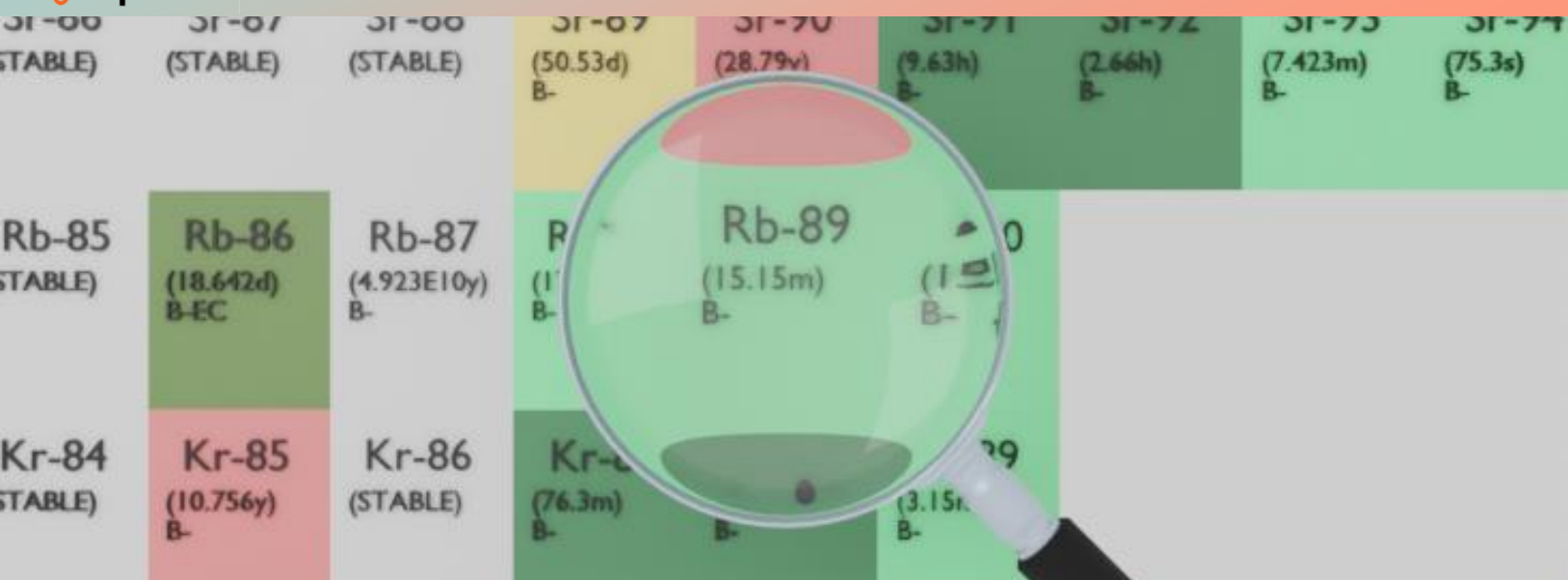




RUBIDIUM-89

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Rb-89
Atomic number (Z): 37
Mass number (A): 89
Neutron number (N): 52

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 15.15 [m]
Decay constant: 7.6254×10^{-4} [1/s]
Daughters: Sr-89 (100.0%)
Radioactive daughters: Sr-89

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.95283 [MeV]
Mean photon energy: 2.24304 [MeV]
Air kerma rate constant, Γ_{10} : 7.326×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 7.326×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.527×10^{-13} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

