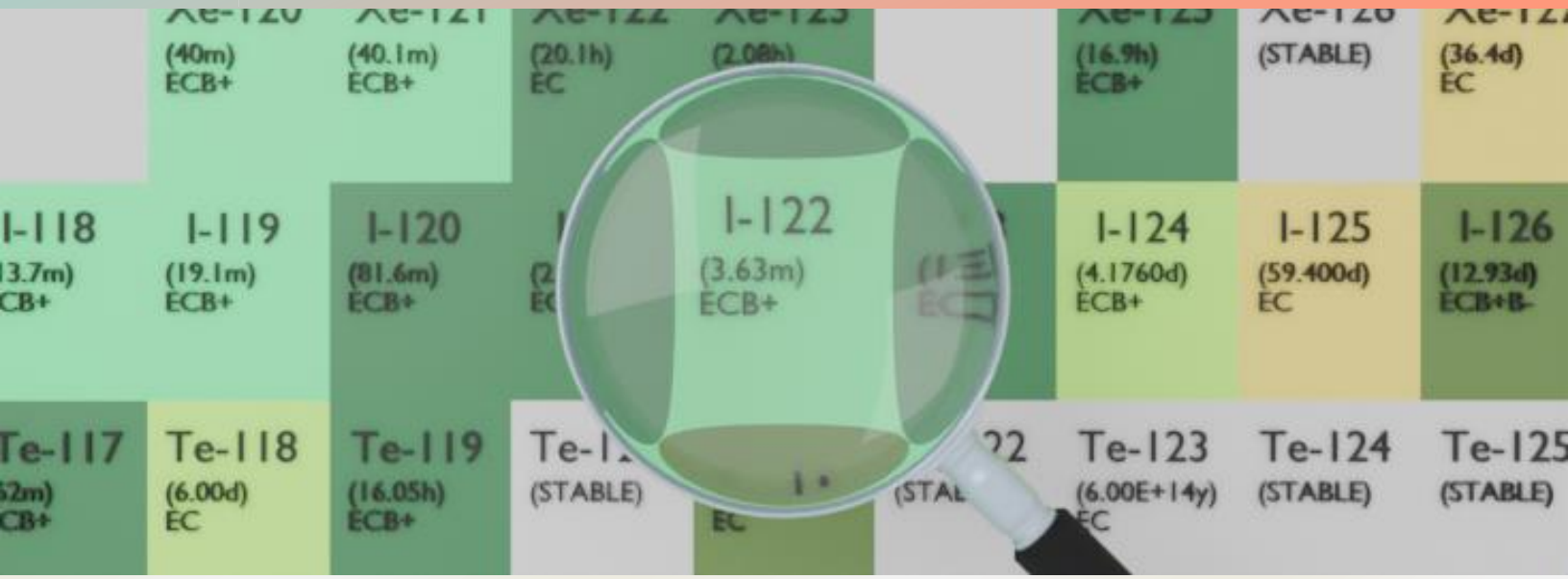


IODINE-122

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: I-122
Atomic number (Z): 53
Mass number (A): 122
Neutron number (N): 69

RADIOACTIVE DECAY

Decay modes: β+, Electron capture
Half-life: 3.63 [m]
Decay constant: 3.1825e-03 [1/s]
Daughters: Te-122 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

