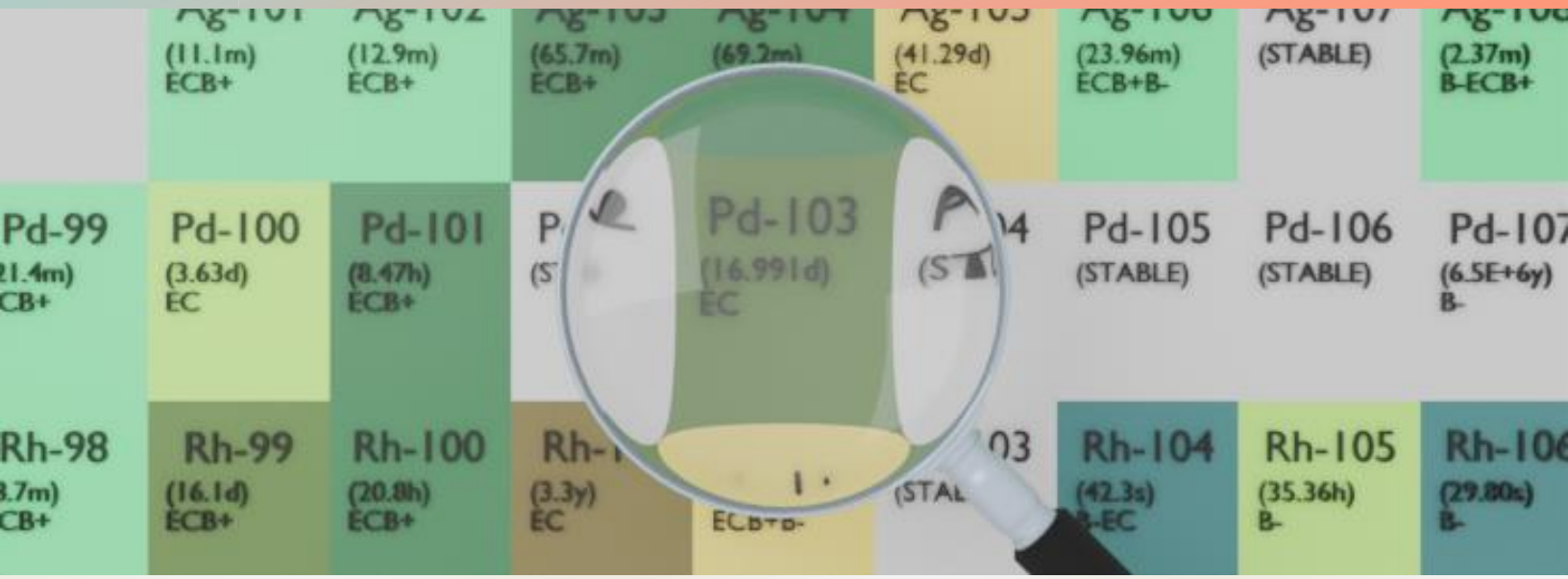


PALLADIUM-103

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Pd-103
Atomic number (Z): 46
Mass number (A): 103
Neutron number (N): 57

RADIOACTIVE DECAY

Decay modes: Electron capture
Half-life: 16.99 [d]
Decay constant: 4.7216e-07 [1/s]
Daughters: Rh-103m (99.9%), Rh-103 (0.125%)
Radioactive daughters: Rh-103m

