

	Cd-101 (1.36m) ECB+	Cd-102 (5.5m) ECB+	Cd-103 (7.3m)	Cd-104 (57.7m) EC	Cd-105 (55.5m) ECB+	Cd-106 (STABLE)	Cd-107 (6.50h) ECB+	
Ag-99 (124s) ECB+		Ag-100 (1.3m) ECB+	Ag-101 (1.3m) ECB+	Ag-102m (7.7m) ECB+IT	Ag-103 (6.8m) ECB+	Ag-104 (69.2m) ECB+	Ag-105 (41.29d) EC	Ag-106 (23.96m) ECB+B-
Pd-97 (3.10m) CB+	Pd-98 (17.7m) ECB+	Pd-99 (21.4m) ECB+	Pd-100 (3.63d) EC	Pd-101 (1.1m) ECB+	Pd-102 (STABLE)	Pd-103 (16.991d) EC	Pd-104 (STABLE)	Pd-105 (STABLE)

SILVER-102M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ag-102m
Atomic number (Z): 47
Mass number (A): 102
Neutron number (N): 55

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture, Internal transition
Half-life: 7.7 [m]
Decay constant: $1.5003\text{e-}03$ [1/s]
Daughters: Ag-102 (49.0%), Pd-102 (51.0%)
Radioactive daughters: Ag-102

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.39638 [MeV]
Mean photon energy: 1.99329 [MeV]
Air kerma rate constant, Γ_{10} : $5.137\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : $6.487\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $6.351\text{e-}14$ [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [Gy $\cdot$ kg/Bq $\cdot$ s]

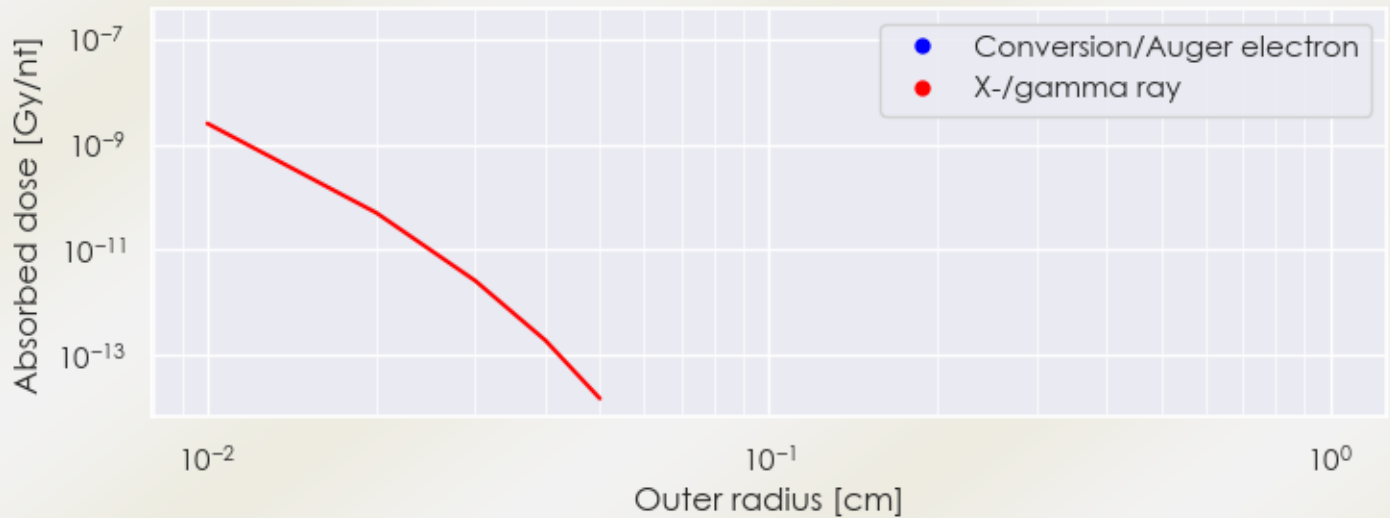
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-\beta+,e-}$: 6.351×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 3.194×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

