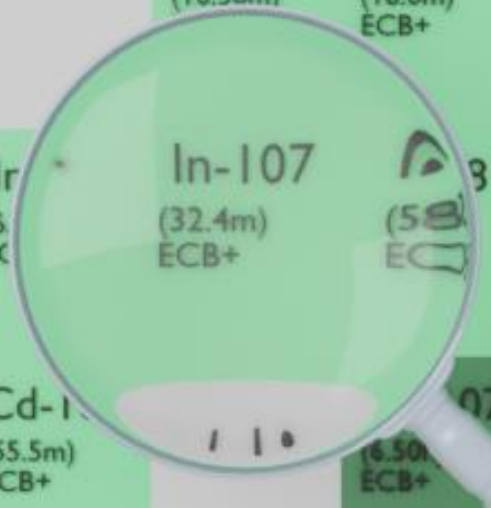




In-103 (50s) ECB+	In-105 (5.07m) ECB+	In-107 (32.4m) ECB+	In-109 (4.2h) ECB+	In-110 (4.9h) ECB+	In-111 (2.8047d) EC
Cd-102 (5.5m) CB+	Cd-103 (7.3m) ECB+	Cd-104 (57.7m) EC	Cd-107 (6.50m) ECB+	Cd-108 (STABLE)	Cd-109 (461.4d) EC

INDIUM-107

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: In-107
Atomic number (Z): 49
Mass number (A): 107
Neutron number (N): 58

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 32.4 [m]
Decay constant: 3.5656×10^{-4} [1/s]
Daughters: Cd-107 (100.0%)
Radioactive daughters: Cd-107

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.32631 [MeV]
Mean photon energy: 1.53072 [MeV]
Air kerma rate constant, Γ_{10} : 4.297×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 5.637×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 5.228×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

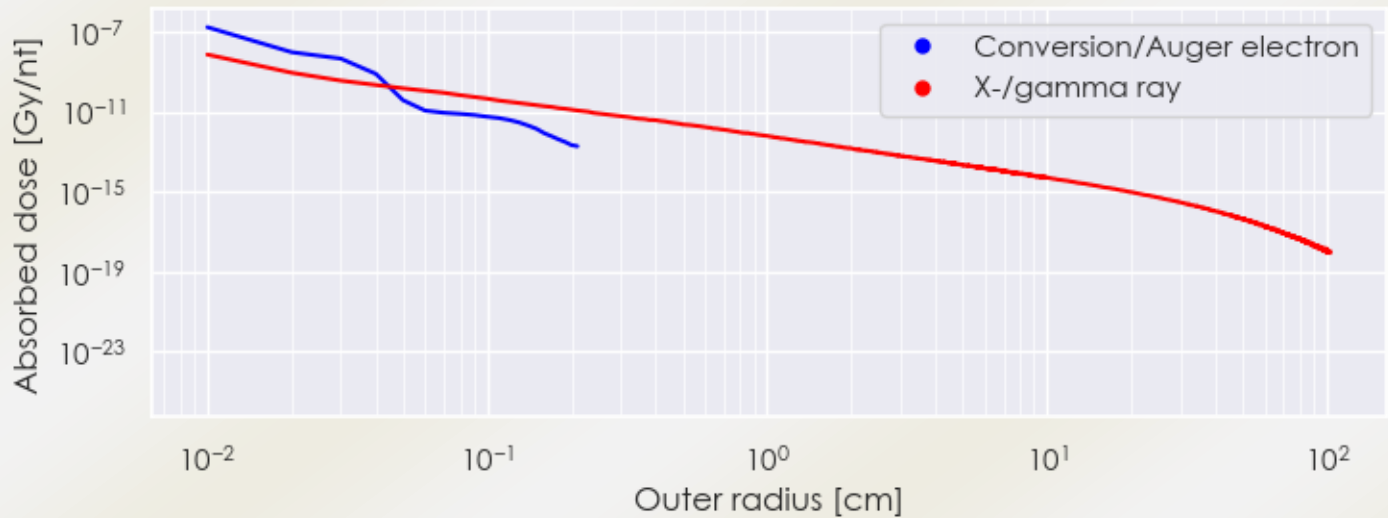
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-, \beta+, e-}$: 5.228×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 2.452×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