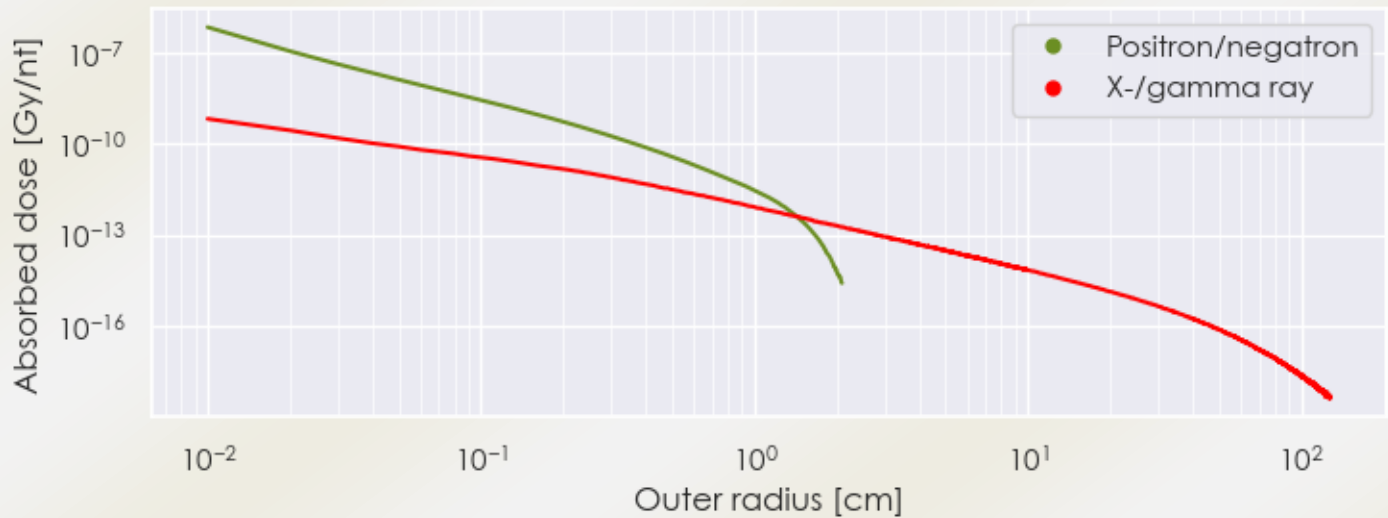
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 1.527×10^{-13} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 3.594×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

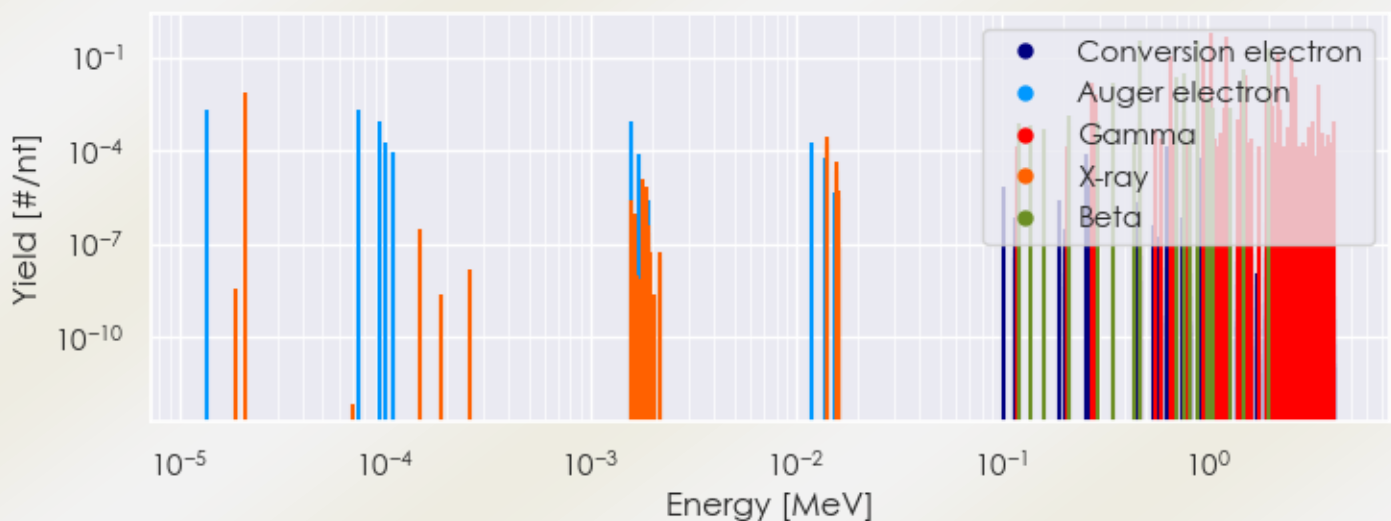
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Rb-89 DPK.csv

