



IODINE-132

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: I-132
Atomic number (Z): 53
Mass number (A): 132
Neutron number (N): 79

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 2.295 [h]
Decay constant: 8.3896×10^{-5} [1/s]
Daughters: Xe-132 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.49299 [MeV]
Mean photon energy: 2.26451 [MeV]
Air kerma rate constant, Γ_{10} : 8.261×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 8.261×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 7.899×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

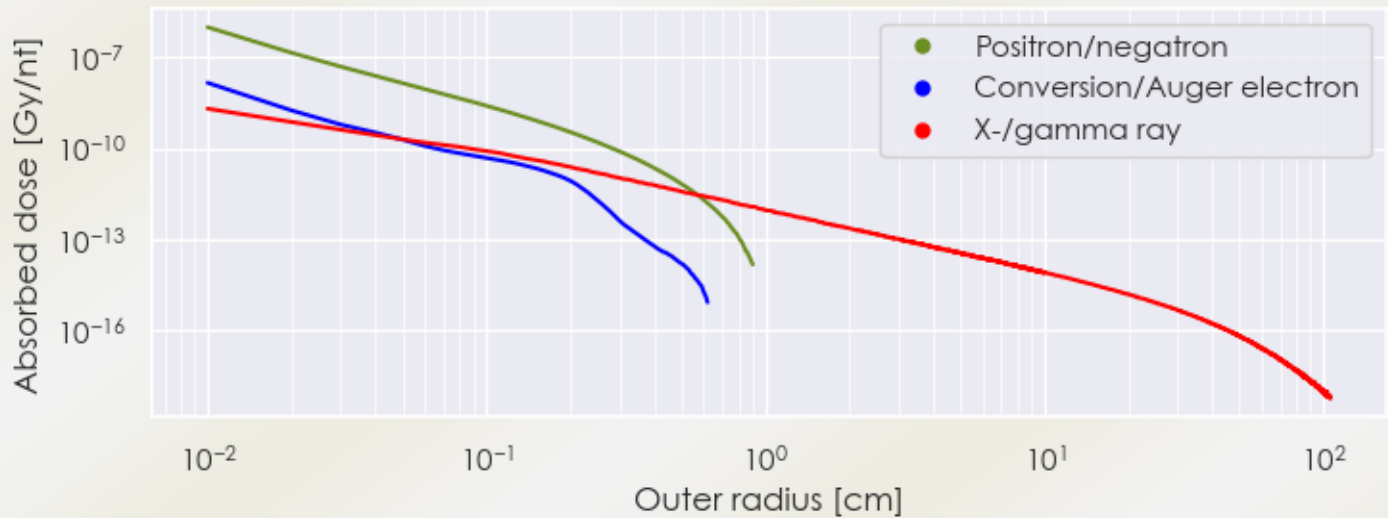
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 7.899e-14 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 3.628e-13 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

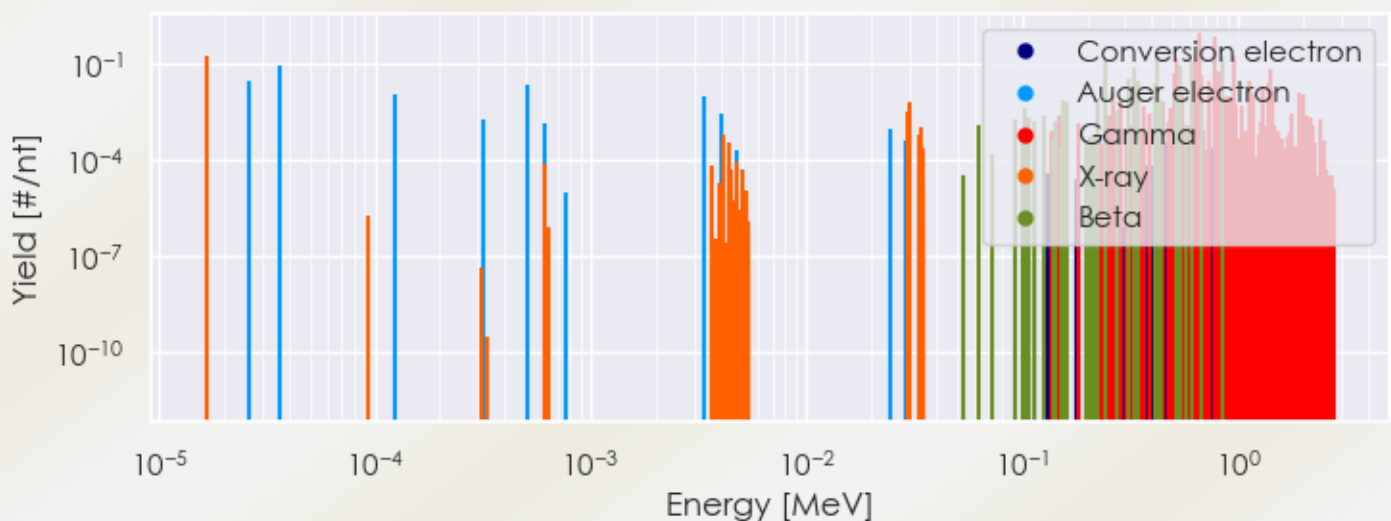
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/I-132 DPK.csv

