



Pd-97 (3.10m) CB+	Pd-98 (17.7m) ECB+	Pd-99 (21.4m) ECB+	Pd-100 (3.63d) EC	Pd-101 (8.47h)	Pd-102 (STABLE)	Pd-103 (16.991d) EC	Pd-104 (STABLE)	Pd-105 (STABLE)
Rh-96 (9.90m) CB+	Rh-97 (30.7m) ECB+	Rh-98 (8.7m) ECB+	Rh-99 (1.1h) EC	Rh-100m (4.6m) ITECB+	Rh-101 (3.2h) EC	Rh-102 (207d) ECB+B-	Rh-103 (STABLE)	Rh-104 (42.3s) B-EC
Ru-95 (1.643h) CB+	Ru-96 (STABLE)	Ru-97 (2.9d) EC	Ru-98 (STABLE)	Ru-99 (STABLE)	Ru-100 (STABLE)	Ru-101 (STABLE)	Ru-102 (STABLE)	Ru-103 (39.26d) B-

RHODIUM-100M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Rh-100m
Atomic number (Z): 45
Mass number (A): 100
Neutron number (N): 55

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture, Internal transition
Half-life: 4.6 [m]
Decay constant: 2.5114×10^{-3} [1/s]
Daughters: Rh-100 (98.3%), Ru-100 (1.7%)
Radioactive daughters: Rh-100

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.08017 [MeV]
Mean photon energy: 0.0637 [MeV]
Air kerma rate constant, Γ_{10} : 1.291×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 1.307×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.284×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000×10^0 [Gy $\cdot$ kg/Bq $\cdot$ s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 1.284×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.021×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

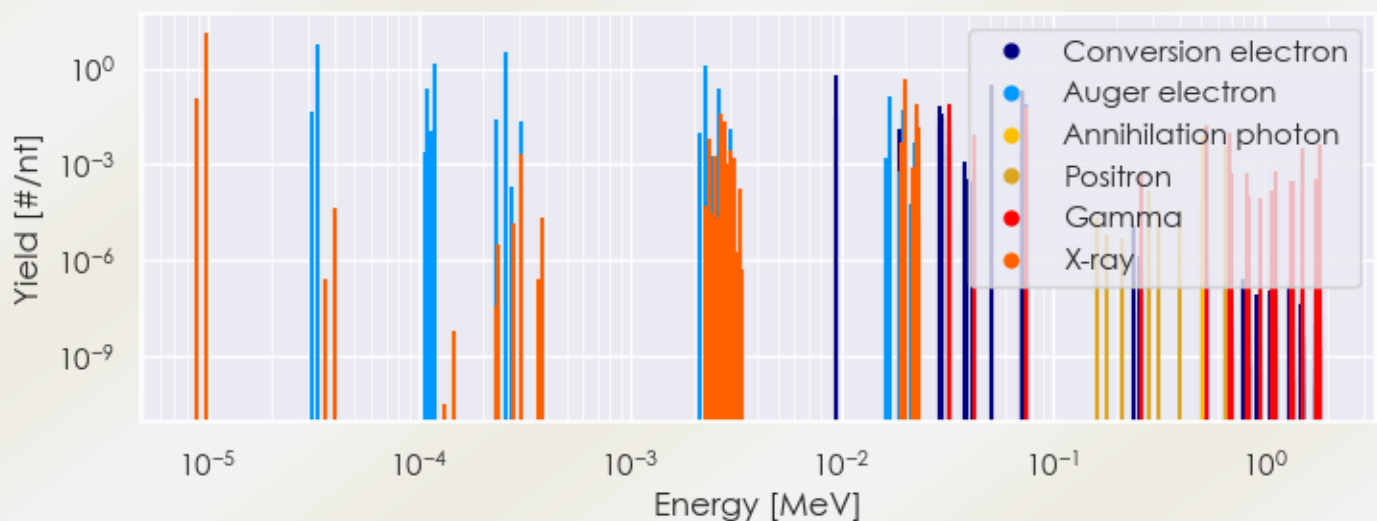
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Rh-100m DPK.csv

SUMMARY SPECTRA (PLOT)

