 2.309e-17 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : 3.364e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.958e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

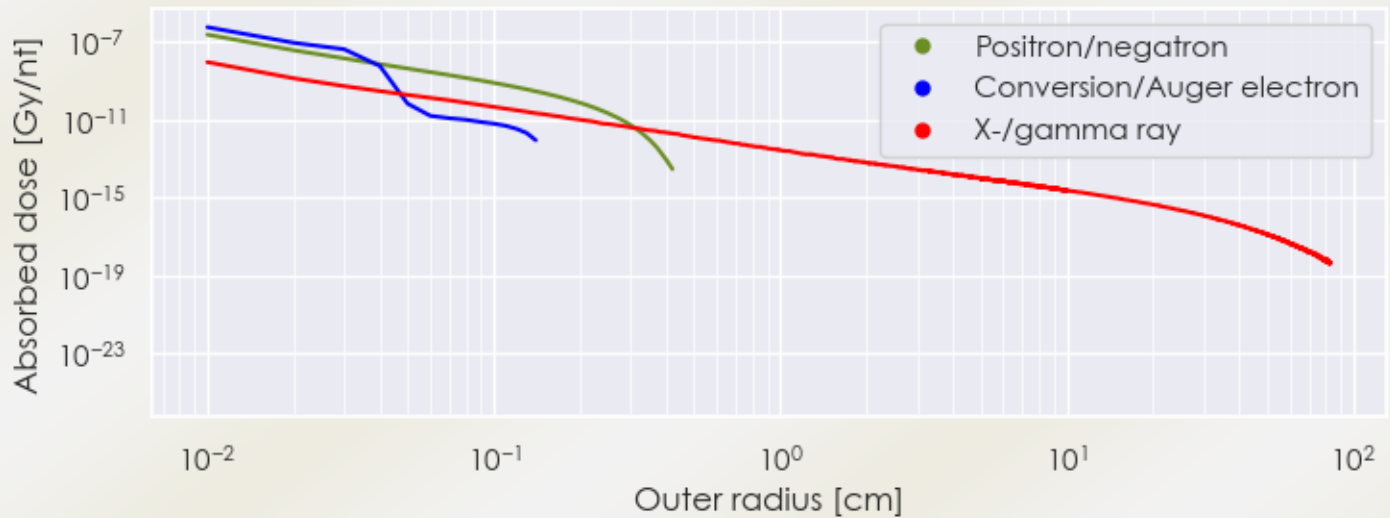
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 1.958×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 8.141×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

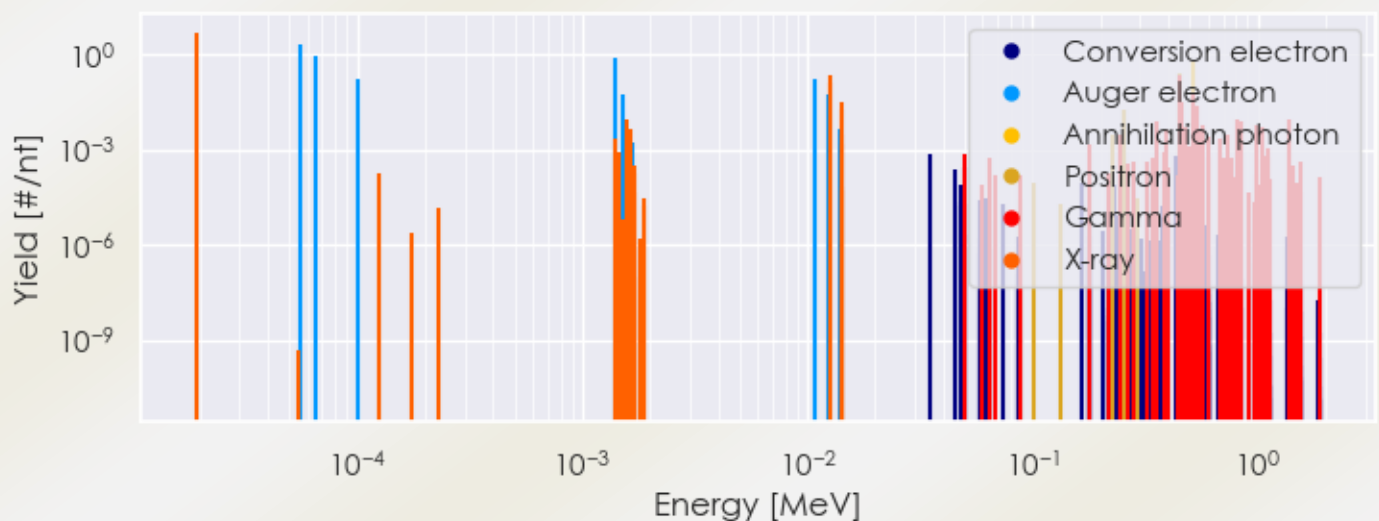
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Rb-81 DPK.csv

