



Xe-123 (2.08h) EC+		Xe-123 (16.9h) ECB+	Xe-126 (STABLE)	Xe-127 (36.4d)	Xe-128 (STABLE)	Xe-129 (STABLE)	Xe-130 (STABLE)	Xe-131 (STABLE)
I-122 (13.2m) EC+	I-123 (13.27h) EC	I-124 (4.1760d) ECB+	I-125 (59.4d) EC	I-126 (12.93d) ECB+B-	I-127 (STABLE)	I-128 (24.99m) B-ECB+	I-129 (1.57E+7y) B-	I-130 (12.36h) B-
Te-121 (19.16d) EC	Te-122 (STABLE)	Te-123 (6.00E+14y) EC	Te-124 (STABLE)	Te-126 (STABLE)	Te-127 (9.35h) B-			Te-129 (69.6m) B-

IODINE-126

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: I-126
Atomic number (Z): 53
Mass number (A): 126
Neutron number (N): 73

RADIOACTIVE DECAY

Decay modes: β^- , β^+ , Electron capture
Half-life: 12.93 [d]
Decay constant: 6.2046×10^{-7} [1/s]
Daughters: Te-126 (52.7%), Xe-126 (47.3%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.16058 [MeV]
Mean photon energy: 0.43535 [MeV]
Air kerma rate constant, Γ_{10} : 1.815×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 1.854×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 2.573×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000×10^0 [Gy $\cdot$ kg/Bq $\cdot$ s]

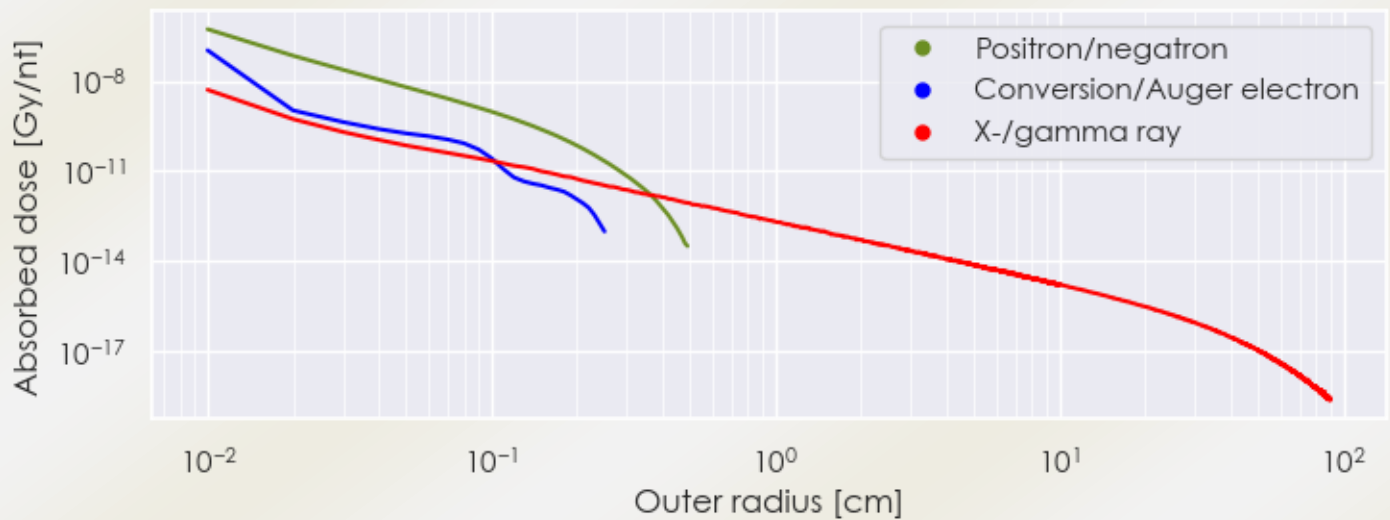
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 2.573×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 6.975×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

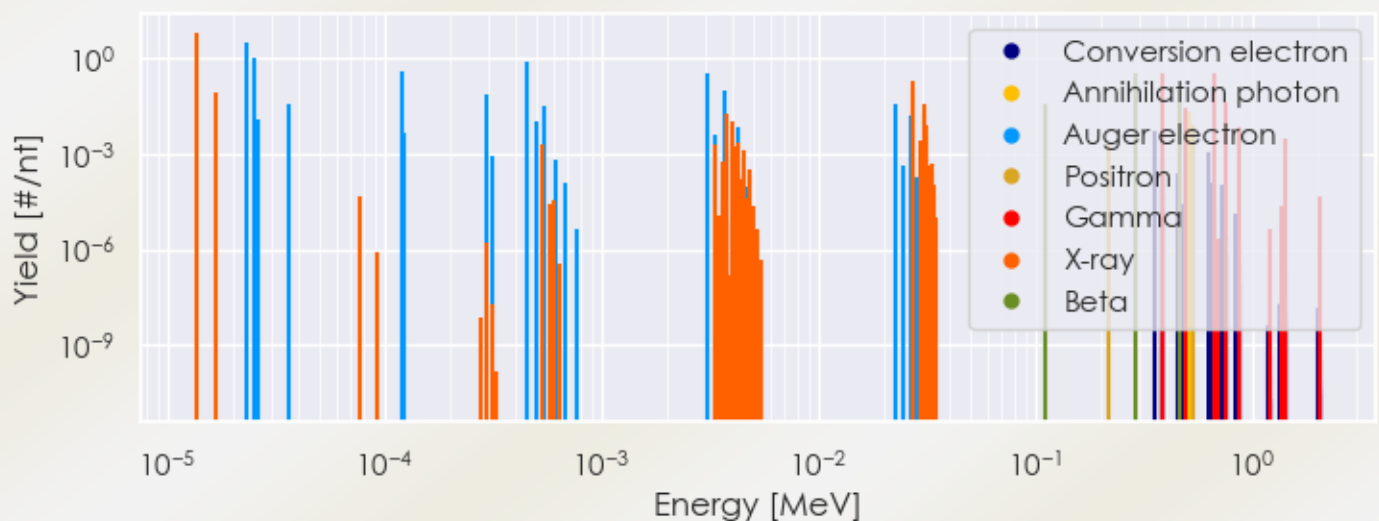
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/I-126 DPK.csv

