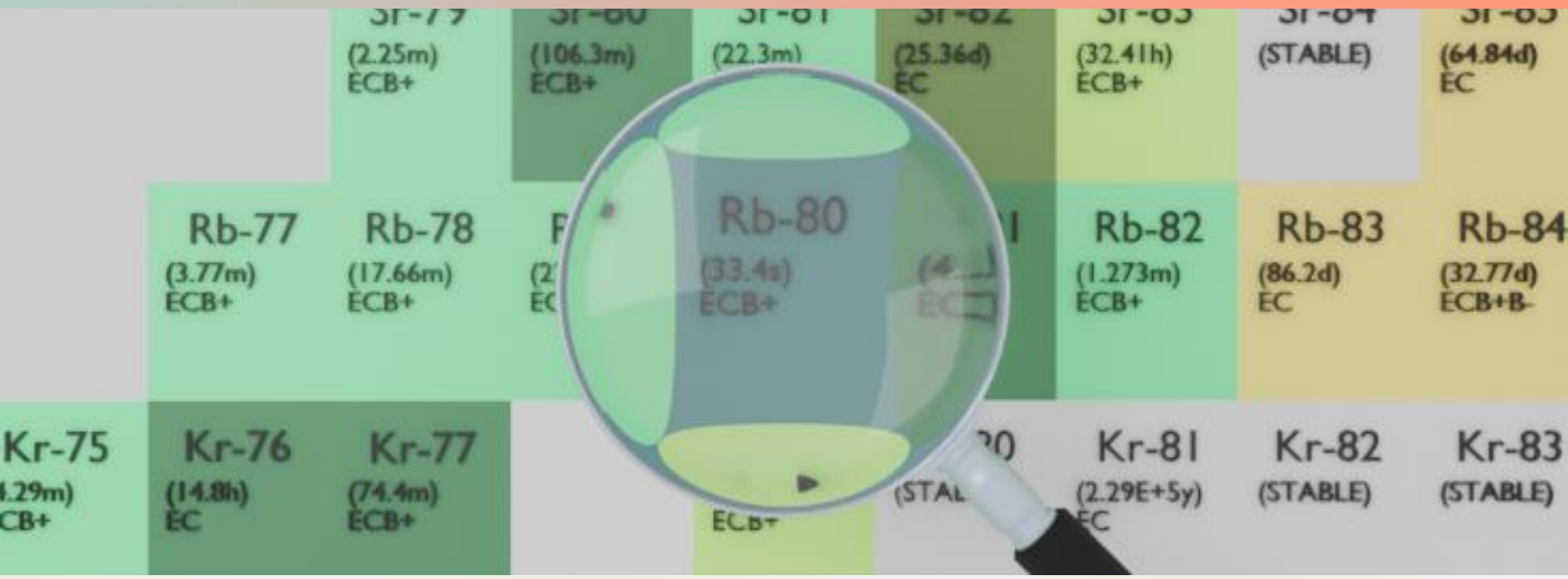


RUBIDIUM-80

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Rb-80
Atomic number (Z): 37
Mass number (A): 80
Neutron number (N): 43

RADIOACTIVE DECAY

Decay modes: β+, Electron capture
Half-life: 33.4 [s]
Decay constant: 2.0753e-02 [1/s]
Daughters: Kr-80 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

