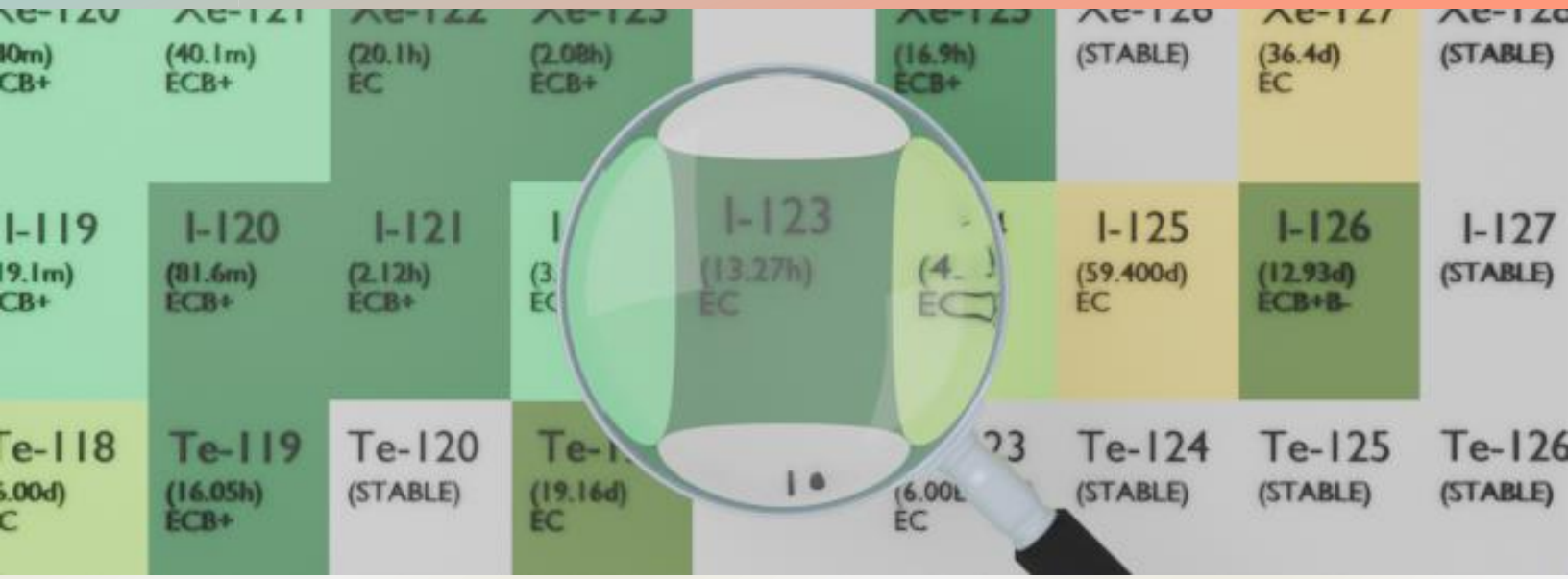


IODINE-123

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: I-123
Atomic number (Z): 53
Mass number (A): 123
Neutron number (N): 70

RADIOACTIVE DECAY

Decay modes: Electron capture
Half-life: 13.27 [h]
Decay constant: 1.4509e-05 [1/s]
Daughters: Te-123 (100.0%), Te-123m (0.00444%)
Radioactive daughters: Te-123, Te-123m

DOSIMETRIC CONSTANTS

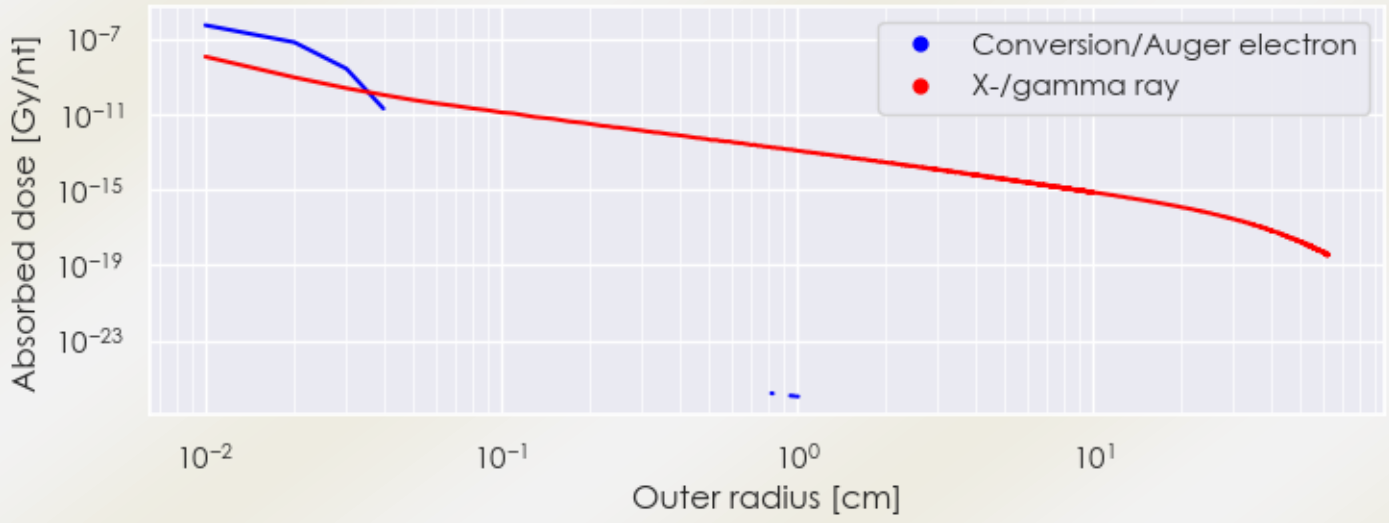
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.02818 [MeV]
Mean photon energy: 0.17303 [MeV]
Air kerma rate constant, Γ_{10}: 1.076e-17 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 1.076e-17 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 4.515e-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, $\Delta_{\beta-,\beta+,e-}$: 4.515e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 2.772e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