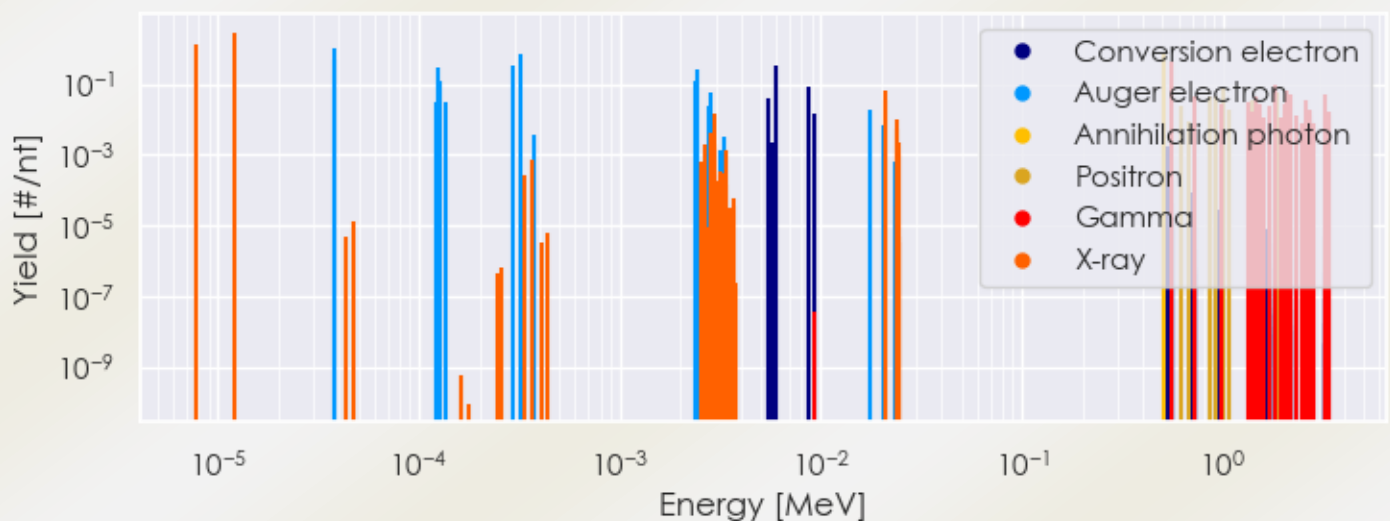
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Ag-102m DPK.csv

SUMMARY SPECTRA (PLOT)

