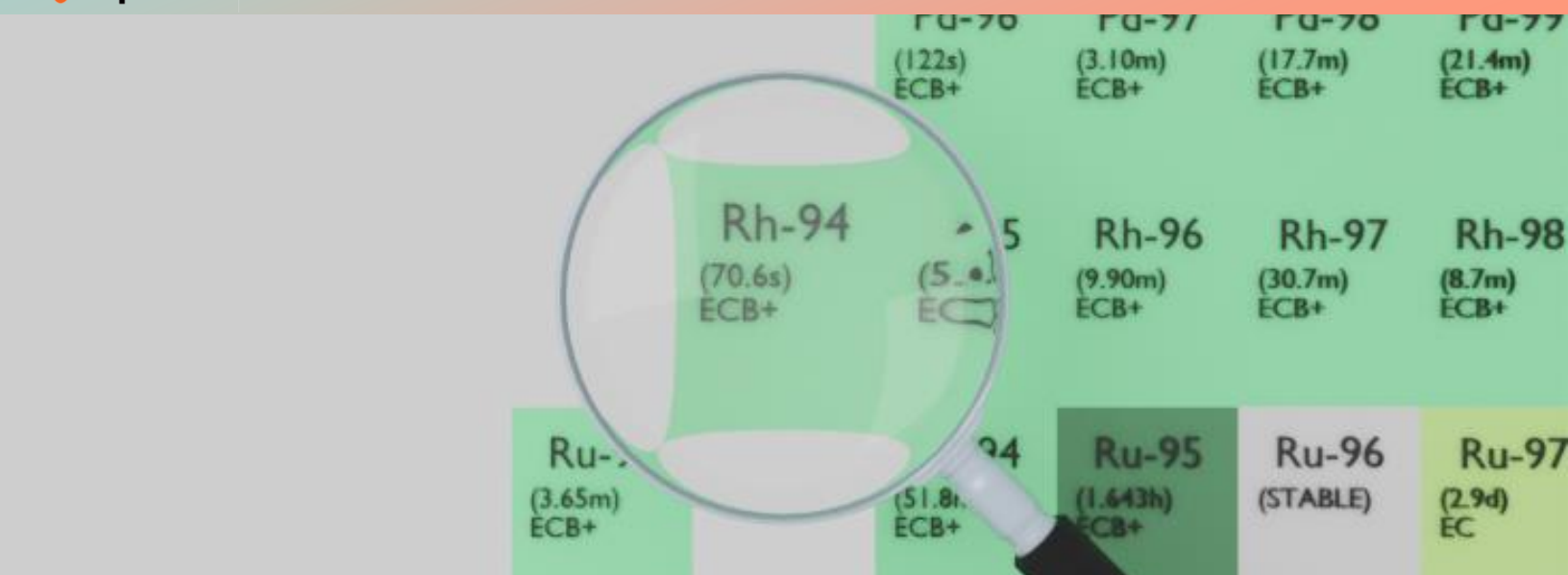




RHODIUM-94

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Rh-94
Atomic number (Z): 45
Mass number (A): 94
Neutron number (N): 49

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 70.6 [s]
Decay constant: $9.8179\text{e-}03$ [1/s]
Daughters: Ru-94 (100.0%)
Radioactive daughters: Ru-94

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 2.90116 [MeV]
Mean photon energy: 3.76337 [MeV]
Air kerma rate constant, Γ_{10} : $9.217\text{e-}17$ [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : $1.303\text{e-}16$ [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $4.648\text{e-}13$ [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [Gy·kg/Bq·s]