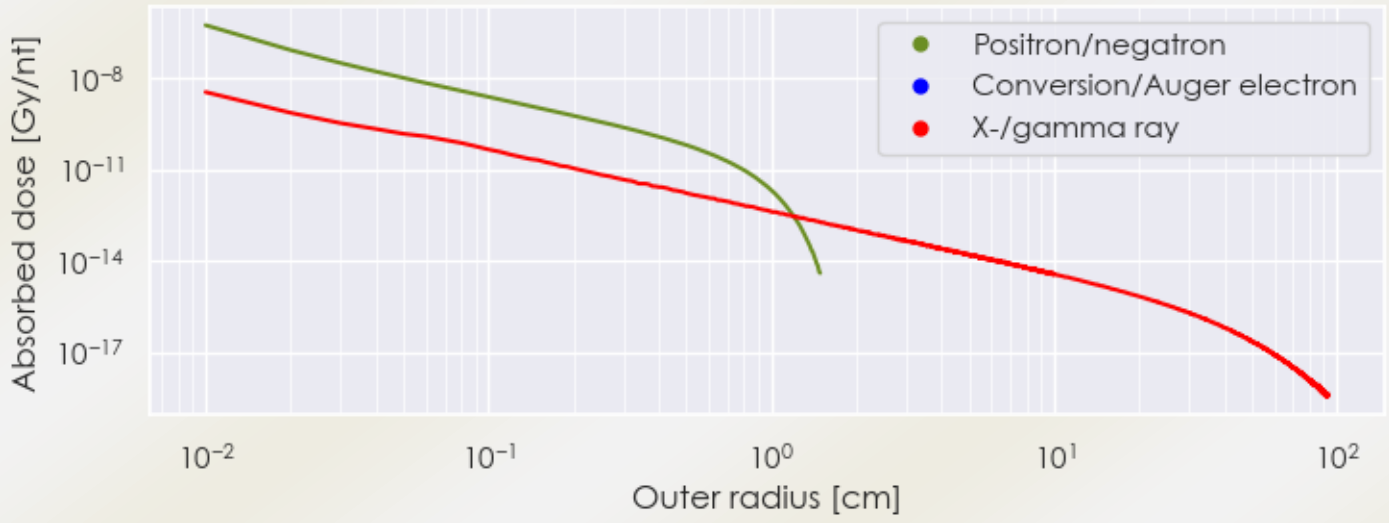
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 1.10552 [MeV]
Mean photon energy: 0.9619 [MeV]
Air kerma rate constant, Γ_{10}: 6.928e-18 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 3.713e-17 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 1.771e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_a: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 1.771e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 1.541e-13 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

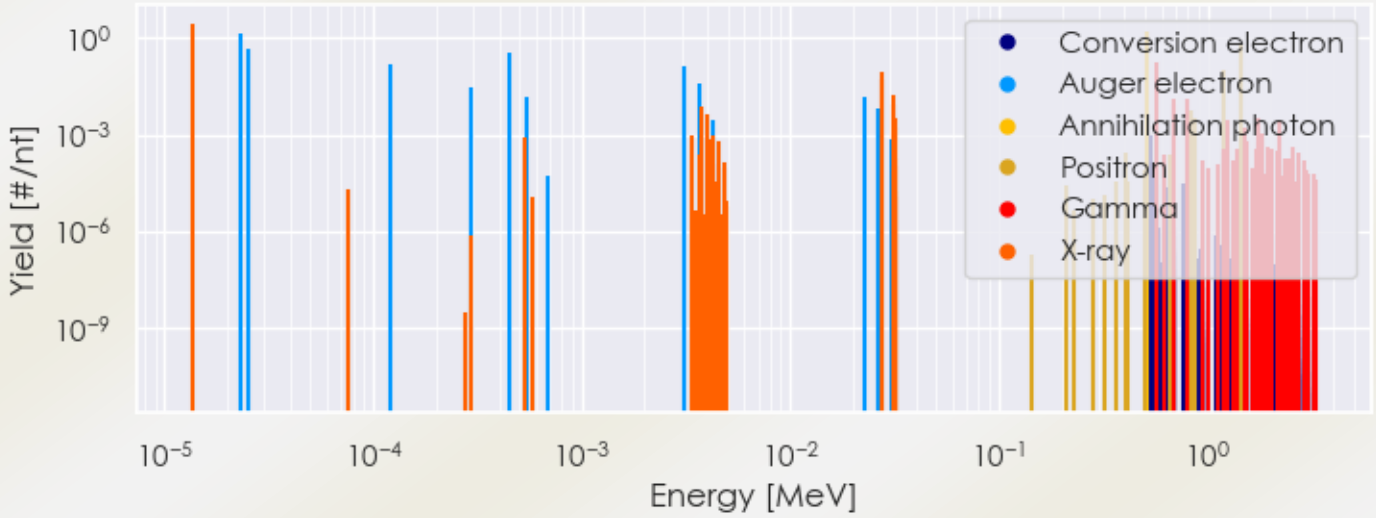
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/I-122 DPK.csv