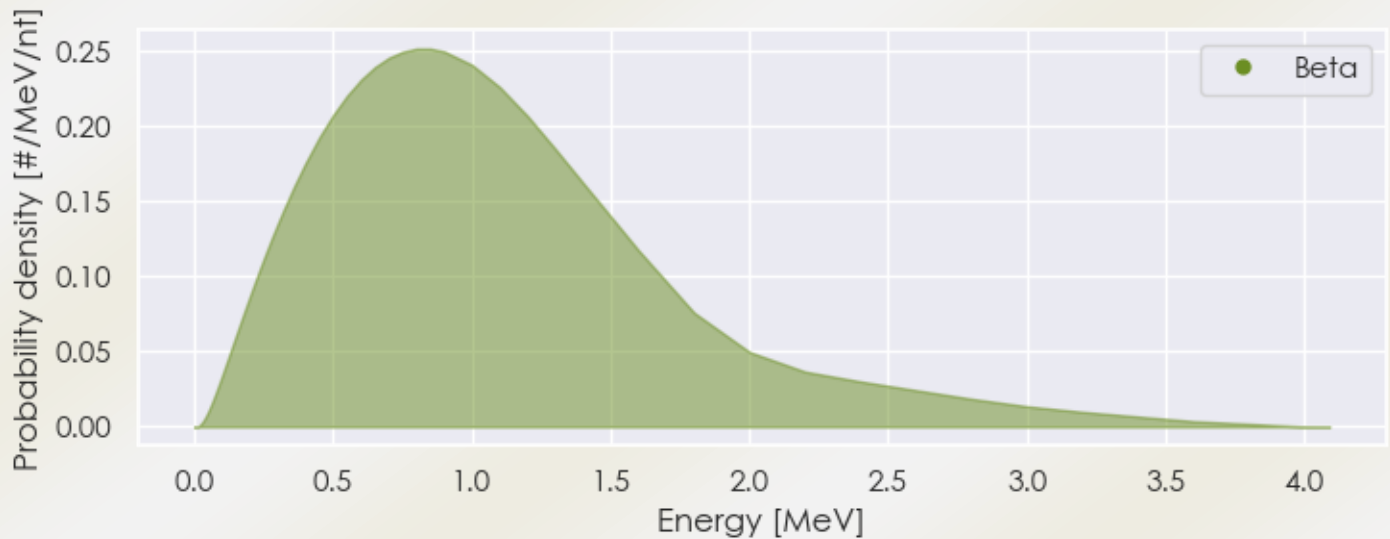
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Ag-102m 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/Ag-102m 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/Ag-102m Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
7.85943e-06	1.309e+00	X-ray
1.20671e-05	2.924e+00	X-ray
2.97344e-03	1.422e-02	X-ray
2.09884e-02	3.342e-02	X-ray
2.11504e-02	6.312e-02	X-ray
2.37942e-02	1.057e-02	X-ray
5.11000e-01	6.978e-01	Annihilation photon
5.56700e-01	4.260e-01	Gamma
7.19400e-01	4.526e-02	Gamma

9.77700e-01	2.662e-02	Gamma
1.33120e+00	2.928e-02	Gamma
1.38780e+00	1.597e-02	Gamma
1.46110e+00	4.526e-02	Gamma
1.53480e+00	2.662e-02	Gamma
1.58880e+00	1.198e-02	Gamma
1.69230e+00	2.263e-02	Gamma
1.83470e+00	9.850e-02	Gamma
1.92490e+00	1.065e-02	Gamma
2.01780e+00	2.795e-02	Gamma
2.05450e+00	6.656e-02	Gamma
2.15940e+00	5.058e-02	Gamma
2.31020e+00	1.331e-02	Gamma
2.61300e+00	3.328e-02	Gamma
2.68210e+00	1.730e-02	Gamma
2.71650e+00	1.864e-02	Gamma
2.72690e+00	1.331e-02	Gamma
3.23860e+00	4.925e-02	Gamma
3.39800e+00	1.331e-02	Gamma
3.40650e+00	1.597e-02	Gamma
6.26160e-01	2.457e-02	Positron
8.52905e-01	2.752e-02	Positron
8.62448e-01	4.325e-02	Positron
9.10529e-01	4.325e-02	Positron
9.27355e-01	1.867e-02	Positron
1.01157e+00	7.077e-02	Positron
1.07736e+00	1.769e-02	Positron
1.41071e+00	3.538e-02	Positron
1.87391e+00	5.897e-02	Positron
3.77336e-05	1.069e+00	Auger electron
3.81982e-05	4.933e-01	Auger electron
1.21681e-04	2.985e-02	Auger electron
1.24957e-04	3.037e-01	Auger electron
1.26003e-04	1.296e-01	Auger electron
1.35312e-04	3.163e-02	Auger electron
2.92897e-04	3.200e-01	Auger electron
3.18988e-04	7.251e-01	Auger electron
2.38225e-03	1.219e-01	Auger electron

2.45157e-03	2.727e-01	Auger electron
2.75692e-03	2.472e-02	Auger electron
2.85662e-03	5.869e-02	Auger electron
5.51660e-03	4.056e-02	Conversion electron
5.95000e-03	3.123e-01	Conversion electron
8.73147e-03	8.590e-02	Conversion electron
9.30000e-03	1.533e-02	Conversion electron
1.76856e-02	1.763e-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