



Pd-98 (7.7m) CB+	Pd-99 (21.4m) ECB+	Pd-100 (3.63d) EC	Pd-101 (8.47h) ECB+	Pd-102 (STABLE)	Pd-103 (16.991d) EC	Pd-104 (STABLE)	Pd-105 (STABLE)	Pd-106 (STABLE)
Rh-97 (10.7m) CB+	Rh-98 (8.7m) ECB+	Rh-99 (16.1d) ECB+	Rh-100 (2.27d) ECB+	Rh-101m (4.34d) ECIT	Rh-102 (20.3h) EC	Rh-103 (STABLE)	Rh-104 (42.3s) B-EC	Rh-105 (35.36h) B-
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-	Ru-104 (STABLE)

RHODIUM-101M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Rh-101m
Atomic number (Z): 45
Mass number (A): 101
Neutron number (N): 56

RADIOACTIVE DECAY

Decay modes: Electron capture, Internal transition
Half-life: 4.34 [d]
Decay constant: 1.8485×10^{-6} [1/s]
Daughters: Rh-101 (6.4%), Ru-101 (93.6%)
Radioactive daughters: Rh-101

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.01993 [MeV]
Mean photon energy: 0.28767 [MeV]
Air kerma rate constant, Γ_{10} : 1.994×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 1.994×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 3.193×10^{-15} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

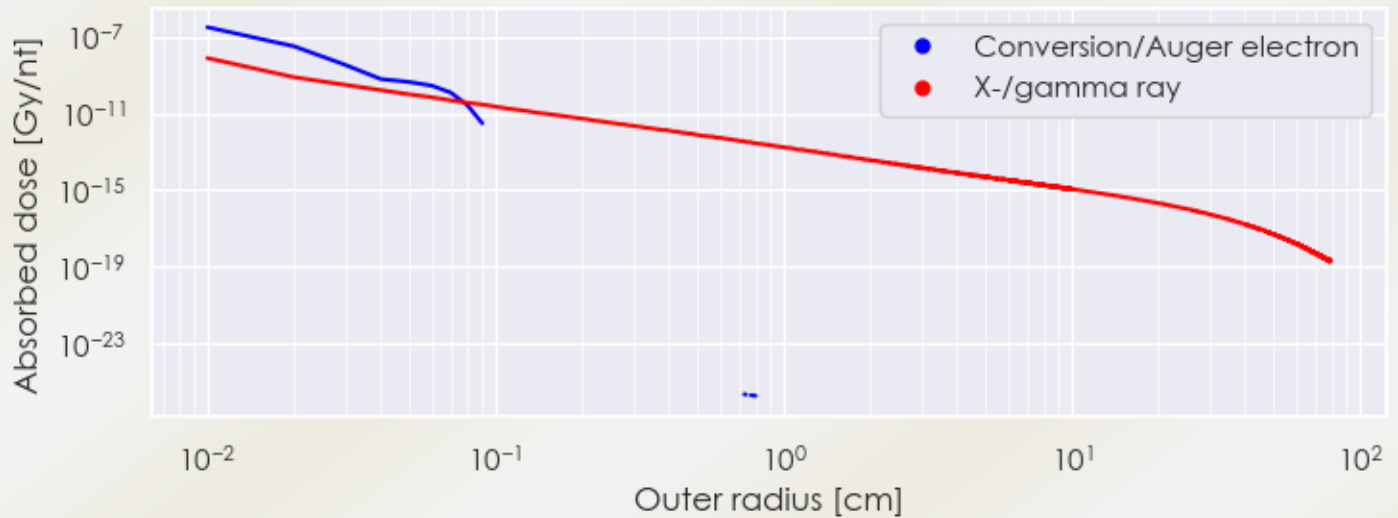
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-\beta+,e-}$: 3.193×10^{-15} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 4.609×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

