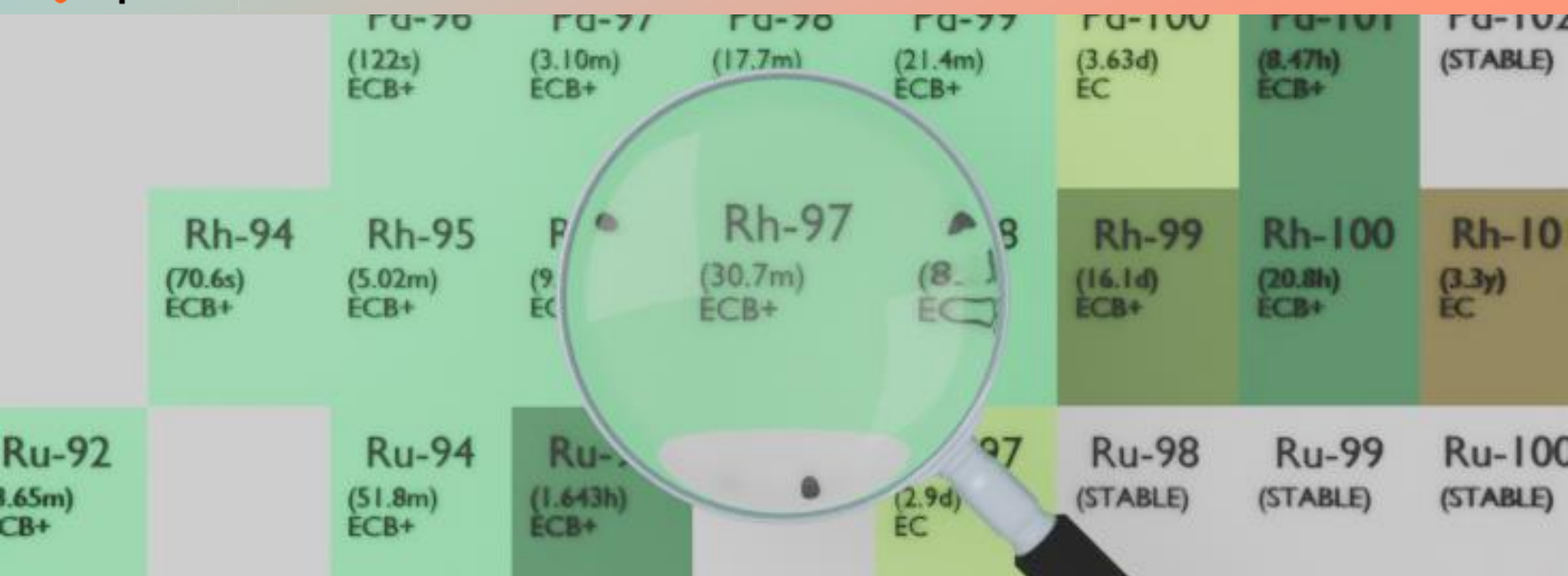




RHODIUM-97

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Rh-97
Atomic number (Z): 45
Mass number (A): 97
Neutron number (N): 52

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 30.7 [m]
Decay constant: 3.7630×10^{-4} [1/s]
Daughters: Ru-97 (100.0%)
Radioactive daughters: Ru-97

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.52114 [MeV]
Mean photon energy: 1.44483 [MeV]
Air kerma rate constant, Γ_{10} : 3.389×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 5.649×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 8.350×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