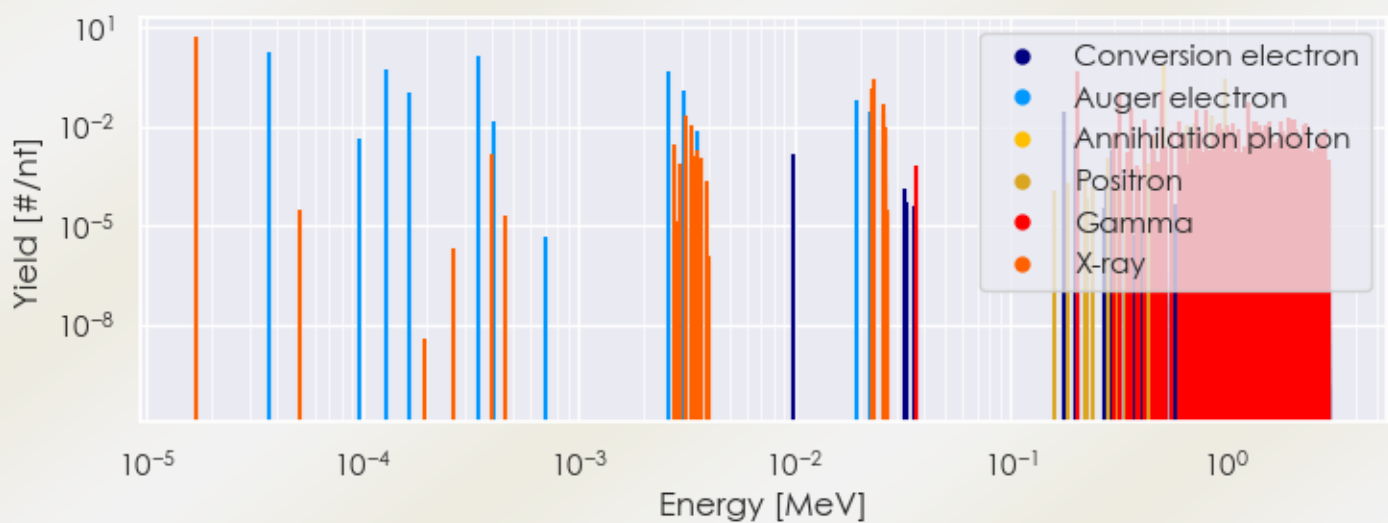
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/In-107 DPK.csv

SUMMARY SPECTRA (PLOT)