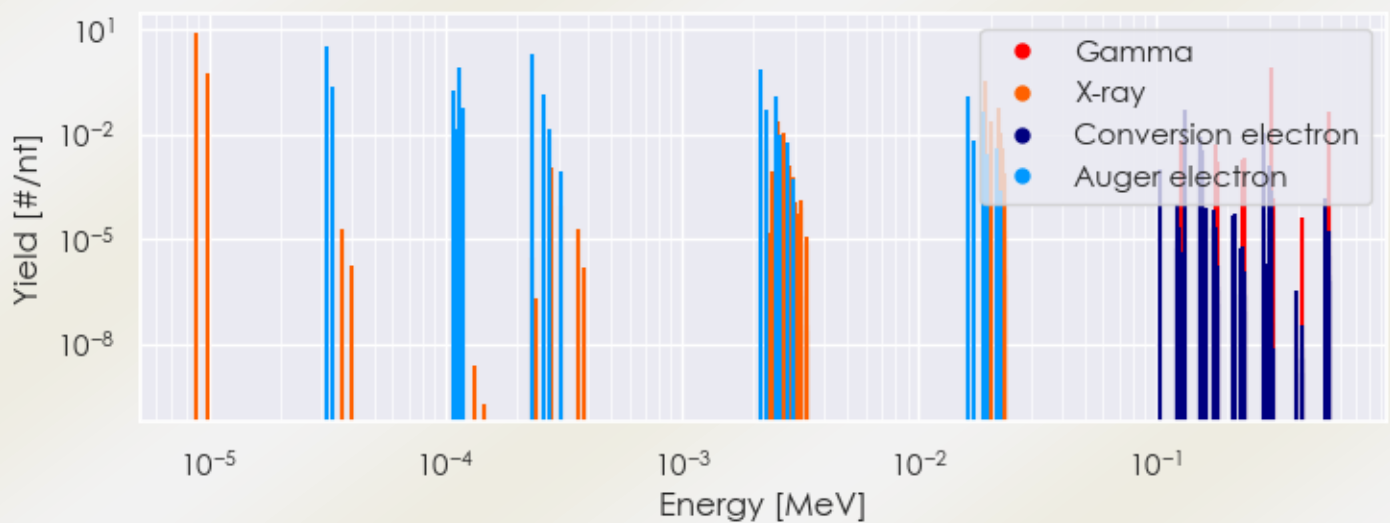
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Rh-101m 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-101m Summary 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-101m Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Rh-101m%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [# / n ^t] if > 0.01	Radiation type
8.90911e-06	8.448e+00	X-ray
9.95777e-06	5.900e-01	X-ray
2.54865e-03	2.247e-02	X-ray
2.67727e-03	1.040e-02	X-ray
1.91152e-02	1.866e-01	X-ray
1.92483e-02	3.541e-01	X-ray
2.00395e-02	1.195e-02	X-ray
2.01865e-02	2.262e-02	X-ray
2.16049e-02	2.971e-02	X-ray
2.16277e-02	5.779e-02	X-ray
2.20364e-02	1.120e-02	X-ray
3.06857e-01	8.059e-01	Gamma
5.45117e-01	4.271e-02	Gamma
3.14499e-05	3.505e+00	Auger electron
3.35150e-05	2.335e-01	Auger electron
1.08138e-04	1.875e-01	Auger electron
1.10732e-04	1.360e-02	Auger electron
1.14118e-04	7.921e-01	Auger electron
1.18001e-04	5.704e-02	Auger electron
2.31939e-04	1.940e+00	Auger electron
2.60399e-04	1.395e-01	Auger electron
2.77492e-04	1.427e-02	Auger electron
2.15898e-03	7.544e-01	Auger electron
2.26561e-03	5.359e-02	Auger electron
2.46858e-03	1.286e-01	Auger electron
1.61570e-02	1.177e-01	Auger electron
1.86981e-02	4.529e-02	Auger electron

1.34219e-01	5.121e-02	Conversion electron
2.84770e-01	1.117e-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