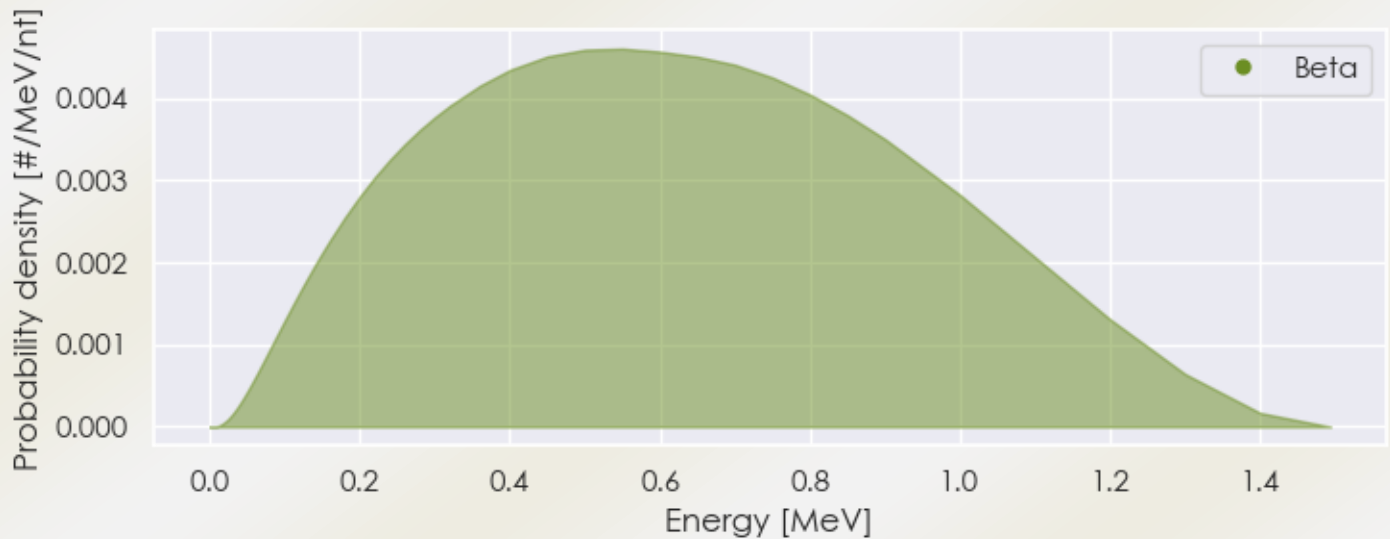
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Rh-100m 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-100m 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-100m Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
8.90919e-06	1.161e-01	X-ray
9.95880e-06	1.417e+01	X-ray
2.68654e-03	4.165e-02	X-ray
2.82847e-03	2.246e-02	X-ray
2.00395e-02	2.441e-01	X-ray
2.01865e-02	4.622e-01	X-ray
2.26708e-02	3.930e-02	X-ray
2.26963e-02	7.642e-02	X-ray
2.31362e-02	1.510e-02	X-ray

3.27000e-02	7.962e-02	Gamma
7.49000e-02	1.592e-02	Gamma
7.49000e-02	6.370e-02	Gamma
5.39600e-01	1.683e-02	Gamma
6.86900e-01	1.010e-02	Gamma
3.14525e-05	4.817e-02	Auger electron
3.35508e-05	5.602e+00	Auger electron
1.09881e-04	2.503e-01	Auger electron
1.14203e-04	1.089e-02	Auger electron
1.18975e-04	1.383e+00	Auger electron
2.31918e-04	2.667e-02	Auger electron
2.60285e-04	3.348e+00	Auger electron
3.06870e-04	2.178e-02	Auger electron
2.15882e-03	1.040e-02	Auger electron
2.26758e-03	1.313e+00	Auger electron
2.60828e-03	2.433e-01	Auger electron
2.97213e-03	1.237e-02	Auger electron
9.50900e-03	3.573e-02	Conversion electron
9.50900e-03	6.448e-01	Conversion electron
1.69094e-02	1.406e-01	Auger electron
1.89090e-02	1.279e-02	Conversion electron
1.95952e-02	5.504e-02	Auger electron
2.93088e-02	1.879e-02	Conversion electron
2.93088e-02	7.204e-02	Conversion electron
2.95485e-02	3.107e-02	Conversion electron
2.96955e-02	3.243e-02	Conversion electron
2.96955e-02	4.090e-02	Conversion electron
3.22053e-02	2.759e-02	Conversion electron
3.22053e-02	1.165e-02	Conversion electron
5.17090e-02	3.344e-01	Conversion electron
5.17090e-02	1.864e-02	Conversion electron
7.15088e-02	2.563e-02	Conversion electron
7.17485e-02	1.709e-01	Conversion electron
7.18955e-02	2.112e-01	Conversion electron
7.44053e-02	8.203e-02	Conversion electron
7.49000e-02	1.353e-02	Conversion 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