



INDIUM-121

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: In-121
Atomic number (Z): 49
Mass number (A): 121
Neutron number (N): 72

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 23.1 [s]
Decay constant: 3.0006e-02 [1/s]
Daughters: Sn-121 (88.6%), Sn-121m (11.3%)
Radioactive daughters: Sn-121, Sn-121m

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.98687 [MeV]
Mean photon energy: 0.92662 [MeV]
Air kerma rate constant, Γ_{10} : 3.358e-17 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : 3.358e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.581e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

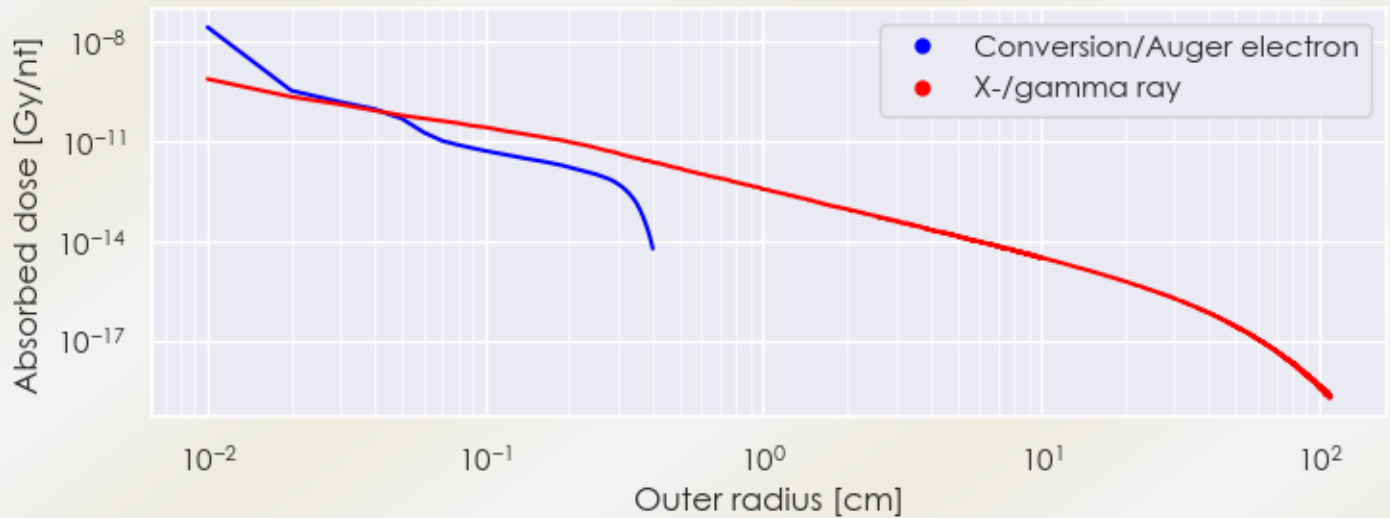
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 1.581×10^{-13} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.485×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

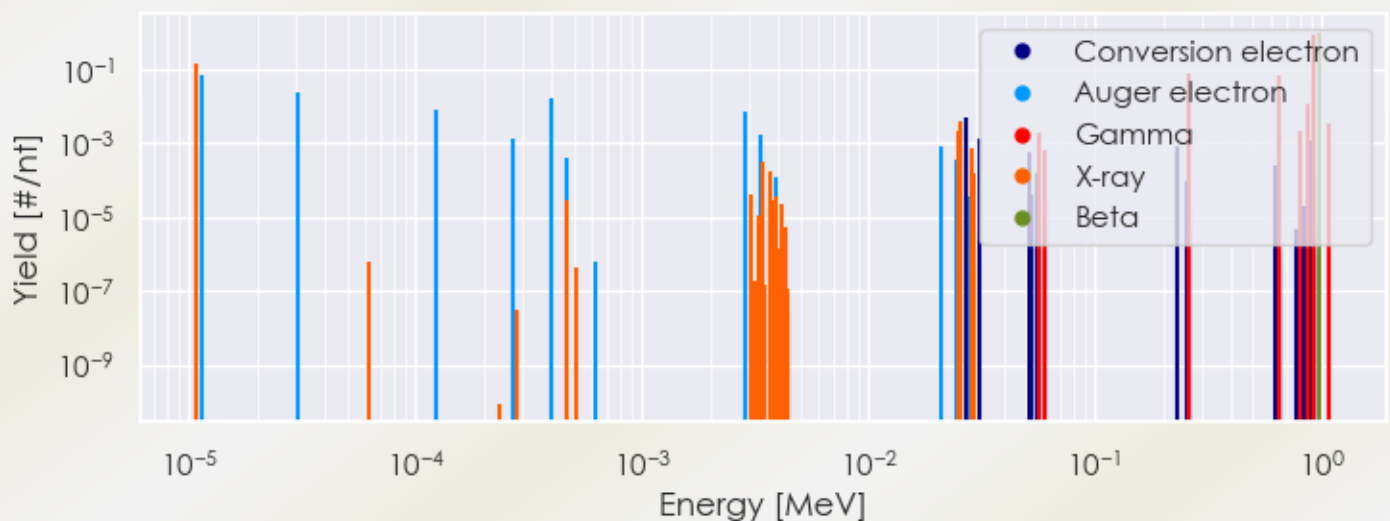
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/In-121 DPK.csv

