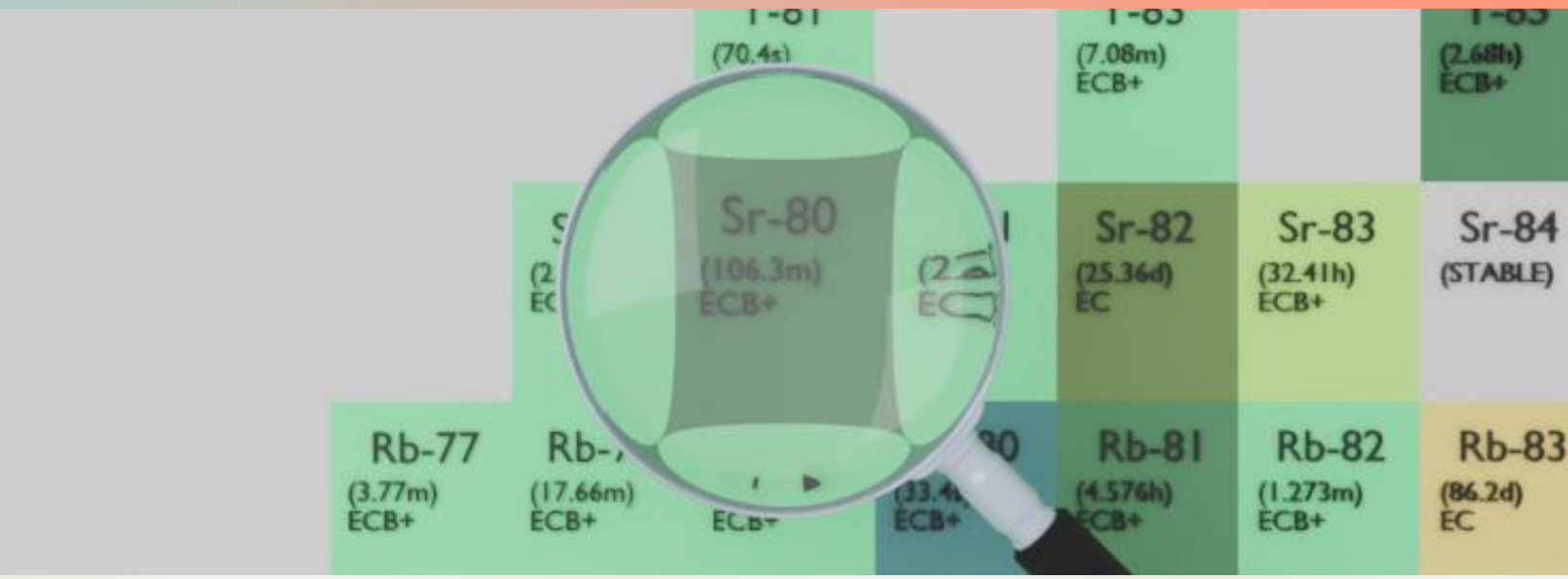


STRONTIUM-80

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Sr-80
Atomic number (Z): 38
Mass number (A): 80
Neutron number (N): 42

RADIOACTIVE DECAY

Decay modes: β+, Electron capture
Half-life: 106.3 [m]
Decay constant: 1.0868e-04 [1/s]
Daughters: Rb-80 (100.0%)
Radioactive daughters: Rb-80