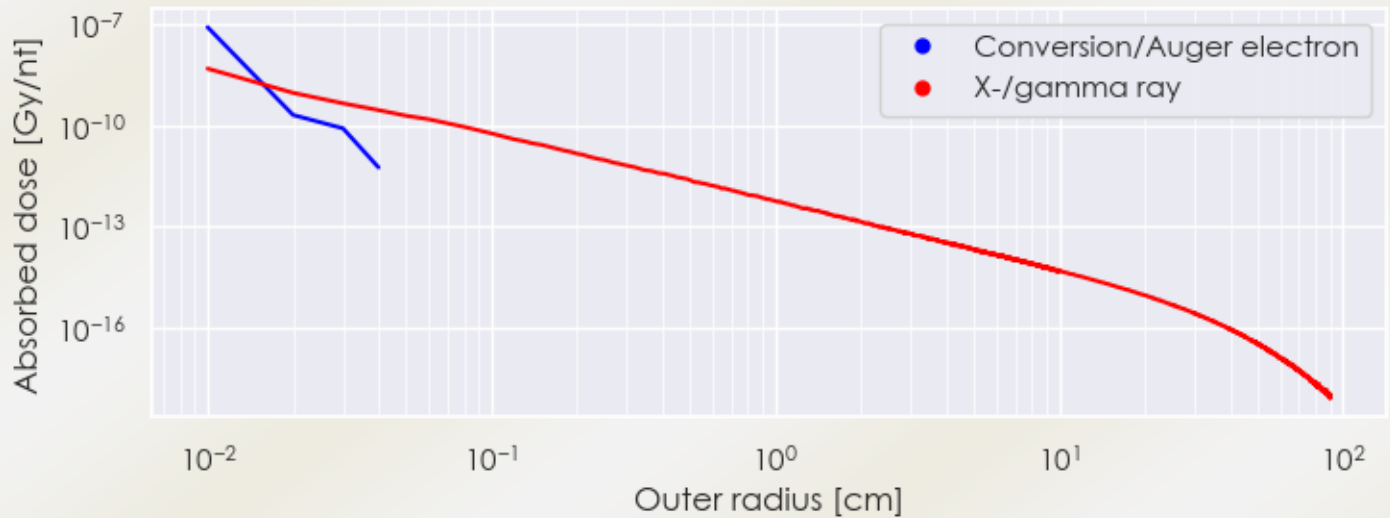
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 8.350×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 2.315×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

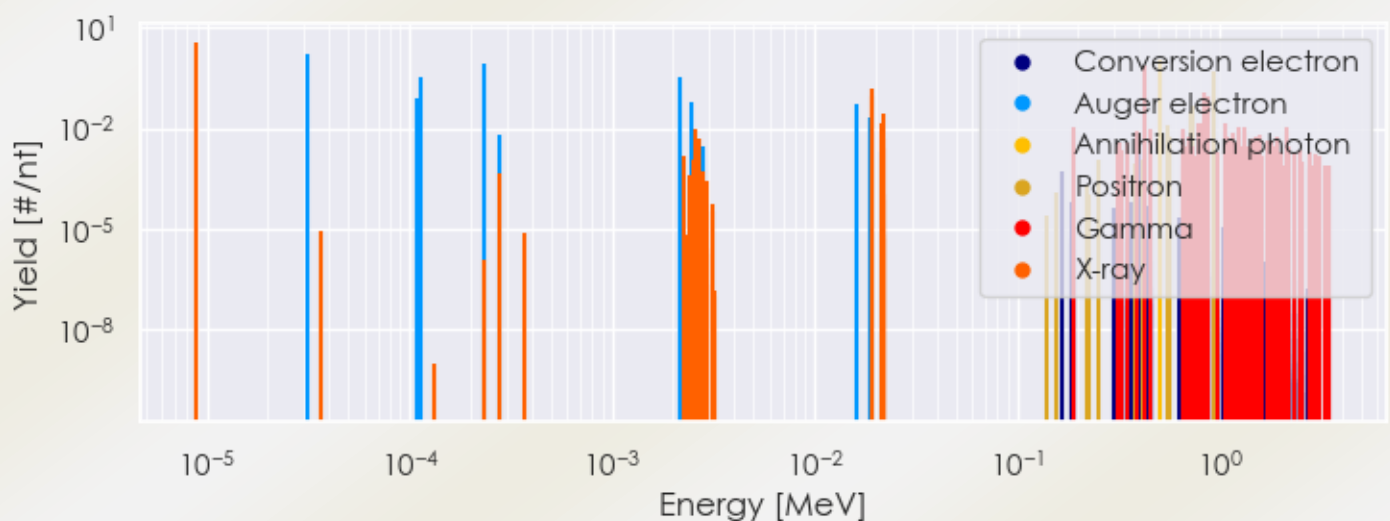
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Rh-97 DPK.csv