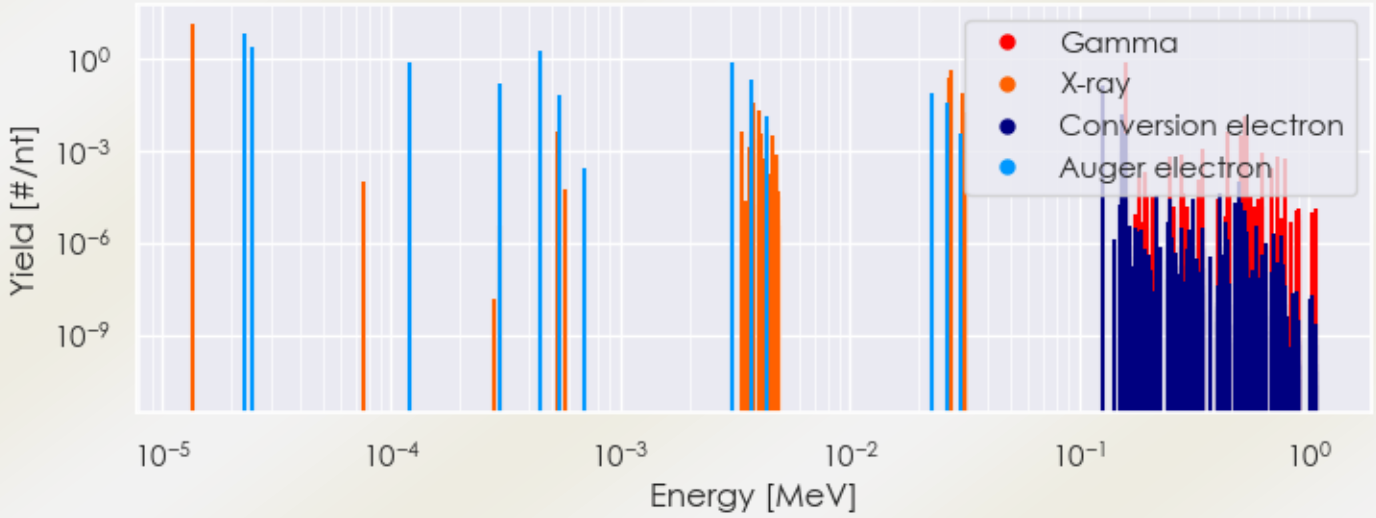
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/I-123 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-123 Summary 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-123 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
1.36107e-05	1.487e+01	X-ray
3.75695e-03	3.925e-02	X-ray
4.02446e-03	2.257e-02	X-ray
2.71868e-02	2.498e-01	X-ray
2.74652e-02	4.650e-01	X-ray
3.09378e-02	4.281e-02	X-ray
3.09901e-02	8.304e-02	X-ray
3.16841e-02	1.743e-02	X-ray
1.58970e-01	8.330e-01	Gamma
5.28960e-01	1.391e-02	Gamma
2.29238e-05	7.267e+00	Auger electron
2.49261e-05	2.427e+00	Auger electron
1.21020e-04	8.363e-01	Auger electron
2.95783e-04	1.556e-01	Auger electron
4.49494e-04	1.870e+00	Auger electron
5.41188e-04	7.206e-02	Auger electron
3.08475e-03	7.344e-01	Auger electron
3.67886e-03	2.080e-01	Auger electron
4.29524e-03	1.471e-02	Auger electron
2.26653e-02	8.073e-02	Auger electron
2.65056e-02	3.556e-02	Auger electron
1.27165e-01	1.366e-01	Conversion electron
1.54056e-01	1.634e-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/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6