DOSIMETRIC CONSTANTS

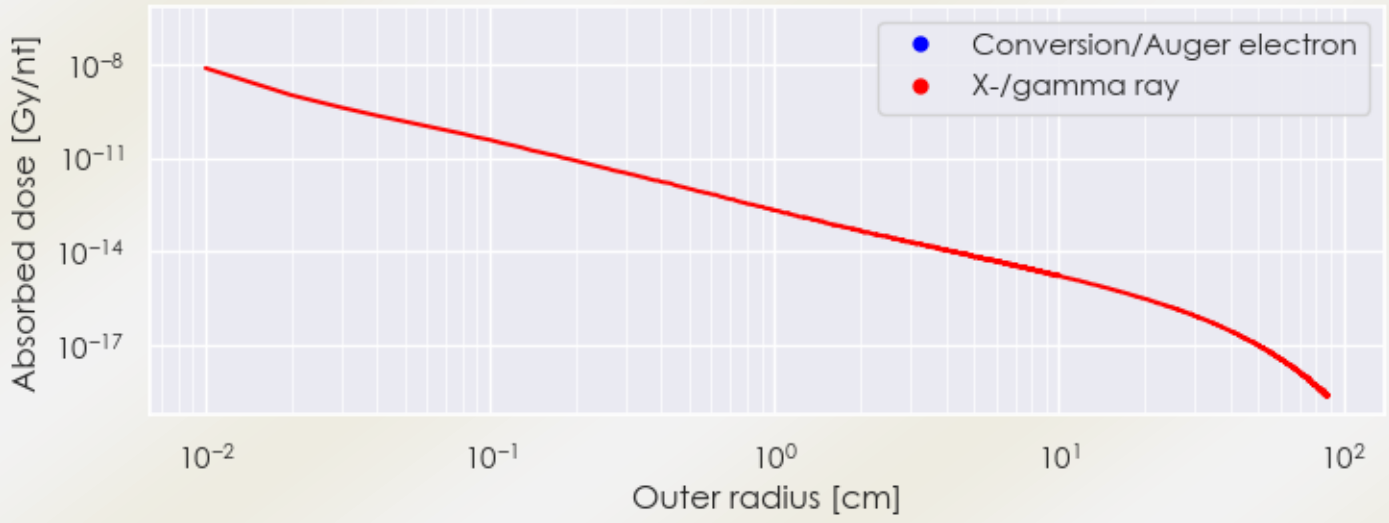
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.04184 [MeV]
Mean photon energy: 0.43709 [MeV]
Air kerma rate constant, Γ_{10}: 2.896e-17 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 3.283e-17 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 6.704e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 6.704e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 7.003e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

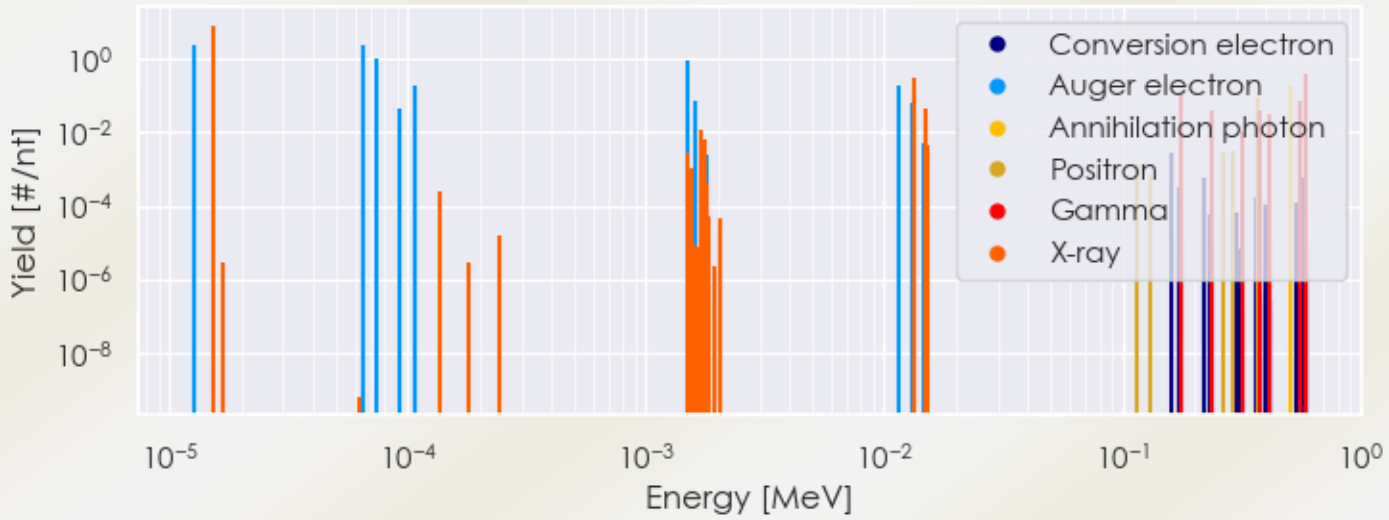
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