SUMMARY SPECTRA (PLOT)

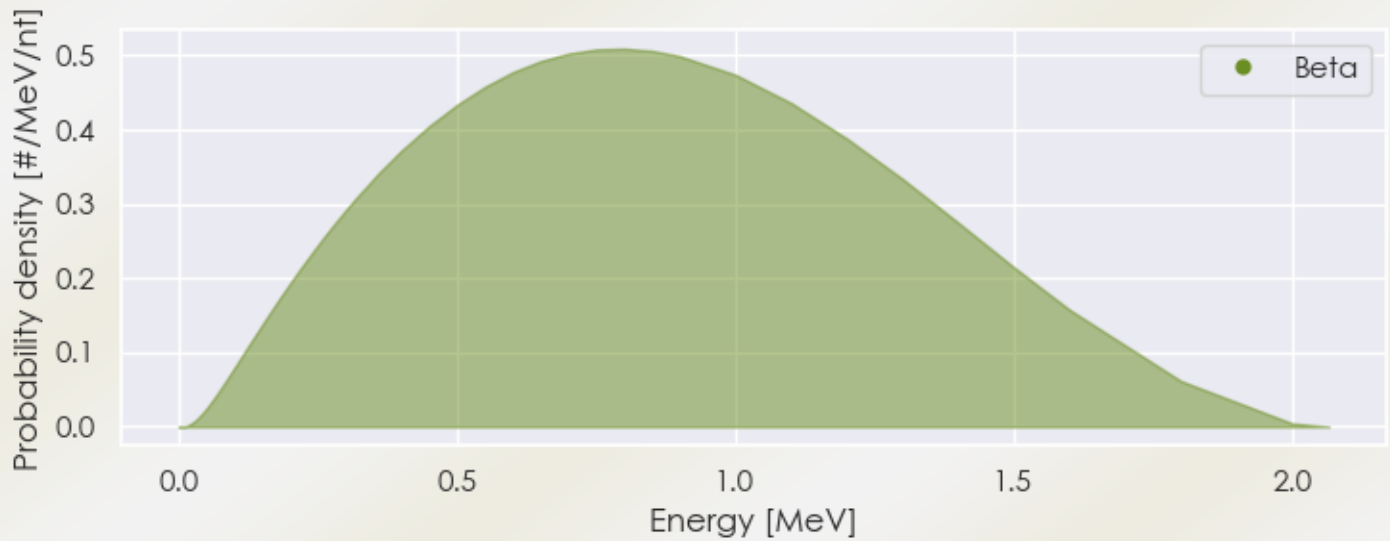
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Rh-97 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/Rh-97 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/Rh-97 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
8.90920e-06	3.753e+00	X-ray
2.54865e-03	1.001e-02	X-ray
1.91152e-02	8.407e-02	X-ray
1.92483e-02	1.595e-01	X-ray
2.16049e-02	1.338e-02	X-ray
2.16277e-02	2.603e-02	X-ray
1.89210e-01	1.045e-02	Gamma
4.21550e-01	7.463e-01	Gamma
5.11000e-01	1.168e+00	Annihilation photon
7.77440e-01	1.440e-02	Gamma

8.07700e-01	1.343e-02	Gamma
8.40130e-01	1.202e-01	Gamma
8.78800e-01	9.030e-02	Gamma
1.05370e+00	1.470e-02	Gamma
1.22870e+00	1.067e-02	Gamma
1.31010e+00	1.119e-02	Gamma
2.15210e+00	1.045e-02	Gamma
5.57408e-01	1.164e-02	Positron
7.14801e-01	2.985e-02	Positron
7.32267e-01	4.477e-02	Positron
9.23234e-01	4.885e-01	Positron
3.14526e-05	1.557e+00	Auger electron
1.07963e-04	8.086e-02	Auger electron
1.14209e-04	3.520e-01	Auger electron
2.31916e-04	8.619e-01	Auger electron
2.15881e-03	3.362e-01	Auger electron
2.46833e-03	5.730e-02	Auger electron
1.61570e-02	5.302e-02	Auger electron
1.86981e-02	2.040e-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