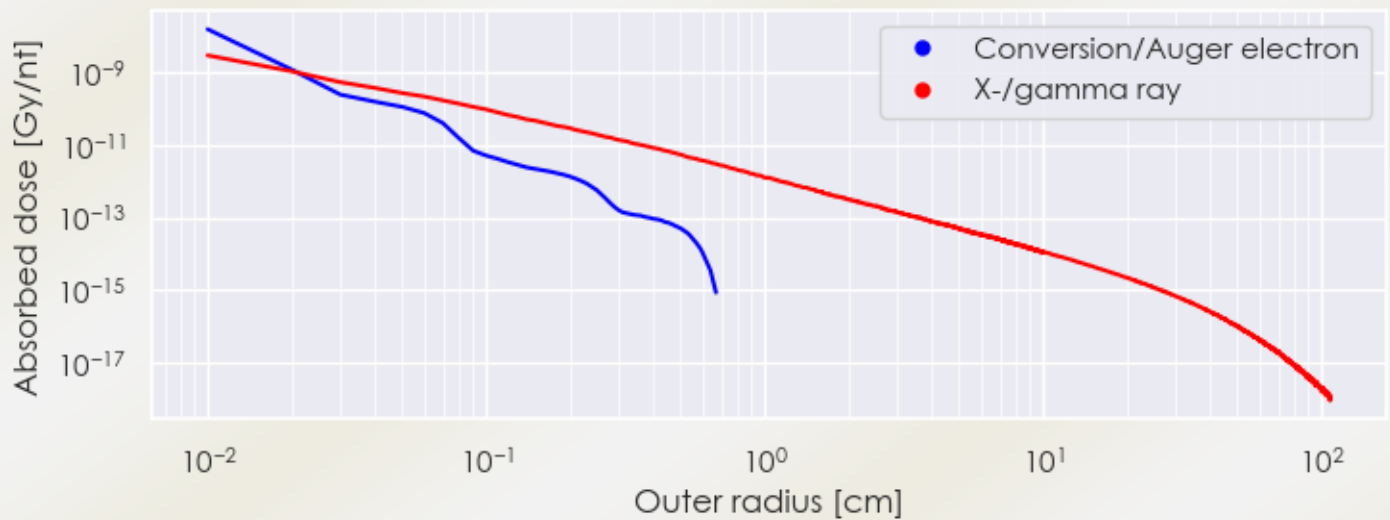
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 4.648e-13 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 6.030e-13 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

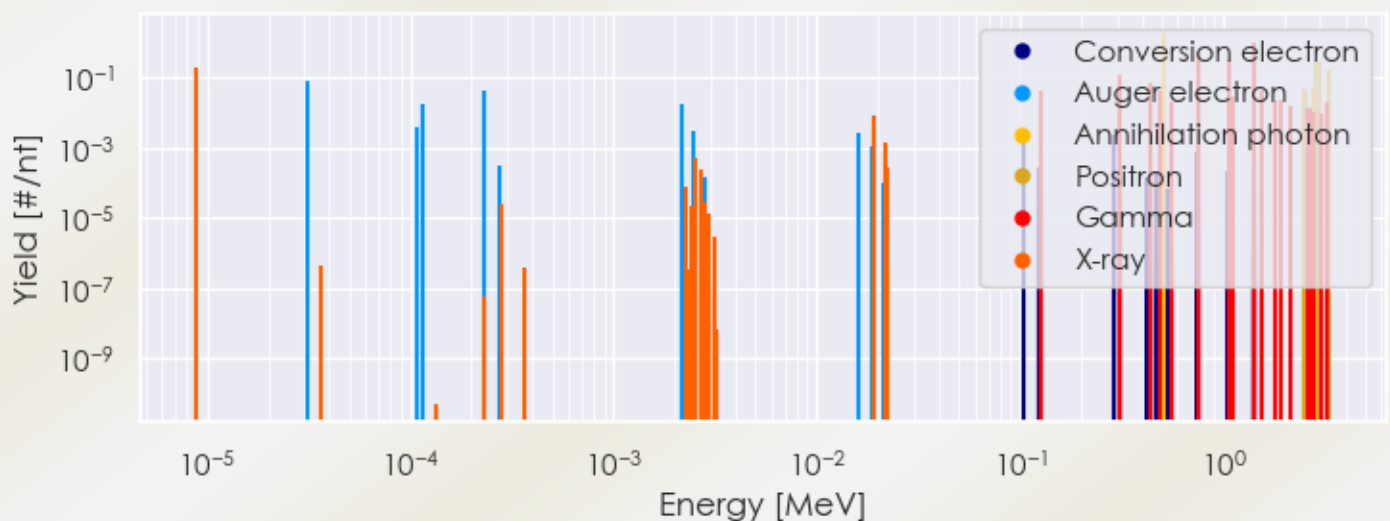
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Rh-94 DPK.csv

SUMMARY SPECTRA (PLOT)

