

Sn-108 (10.30m) ECB+	Sn-109 (18.0m) ECB+	Sn-110 (4.11h) EC	Sn-111 (35.3m)	Sn-112 (STABLE)	Sn-113 (115.09d) EC	Sn-114 (STABLE)	Sn-115 (STABLE)	
In-106 (5.2m) CB+	In-107 (32.4m) ECB+	In-108 (58.0m) ECB+	In-109 (4.1h) EC	In-110m (69.1m) ECB+	In-111 (2.8d) EC	In-112 (14.97m) ECB+B-	In-113 (STABLE)	In-114 (71.9s) B-ECB+
Cd-105 (55.5m) CB+	Cd-106 (STABLE)	Cd-107 (6.50h) ECB+	Cd-108 (STABLE)	Cd-109 (STABLE)	Cd-110 (STABLE)	Cd-111 (STABLE)	Cd-112 (STABLE)	Cd-113 (7.7E+15y) B-

INDIUM-110M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: In-110m
Atomic number (Z): 49
Mass number (A): 110
Neutron number (N): 61

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 69.1 [m]
Decay constant: $1.6718\text{e-}04$ [1/s]
Daughters: Cd-110 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.62824 [MeV]
Mean photon energy: 1.57824 [MeV]
Air kerma rate constant, Γ_{10} : $3.559\text{e-}17$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Air kerma coefficient, K_{air} : $5.950\text{e-}17$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $1.007\text{e-}13$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]

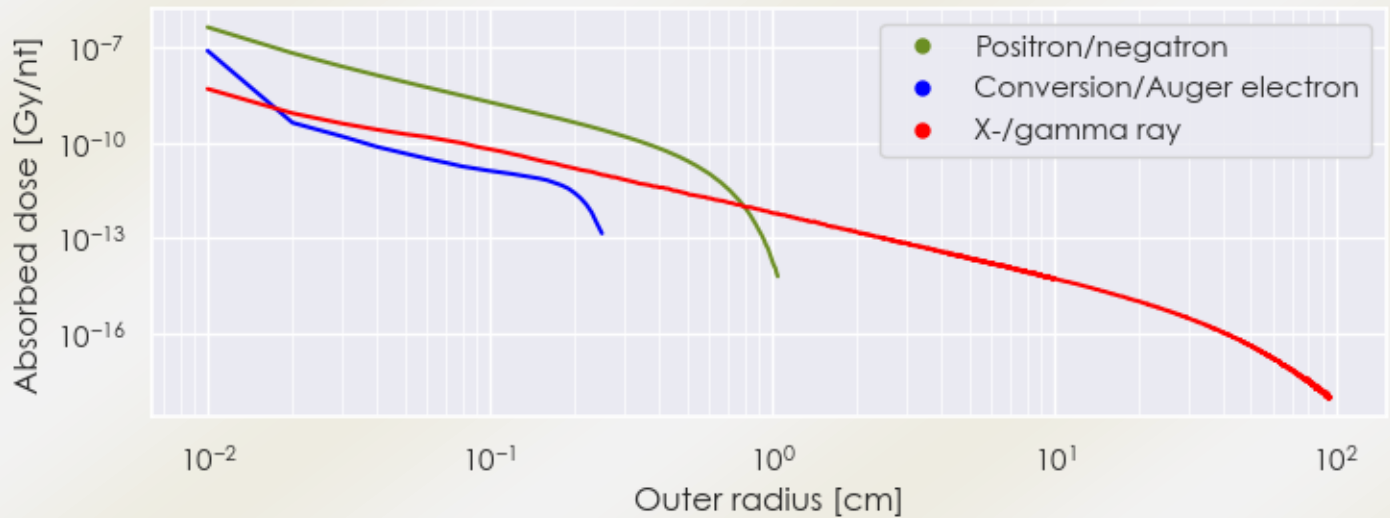
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: $1.007\text{e-}13$ [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : $2.529\text{e-}13$ [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

