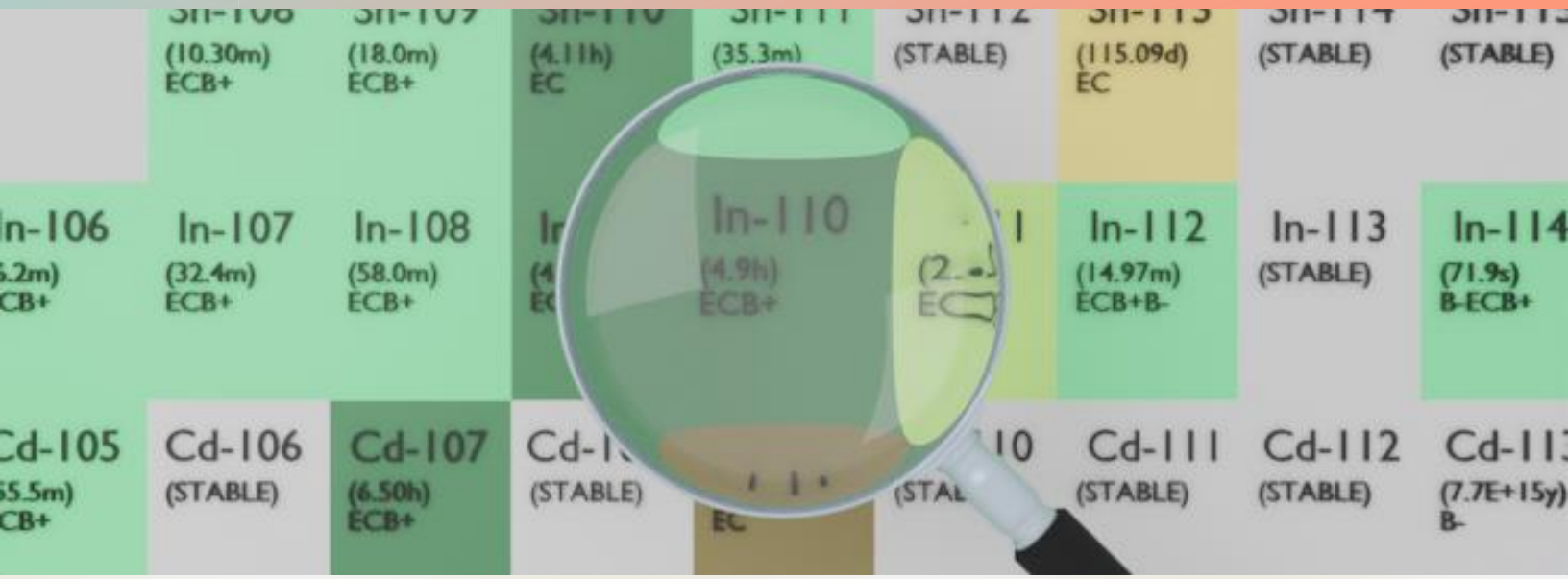


INDIUM-110

SUMMARY DATA

GENERAL

CLASSIFICATION

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

RADIOACTIVE DECAY

Decay modes: β+, Electron capture
Half-life: 4.9 [h]
Decay constant: 3.9294e-05 [1/s]
Daughters: Cd-110 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