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

SUMMARY SPECTRA (PLOT)

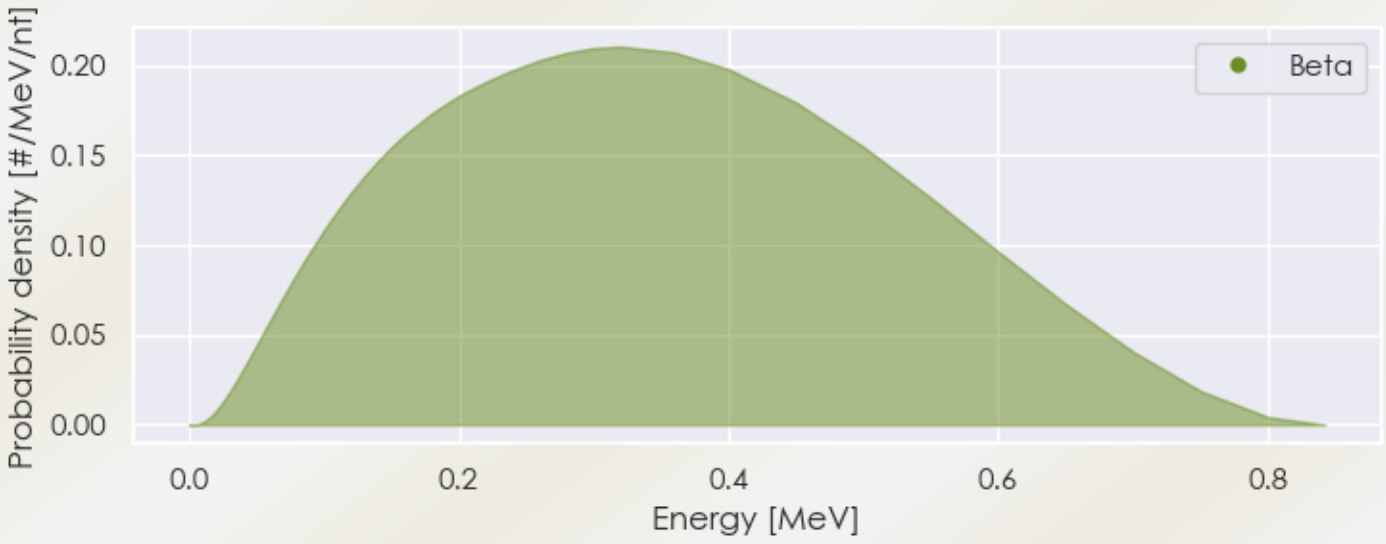
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



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

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
1.52775e-05	8.161e+00	X-ray
1.68753e-03	1.215e-02	X-ray
1.32919e-02	1.546e-01	X-ray
1.33539e-02	2.973e-01	X-ray
1.49123e-02	2.216e-02	X-ray
1.49217e-02	4.320e-02	X-ray
1.75000e-01	1.014e-01	Gamma
2.35900e-01	4.173e-02	Gamma
3.16000e-01	1.053e-02	Gamma
3.78800e-01	4.173e-02	Gamma

4.14100e-01	3.237e-02	Gamma
5.11000e-01	1.996e-01	Annihilation photon
5.53400e-01	6.864e-02	Gamma
5.89000e-01	3.900e-01	Gamma
3.67751e-01	9.182e-02	Positron
1.26043e-05	2.392e+00	Auger electron
6.50080e-05	2.398e+00	Auger electron
7.35432e-05	9.681e-01	Auger electron
9.22924e-05	4.272e-02	Auger electron
1.06851e-04	1.955e-01	Auger electron
1.48974e-03	9.043e-01	Auger electron
1.61153e-03	7.326e-02	Auger electron
1.14024e-02	1.970e-01	Auger electron
1.30522e-02	6.466e-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