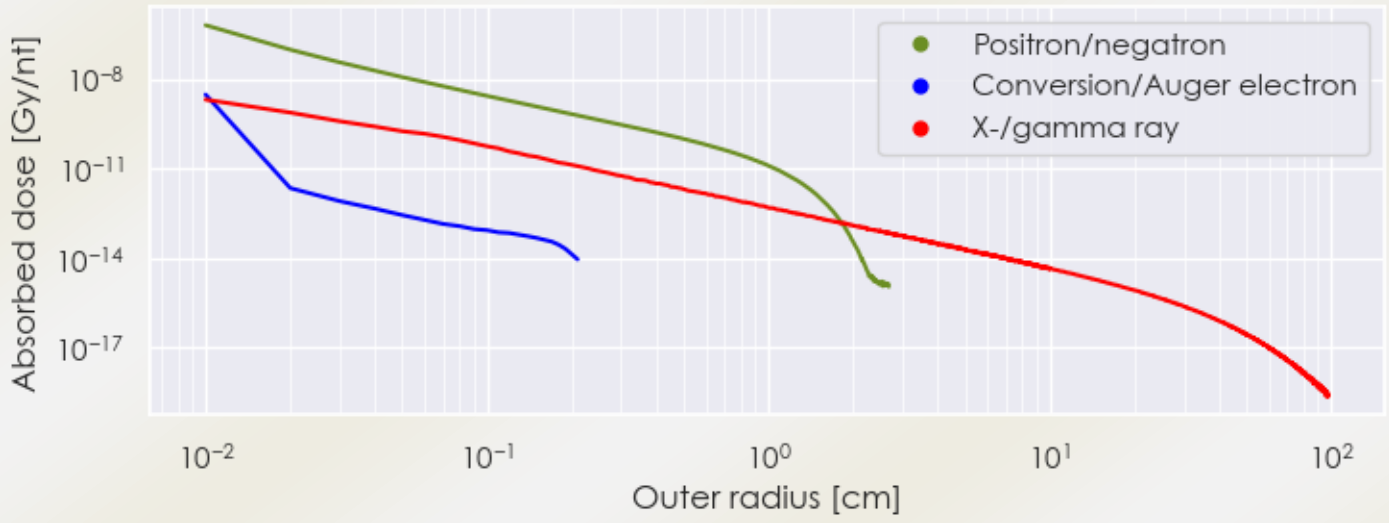
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 2.04545 [MeV]
Mean photon energy: 1.19001 [MeV]
Air kerma rate constant, Γ_{10}: 7.237e-18 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 4.533e-17 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 3.277e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta^-,\beta^+,e^-}$: 3.277e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_p: 1.907e-13 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

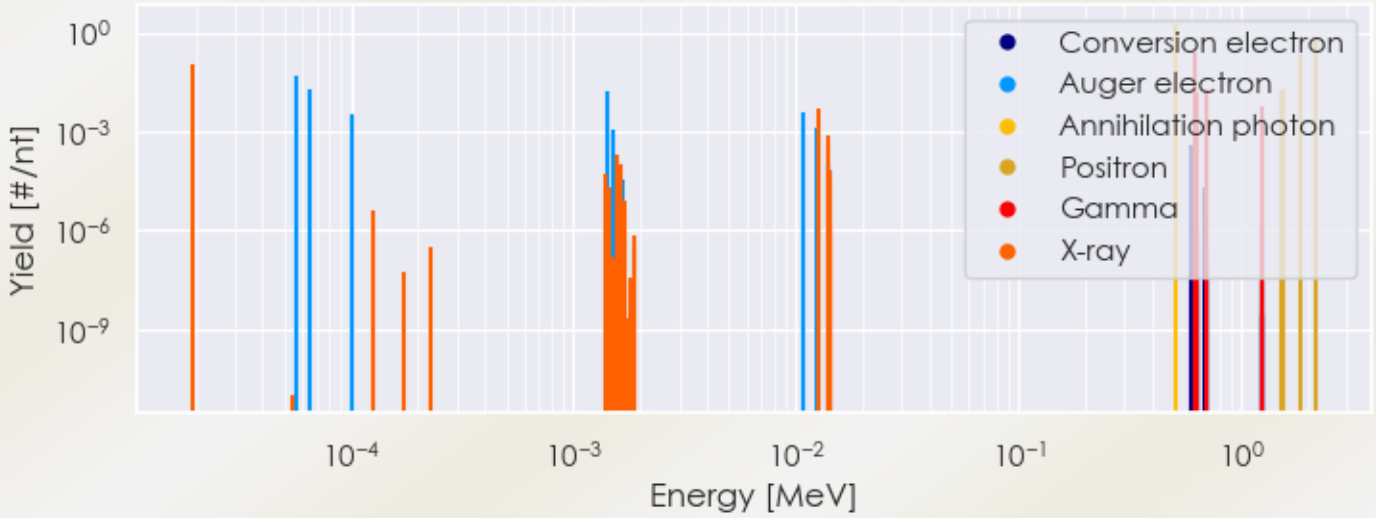
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Rb-80 DPK.csv