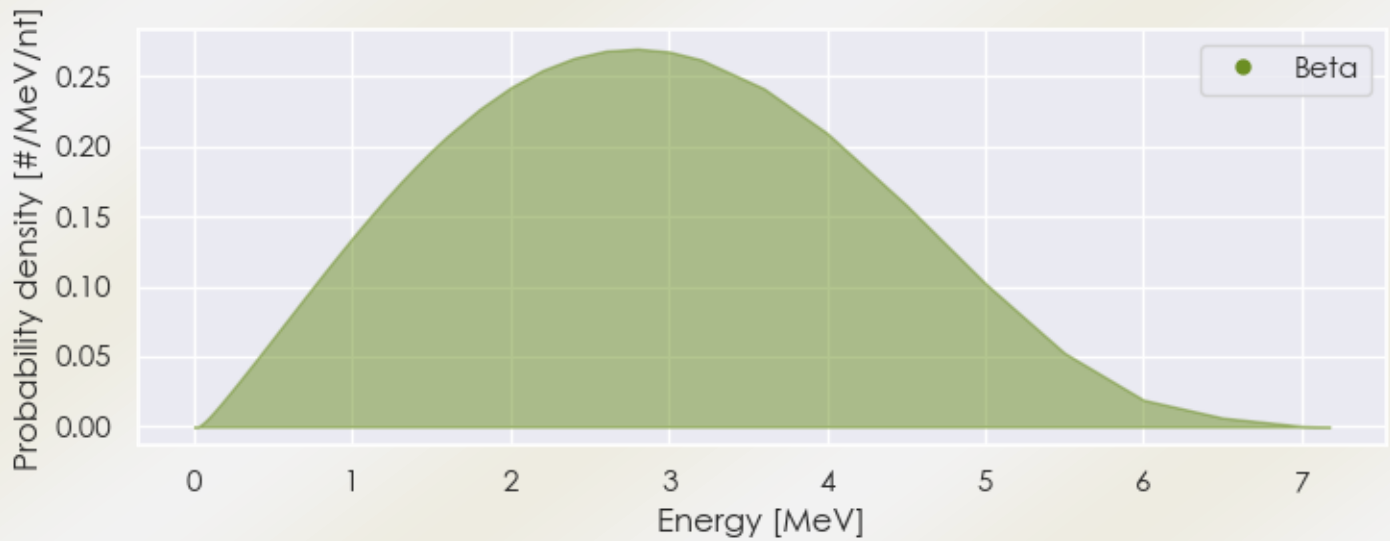
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Rh-94 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-94 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-94 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
8.90929e-06	1.958e-01	X-ray
1.26400e-01	4.500e-02	Gamma
3.11700e-01	1.200e-01	Gamma
4.38100e-01	7.100e-02	Gamma
4.92600e-01	4.200e-02	Gamma
5.11000e-01	1.972e+00	Annihilation photon
5.52900e-01	1.900e-02	Gamma
7.56200e-01	5.100e-01	Gamma
1.06810e+00	4.700e-02	Gamma
1.07250e+00	3.070e-01	Gamma

1.11070e+00	2.900e-02	Gamma
1.43070e+00	1.000e+00	Gamma
1.53970e+00	4.330e-02	Gamma
1.80430e+00	2.200e-02	Gamma
1.90250e+00	2.200e-02	Gamma
2.12450e+00	1.500e-02	Gamma
2.63160e+00	1.400e-02	Gamma
2.67780e+00	1.400e-02	Gamma
2.77860e+00	1.100e-02	Gamma
3.00770e+00	1.000e-02	Gamma
3.21030e+00	1.300e-02	Gamma
3.25600e+00	2.000e-02	Gamma
2.48115e+00	4.607e-02	Positron
2.51844e+00	1.863e-02	Positron
2.54762e+00	4.106e-02	Positron
2.78647e+00	5.708e-02	Positron
2.83232e+00	7.010e-02	Positron
2.84565e+00	3.024e-01	Positron
2.99955e+00	2.704e-01	Positron
3.34484e+00	1.803e-01	Positron
3.14553e-05	8.118e-02	Auger electron
1.14298e-04	1.836e-02	Auger electron
2.31892e-04	4.496e-02	Auger electron
2.15872e-03	1.758e-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