DOSIMETRIC CONSTANTS

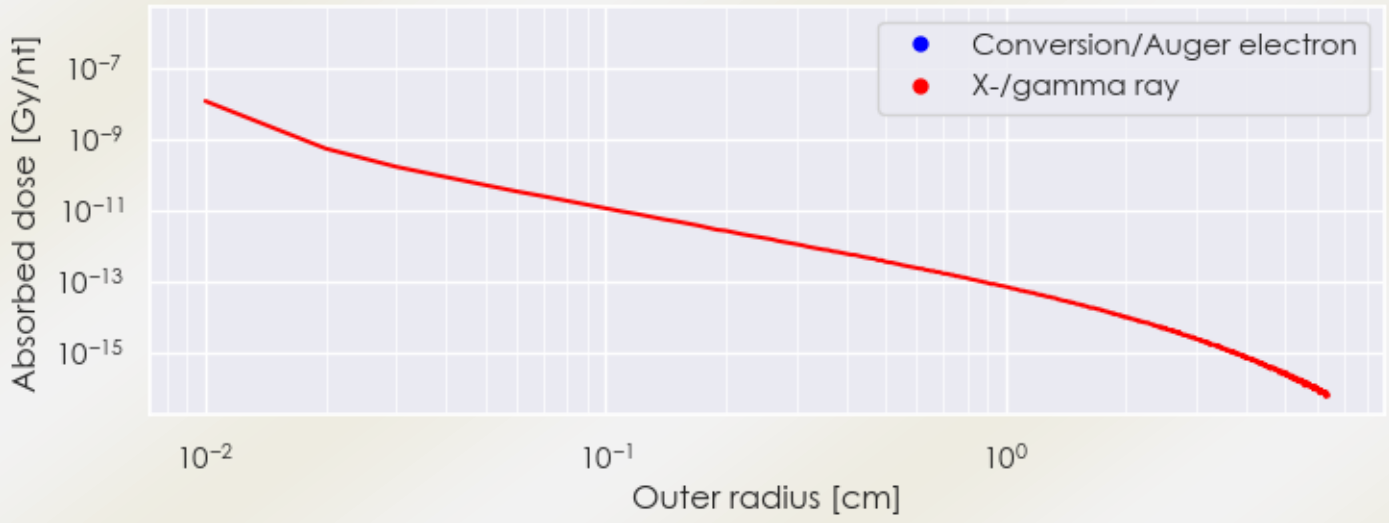
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.00581 [MeV]
Mean photon energy: 0.01457 [MeV]
Air kerma rate constant, Γ_{10}: 9.036e-18 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 9.036e-18 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 9.309e-16 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 9.309e-16 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 2.334e-15 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

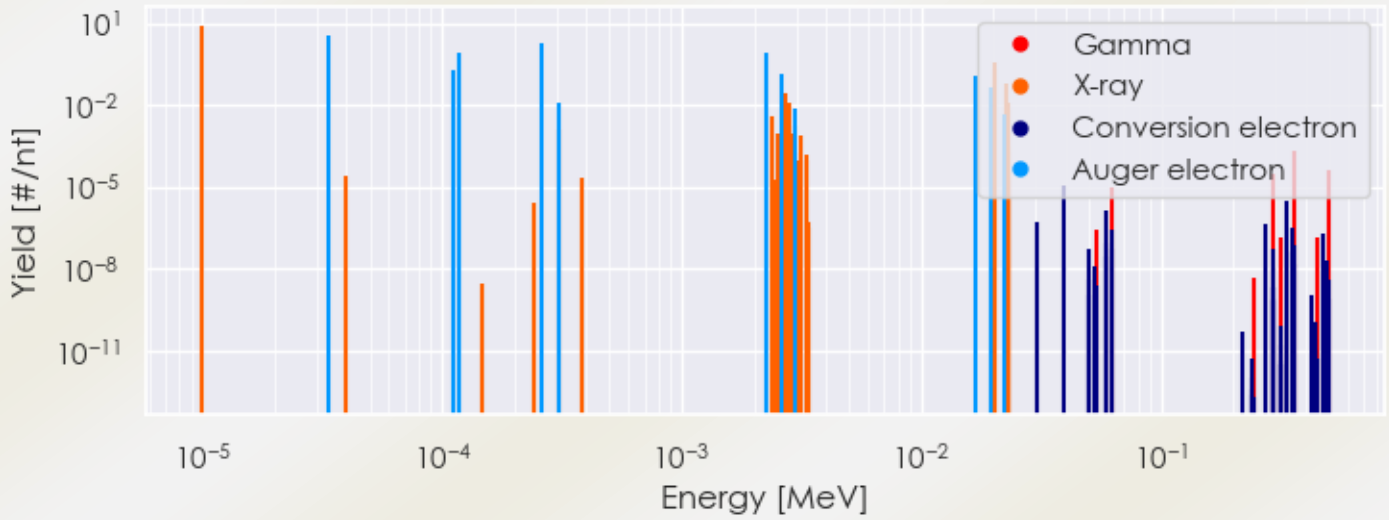
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Pd-103 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/Pd-103 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/Pd-103 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
9.95806e-06	8.437e+00	X-ray
2.68654e-03	2.511e-02	X-ray
2.82846e-03	1.171e-02	X-ray
2.00395e-02	2.000e-01	X-ray
2.01865e-02	3.787e-01	X-ray
2.26708e-02	3.220e-02	X-ray
2.26963e-02	6.262e-02	X-ray
2.31362e-02	1.237e-02	X-ray
3.35190e-05	3.338e+00	Auger electron
1.10633e-04	1.922e-01	Auger electron
1.18121e-04	8.146e-01	Auger electron
2.60381e-04	1.995e+00	Auger electron
3.07925e-04	1.302e-02	Auger electron
2.26680e-03	7.697e-01	Auger electron
2.60805e-03	1.428e-01	Auger electron
1.69094e-02	1.152e-01	Auger electron
1.95952e-02	4.510e-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