SUMMARY SPECTRA (PLOT)

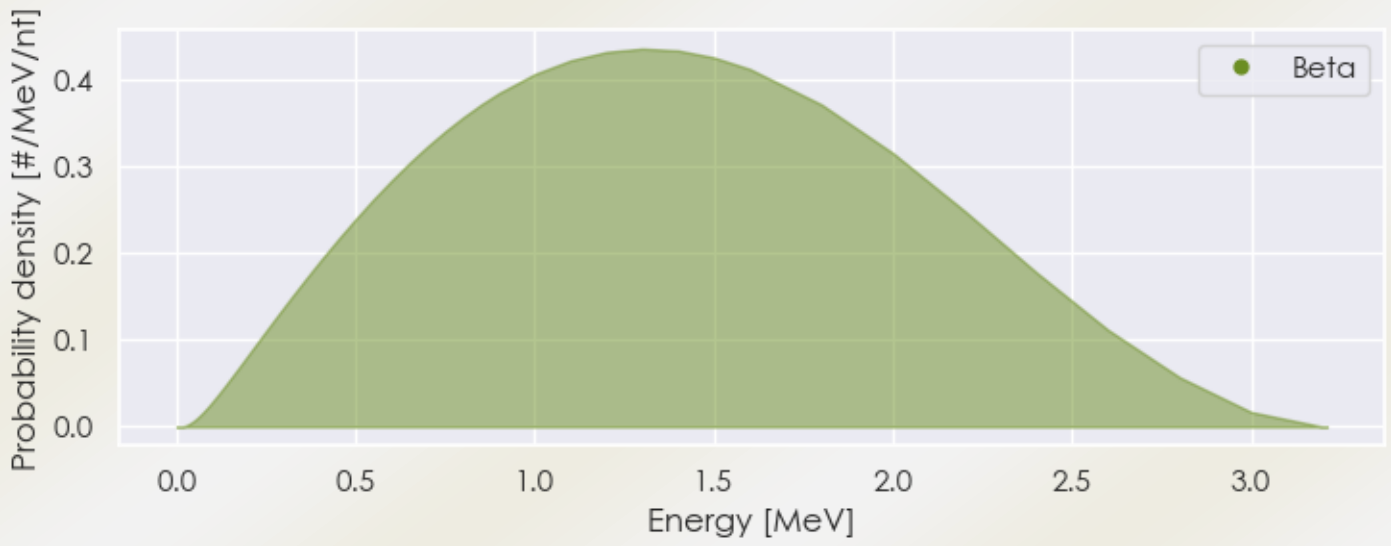
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/I-122 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/I-122 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/I-122 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
1.36107e-05	2.836e+00	X-ray
2.71868e-02	4.785e-02	X-ray
2.74652e-02	8.908e-02	X-ray
3.09901e-02	1.591e-02	X-ray
5.11000e-01	1.560e+00	Annihilation photon
5.64119e-01	1.800e-01	Gamma
6.92794e-01	1.355e-02	Gamma
7.93278e-01	1.327e-02	Gamma
1.19520e+00	9.983e-02	Positron
1.45798e+00	6.688e-01	Positron

2.29234e-05	1.386e+00	Auger electron
2.49264e-05	4.628e-01	Auger electron
1.21033e-04	1.594e-01	Auger electron
2.95226e-04	2.944e-02	Auger electron
4.49472e-04	3.568e-01	Auger electron
5.41125e-04	1.375e-02	Auger electron
3.08428e-03	1.401e-01	Auger electron
3.67833e-03	3.969e-02	Auger electron
2.26653e-02	1.547e-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