SUMMARY SPECTRA (PLOT)

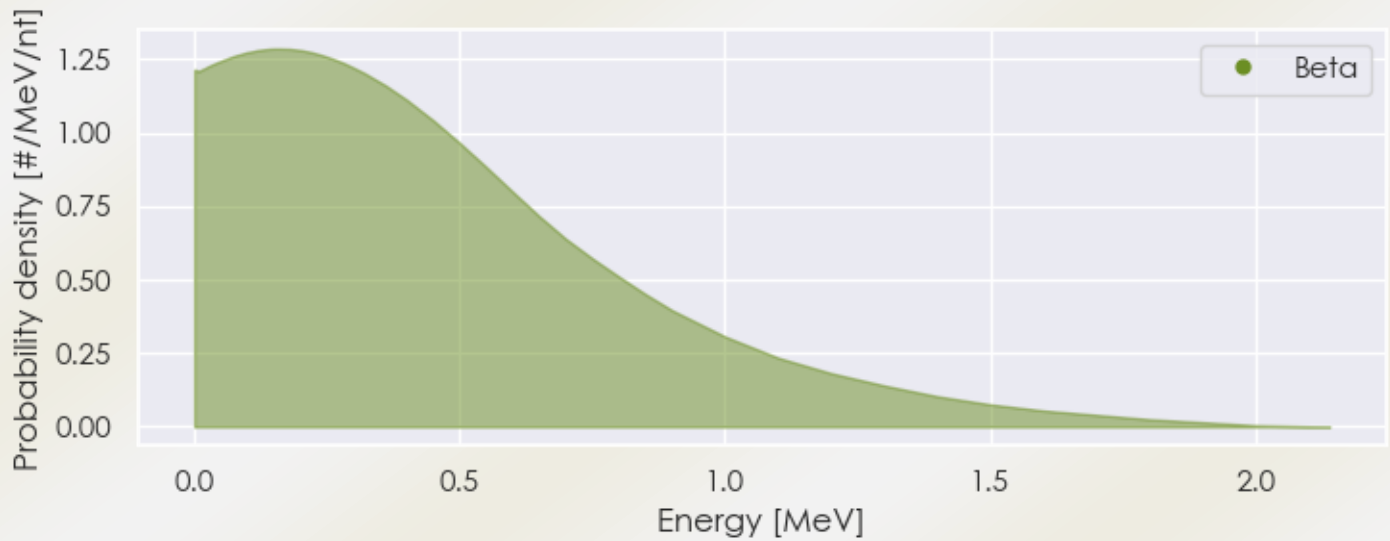
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/I-132 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-132 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-132 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.66176e-05	1.797e-01	X-ray
2.62900e-01	1.283e-02	Gamma
5.05790e-01	4.935e-02	Gamma
5.22650e-01	1.599e-01	Gamma
5.47200e-01	1.135e-02	Gamma
6.21200e-01	1.579e-02	Gamma
6.30190e-01	1.332e-01	Gamma
6.50500e-01	2.566e-02	Gamma
6.67718e-01	9.870e-01	Gamma
6.69800e-01	4.639e-02	Gamma

6.71400e-01	3.454e-02	Gamma
7.27000e-01	2.171e-02	Gamma
7.27200e-01	3.158e-02	Gamma
7.28400e-01	1.579e-02	Gamma
7.72600e-01	7.560e-01	Gamma
7.80000e-01	1.184e-02	Gamma
8.09500e-01	2.566e-02	Gamma
8.12000e-01	5.527e-02	Gamma
8.76600e-01	1.036e-02	Gamma
9.54550e-01	1.757e-01	Gamma
1.13600e+00	3.010e-02	Gamma
1.14330e+00	1.352e-02	Gamma
1.17290e+00	1.086e-02	Gamma
1.29080e+00	1.125e-02	Gamma
1.29510e+00	1.875e-02	Gamma
1.37207e+00	2.467e-02	Gamma
1.39857e+00	7.008e-02	Gamma
1.44256e+00	1.402e-02	Gamma
1.92108e+00	1.234e-02	Gamma
2.00220e+00	1.135e-02	Gamma
2.41837e-01	1.323e-02	Beta
2.42314e-01	1.293e-01	Beta
3.08617e-01	3.441e-02	Beta
3.31392e-01	8.155e-02	Beta
3.41444e-01	2.715e-02	Beta
3.43455e-01	3.093e-02	Beta
4.09095e-01	2.486e-02	Beta
4.21602e-01	1.870e-01	Beta
5.43248e-01	8.950e-02	Beta
6.07584e-01	1.253e-01	Beta
8.41265e-01	1.889e-01	Beta
2.61501e-05	2.797e-02	Auger electron
3.62364e-05	8.547e-02	Auger electron
1.23757e-04	1.049e-02	Auger electron
5.05025e-04	2.348e-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