SUMMARY SPECTRA (PLOT)

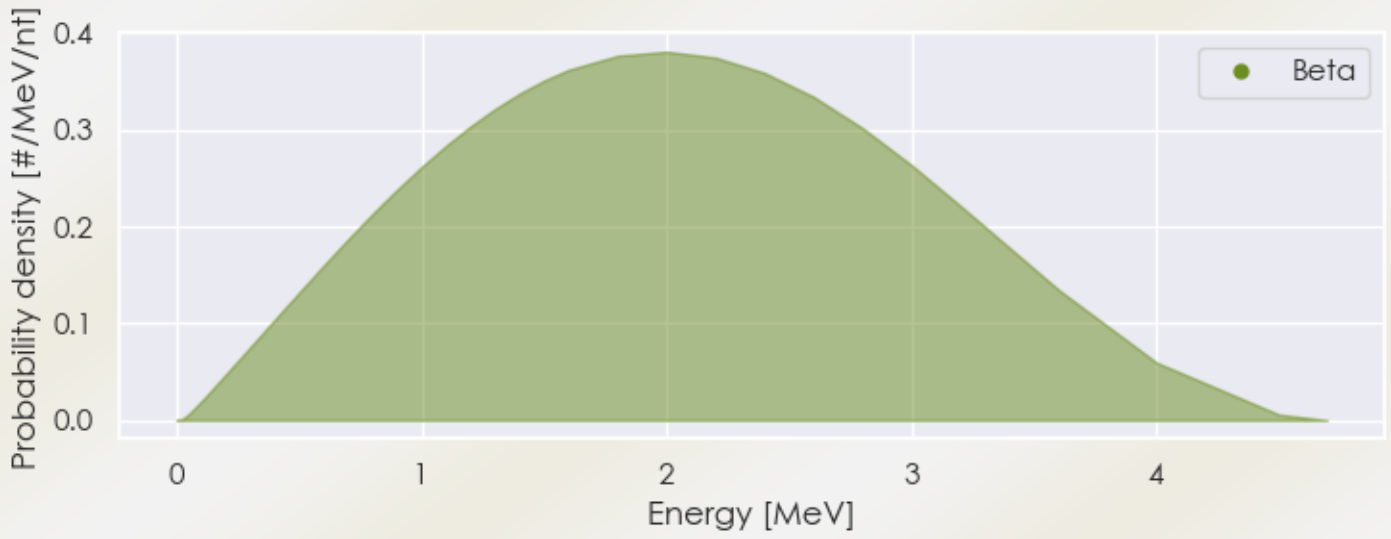
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Rb-80 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-80 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-80 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
1.93809e-05	1.112e-01	X-ray
5.11000e-01	1.968e+00	Annihilation photon
6.16700e-01	2.500e-01	Gamma
6.39600e-01	1.500e-02	Gamma
7.04300e-01	1.875e-02	Gamma
1.53230e+00	1.807e-02	Positron
1.56306e+00	2.008e-02	Positron
1.86918e+00	2.129e-01	Positron
2.16652e+00	7.330e-01	Positron
5.62886e-05	4.860e-02	Auger electron

6.55303e-05	1.911e-02	Auger electron
1.40733e-03	1.697e-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/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6