SUMMARY SPECTRA (PLOT)

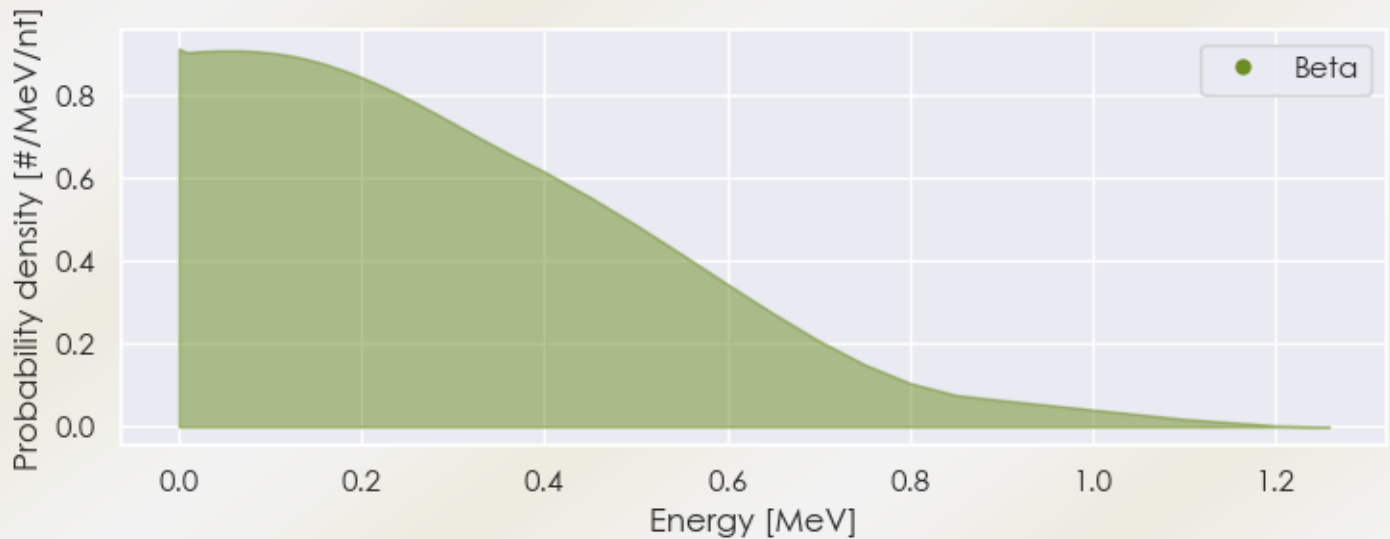
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/I-126 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-126 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-126 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.36107e-05	6.651e+00	X-ray
1.66173e-05	8.202e-02	X-ray
3.75695e-03	1.754e-02	X-ray
4.02446e-03	1.008e-02	X-ray
2.71868e-02	1.117e-01	X-ray
2.74652e-02	2.079e-01	X-ray
3.09378e-02	1.914e-02	X-ray
3.09901e-02	3.712e-02	X-ray
3.88633e-01	3.557e-01	Gamma
4.91243e-01	2.881e-02	Gamma

5.11000e-01	2.013e-02	Annihilation photon
6.66331e-01	3.288e-01	Gamma
7.53819e-01	4.147e-02	Gamma
1.11200e-01	3.618e-02	Beta
2.92434e-01	3.339e-01	Beta
4.61404e-01	1.030e-01	Beta
2.29240e-05	3.250e+00	Auger electron
2.49255e-05	1.086e+00	Auger electron
2.61316e-05	1.276e-02	Auger electron
3.62334e-05	3.902e-02	Auger electron
1.21006e-04	3.741e-01	Auger electron
2.96021e-04	6.971e-02	Auger electron
4.49505e-04	8.360e-01	Auger electron
5.04963e-04	1.073e-02	Auger electron
5.41223e-04	3.222e-02	Auger electron
3.08481e-03	3.283e-01	Auger electron
3.67895e-03	9.298e-02	Auger electron
2.26653e-02	3.609e-02	Auger electron
2.65056e-02	1.589e-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