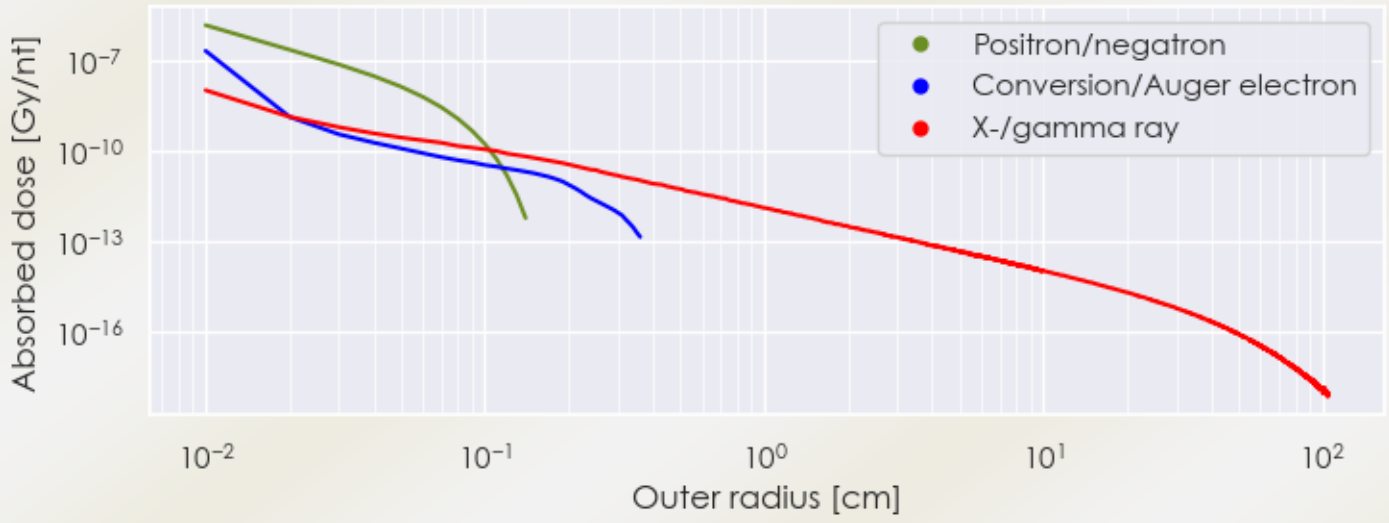
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.01222 [MeV]
Mean photon energy: 3.09716 [MeV]
Air kerma rate constant, Γ_{10}: 1.196e-16 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 1.196e-16 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 1.958e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 1.958e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 4.962e-13 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

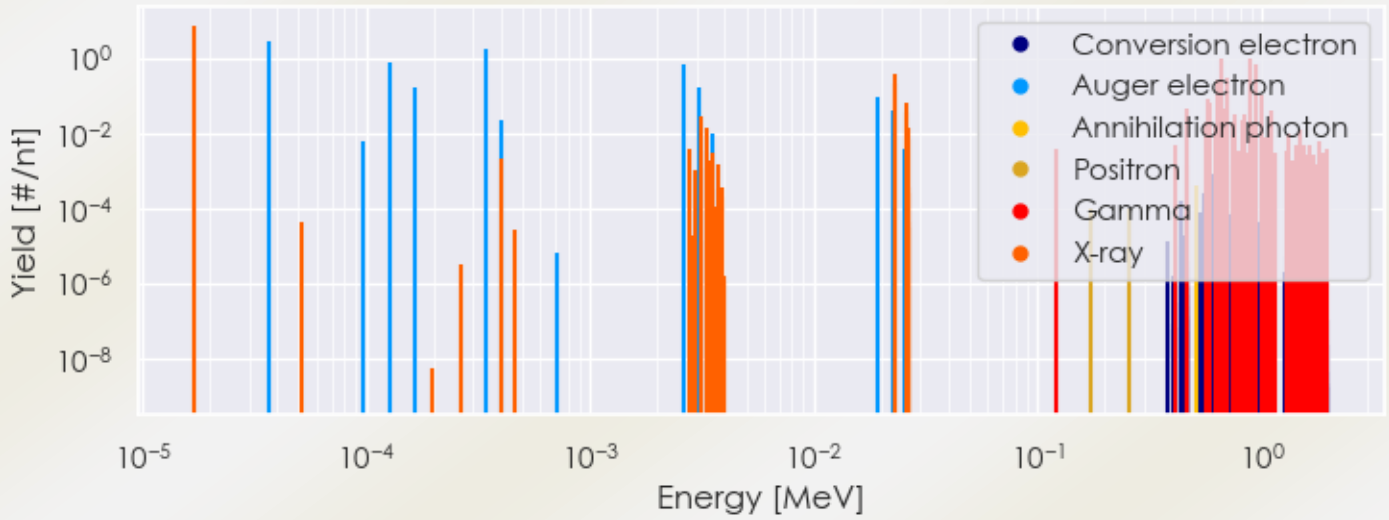
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



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

SUMMARY SPECTRA (PLOT)