SUMMARY SPECTRA (PLOT)

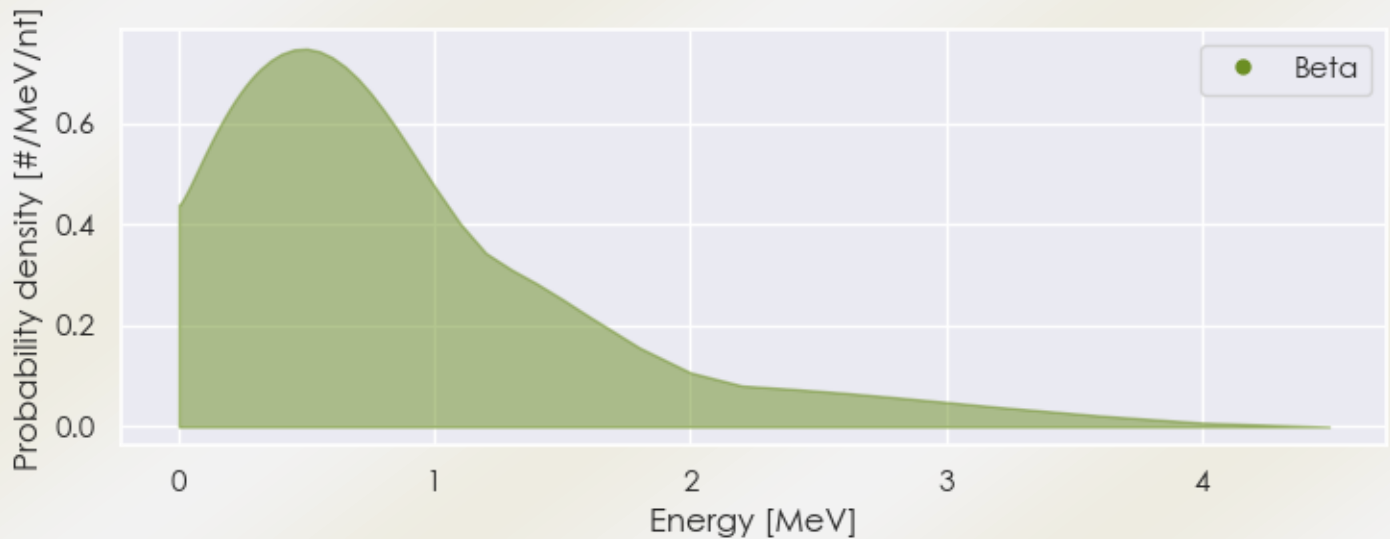
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Rb-89 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-89 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-89 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
2.72420e-01	1.535e-02	Gamma
6.57770e-01	1.082e-01	Gamma
9.47730e-01	1.000e-01	Gamma
1.03192e+00	6.290e-01	Gamma
1.24814e+00	4.592e-01	Gamma
1.53807e+00	2.768e-02	Gamma
2.00750e+00	2.579e-02	Gamma
2.19592e+00	1.447e-01	Gamma
2.57020e+00	1.069e-01	Gamma
2.70726e+00	2.201e-02	Gamma

3.50900e+00	1.245e-02	Gamma
3.50221e-01	1.573e-02	Beta
4.70396e-01	3.403e-01	Beta
7.03034e-01	2.269e-02	Beta
7.65702e-01	3.146e-02	Beta
8.99649e-01	3.527e-01	Beta
1.48904e+00	3.813e-02	Beta
1.98376e+00	1.792e-01	Beta

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