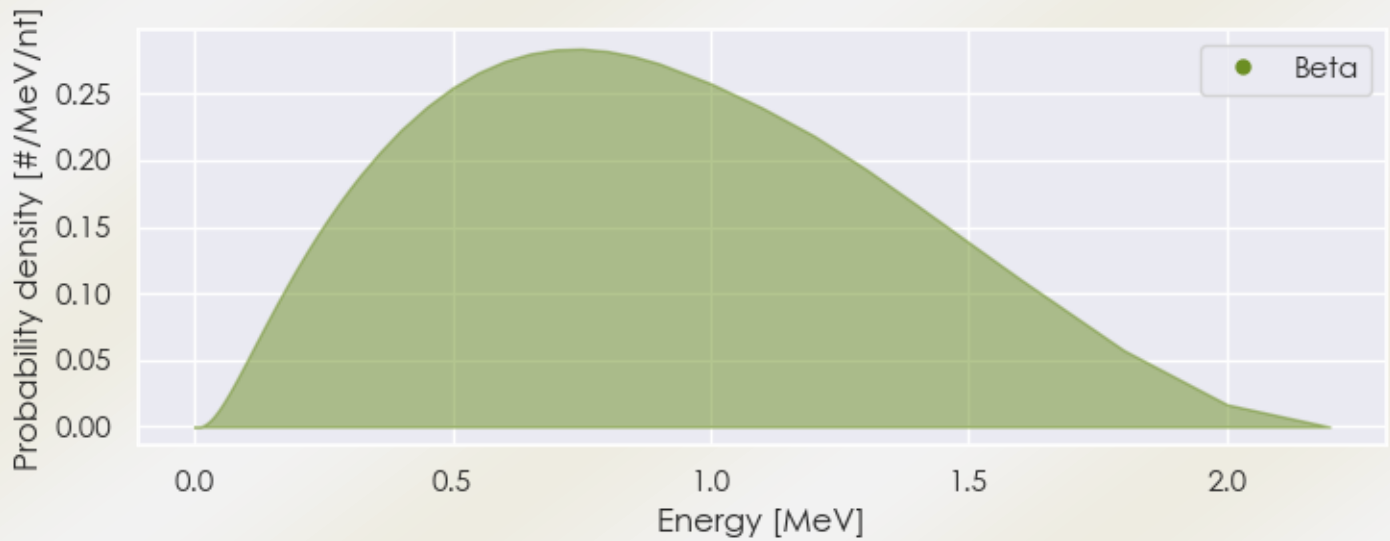
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/In-107 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/In-107 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/In-107 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.71475e-05	5.140e+00	X-ray
3.12254e-03	1.983e-02	X-ray
3.31083e-03	1.013e-02	X-ray
2.29571e-02	1.448e-01	X-ray
2.31527e-02	2.722e-01	X-ray
2.60401e-02	2.402e-02	X-ray
2.60753e-02	4.666e-02	X-ray
2.04950e-01	4.720e-01	Gamma
3.20940e-01	1.020e-01	Gamma
3.65290e-01	3.823e-02	Gamma

4.16420e-01	1.699e-02	Gamma
5.05510e-01	1.189e-01	Gamma
5.11000e-01	6.921e-01	Annihilation photon
6.04030e-01	1.336e-02	Gamma
7.28030e-01	3.304e-02	Gamma
8.09020e-01	3.257e-02	Gamma
9.15100e-01	1.123e-02	Gamma
9.21800e-01	1.227e-02	Gamma
9.98750e-01	1.034e-02	Gamma
1.06337e+00	1.241e-02	Gamma
1.26833e+00	5.428e-02	Gamma
1.34354e+00	1.392e-02	Gamma
1.37733e+00	1.487e-02	Gamma
1.41106e+00	1.152e-02	Gamma
1.50100e+00	1.024e-02	Gamma
1.57130e+00	1.416e-02	Gamma
1.77900e+00	1.378e-02	Gamma
1.92215e+00	1.794e-02	Gamma
1.98380e+00	1.194e-02	Gamma
2.00650e+00	1.581e-02	Gamma
2.06480e+00	1.704e-02	Gamma
2.28478e+00	1.133e-02	Gamma
2.30400e+00	1.227e-02	Gamma
5.06051e-01	1.781e-02	Positron
6.60624e-01	1.047e-02	Positron
7.11288e-01	1.257e-02	Positron
8.48878e-01	1.990e-02	Positron
9.86430e-01	2.650e-01	Positron
3.67759e-05	1.816e+00	Auger electron
1.28079e-04	5.294e-01	Auger electron
1.65989e-04	1.119e-01	Auger electron
3.45348e-04	1.267e+00	Auger electron
4.03078e-04	1.442e-02	Auger electron
2.61034e-03	4.887e-01	Auger electron
3.05338e-03	1.125e-01	Auger electron
1.92752e-02	6.427e-02	Auger electron
2.24238e-02	2.644e-02	Auger electron
1.78262e-01	2.802e-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