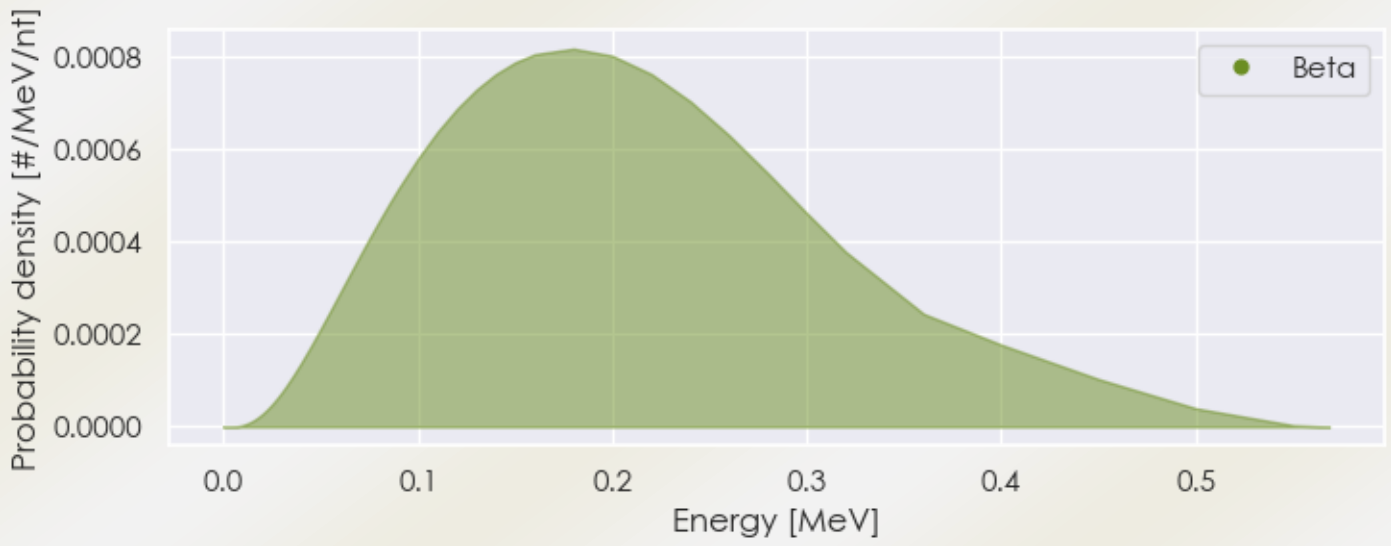
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



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

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
1.71473e-05	7.485e+00	X-ray
3.12254e-03	2.882e-02	X-ray
3.31083e-03	1.469e-02	X-ray
2.29571e-02	2.097e-01	X-ray
2.31527e-02	3.942e-01	X-ray
2.60401e-02	3.478e-02	X-ray
2.60753e-02	6.756e-02	X-ray
2.66158e-02	1.374e-02	X-ray
4.61100e-01	2.261e-02	Gamma
4.61800e-01	4.718e-02	Gamma

5.60320e-01	1.868e-02	Gamma
5.81930e-01	8.551e-02	Gamma
5.84210e-01	6.487e-02	Gamma
6.26240e-01	1.474e-02	Gamma
6.41680e-01	2.595e-01	Gamma
6.57750e-01	9.829e-01	Gamma
6.77600e-01	4.521e-02	Gamma
7.07400e-01	2.949e-01	Gamma
7.08120e-01	1.641e-02	Gamma
7.44260e-01	1.966e-02	Gamma
7.59870e-01	3.145e-02	Gamma
8.18016e-01	2.261e-02	Gamma
8.44667e-01	3.244e-02	Gamma
8.84667e-01	9.288e-01	Gamma
9.01530e-01	1.966e-02	Gamma
9.37478e-01	6.841e-01	Gamma
9.97160e-01	1.052e-01	Gamma
1.08552e+00	1.366e-02	Gamma
1.11736e+00	4.226e-02	Gamma
1.47576e+00	1.248e-02	Gamma
3.67733e-05	2.645e+00	Auger electron
1.28036e-04	7.712e-01	Auger electron
1.66145e-04	1.652e-01	Auger electron
3.45371e-04	1.844e+00	Auger electron
4.03219e-04	2.100e-02	Auger electron
2.61062e-03	7.107e-01	Auger electron
3.05372e-03	1.636e-01	Auger electron
1.92752e-02	9.307e-02	Auger electron
2.24238e-02	3.829e-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