SUMMARY SPECTRA (PLOT)

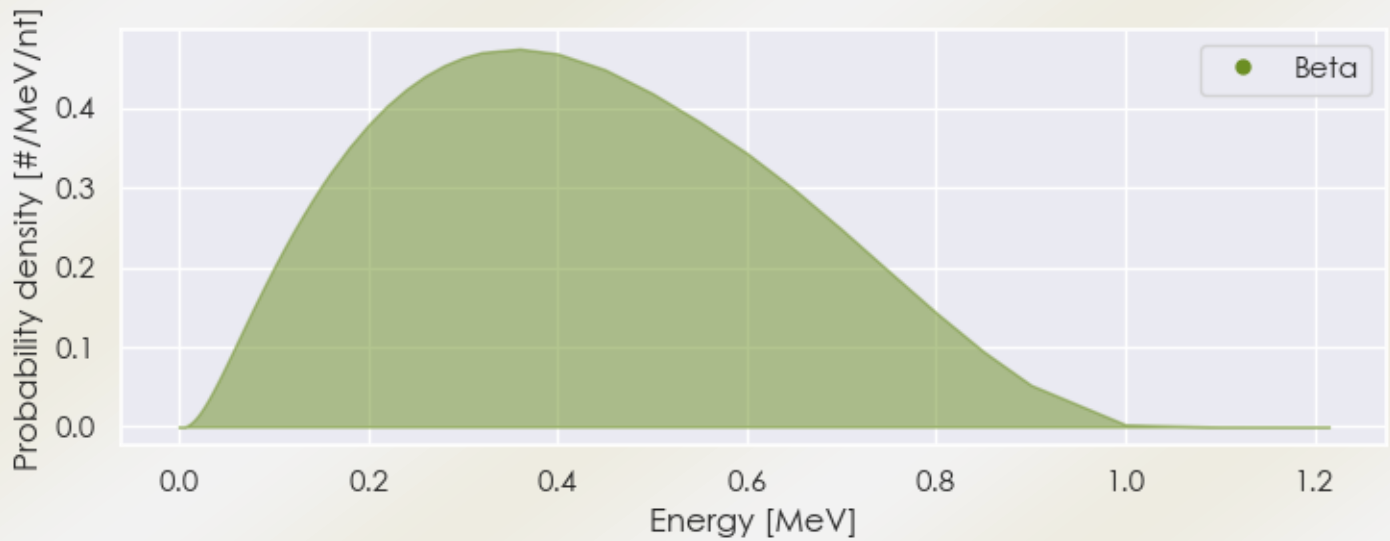
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Rb-81 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-81 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-81 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.93810e-05	4.940e+00	X-ray
1.25517e-02	1.208e-01	X-ray
1.26066e-02	2.330e-01	X-ray
1.40649e-02	1.700e-02	X-ray
1.40730e-02	3.315e-02	X-ray
4.46150e-01	2.320e-01	Gamma
4.56730e-01	3.016e-02	Gamma
5.10430e-01	5.336e-02	Gamma
5.11000e-01	5.448e-01	Annihilation photon
5.37600e-01	2.227e-02	Gamma

2.53071e-01	1.763e-02	Positron
4.46695e-01	2.504e-01	Positron
5.62901e-05	2.160e+00	Auger electron
6.55323e-05	8.494e-01	Auger electron
9.99379e-05	1.610e-01	Auger electron
1.40735e-03	7.539e-01	Auger electron
1.51224e-03	5.450e-02	Auger electron
1.07980e-02	1.723e-01	Auger electron
1.23371e-02	5.468e-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