SUMMARY SPECTRA (PLOT)

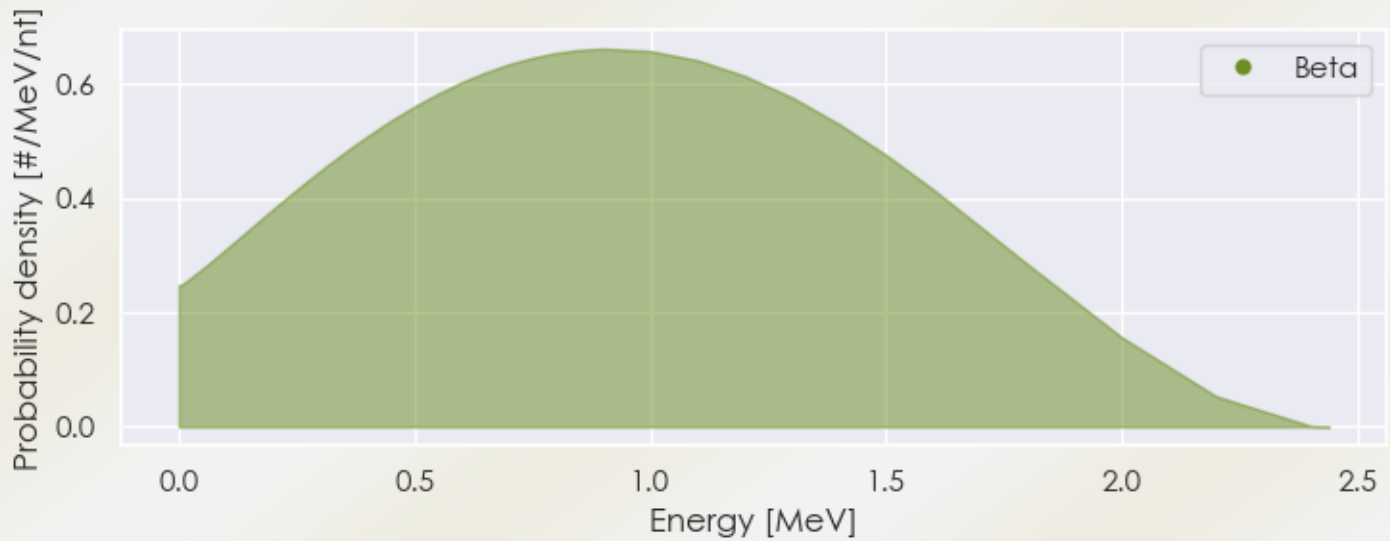
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/In-121 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-121 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-121 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.08542e-05	1.376e-01	X-ray
2.61960e-01	7.900e-02	Gamma
6.57320e-01	7.100e-02	Gamma
8.69310e-01	1.100e-02	Gamma
9.19280e-01	4.200e-02	Gamma
9.25570e-01	8.700e-01	Gamma
9.84758e-01	1.000e+00	Beta
1.13302e-05	6.802e-02	Auger electron
3.03736e-05	2.337e-02	Auger electron
3.96175e-04	1.708e-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