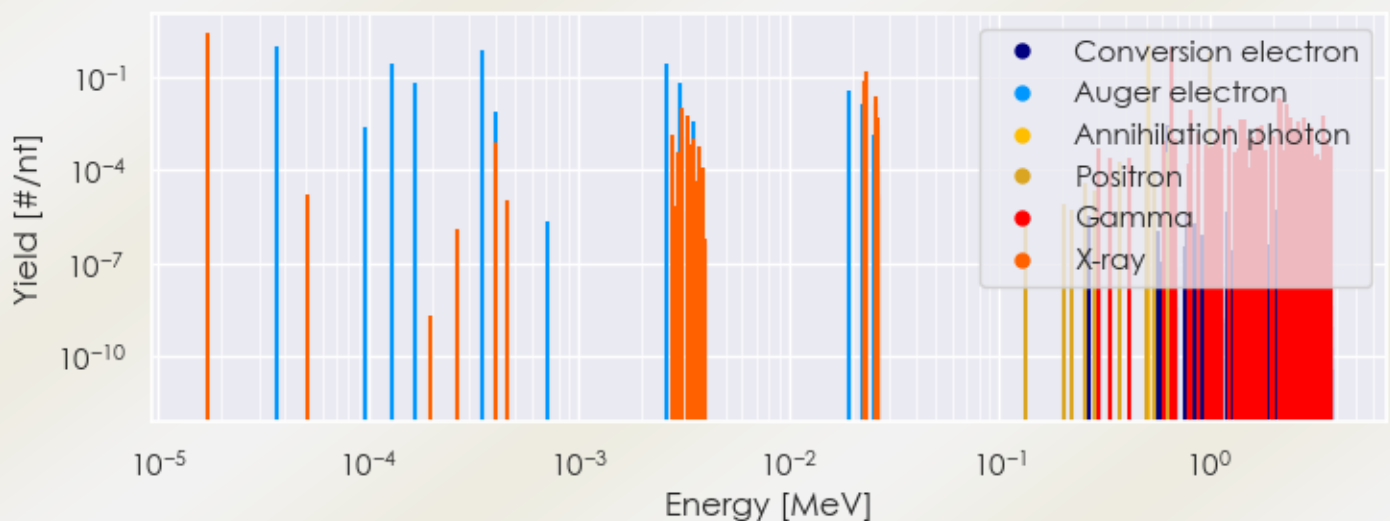
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/In-110m DPK.csv

SUMMARY SPECTRA (PLOT)

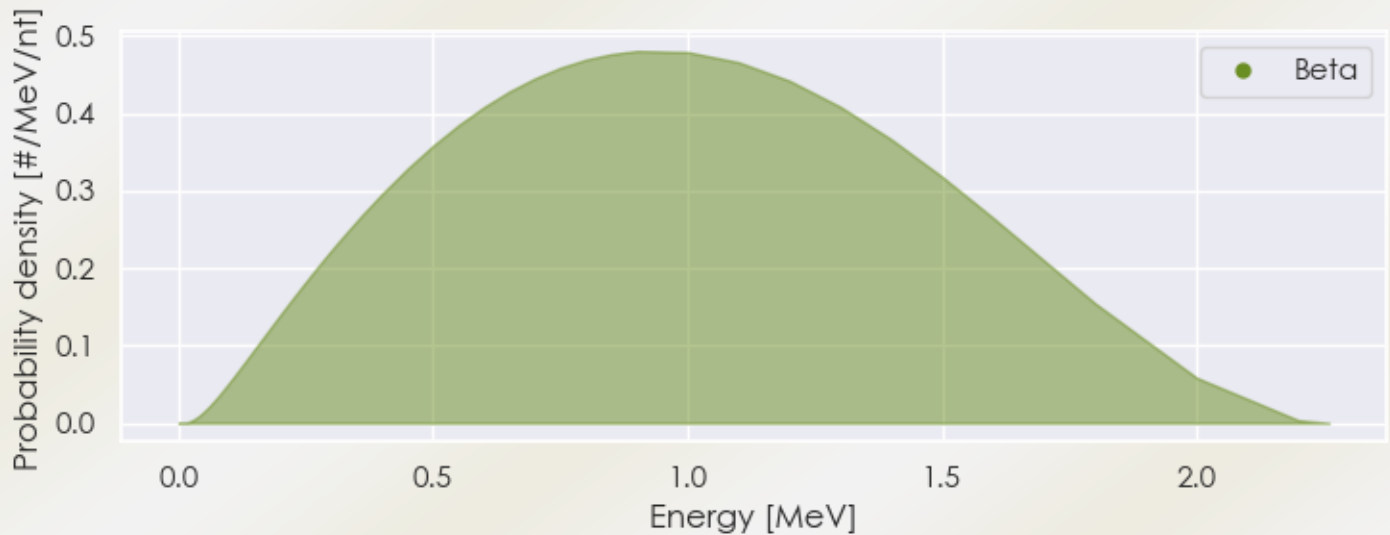
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/In-110m 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-110m 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-110m Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.71475e-05	2.861e+00	X-ray
3.12254e-03	1.104e-02	X-ray
2.29571e-02	8.067e-02	X-ray
2.31527e-02	1.516e-01	X-ray
2.60401e-02	1.338e-02	X-ray
2.60753e-02	2.599e-02	X-ray
5.11000e-01	1.235e+00	Annihilation photon
6.57750e-01	9.810e-01	Gamma
1.12577e+00	1.040e-02	Gamma

2.12940e+00	2.158e-02	Gamma
2.21133e+00	1.746e-02	Gamma
2.31741e+00	1.290e-02	Gamma
1.01464e+00	6.113e-01	Positron
3.67758e-05	1.011e+00	Auger electron
1.28078e-04	2.946e-01	Auger electron
1.65989e-04	6.229e-02	Auger electron
3.45349e-04	7.052e-01	Auger electron
2.61032e-03	2.720e-01	Auger electron
3.05336e-03	6.262e-02	Auger electron
1.92752e-02	3.580e-02	Auger electron
2.24238e-02	1.473e-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