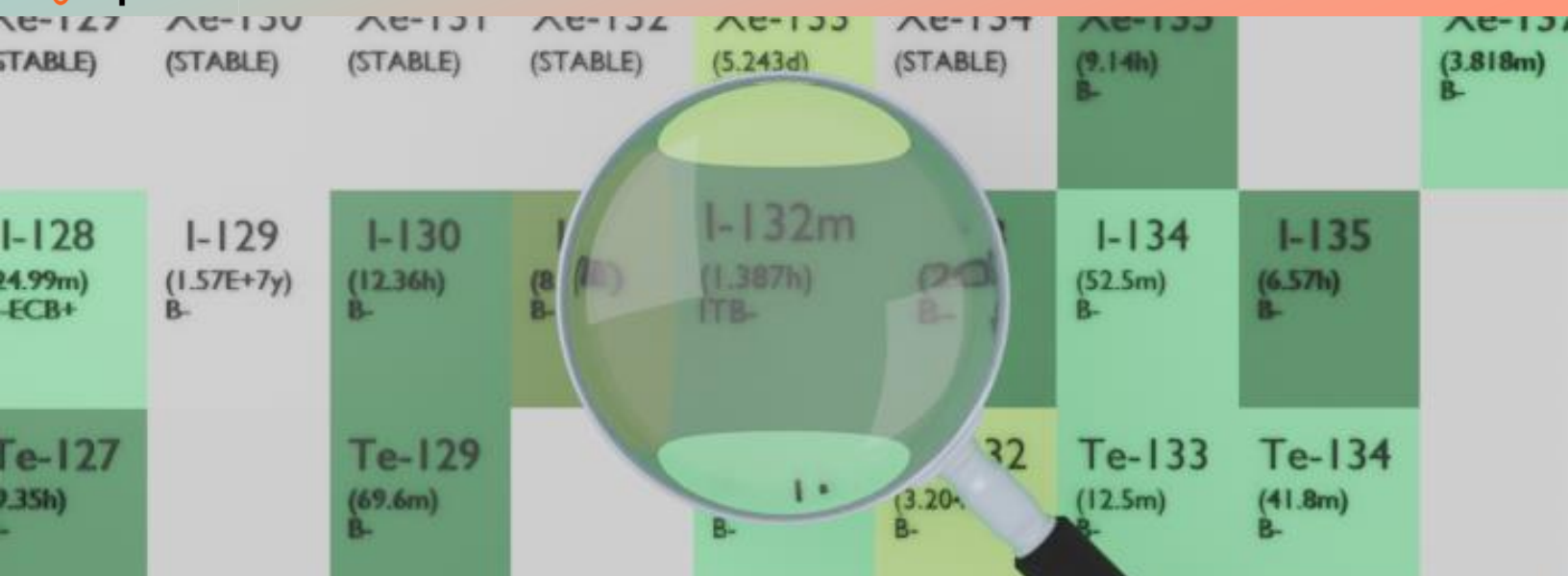




IODINE-132M

SUMMARY DATA

GENERAL

CLASSIFICATION

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

RADIOACTIVE DECAY

Decay modes: β^- , Internal transition
Half-life: 1.387 [h]
Decay constant: $1.3882\text{e-}04$ [1/s]
Daughters: I-132 (86.0%), Xe-132 (14.0%)
Radioactive daughters: I-132

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.16141 [MeV]
Mean photon energy: 0.34034 [MeV]
Air kerma rate constant, Γ_{10} : $1.474\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : $1.474\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $2.586\text{e-}14$ [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

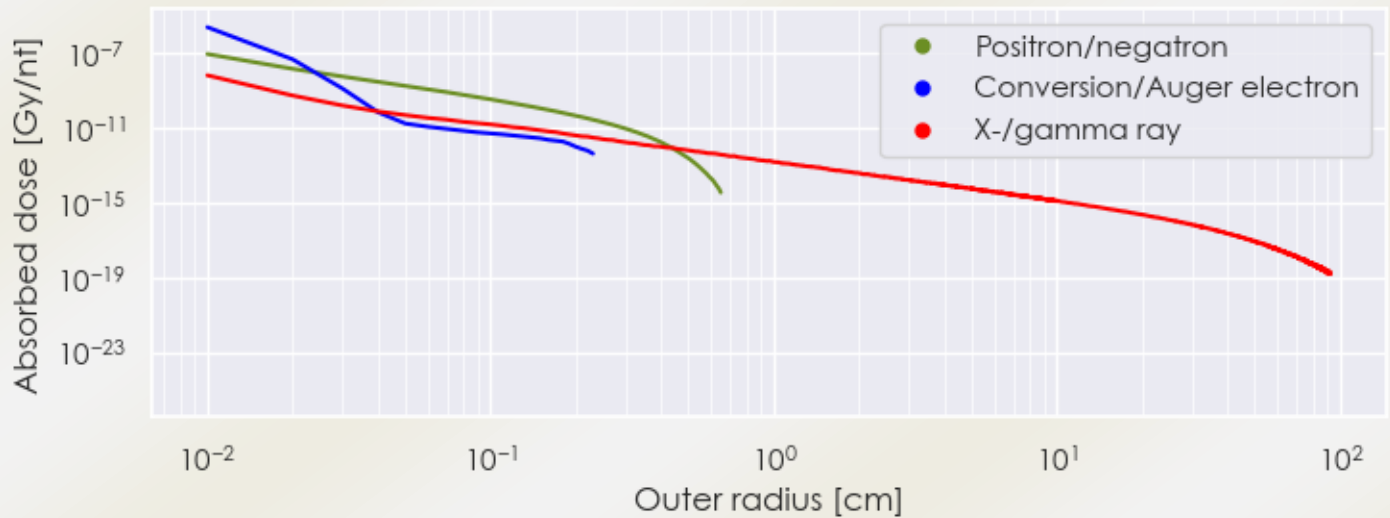
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 2.586×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 5.453×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

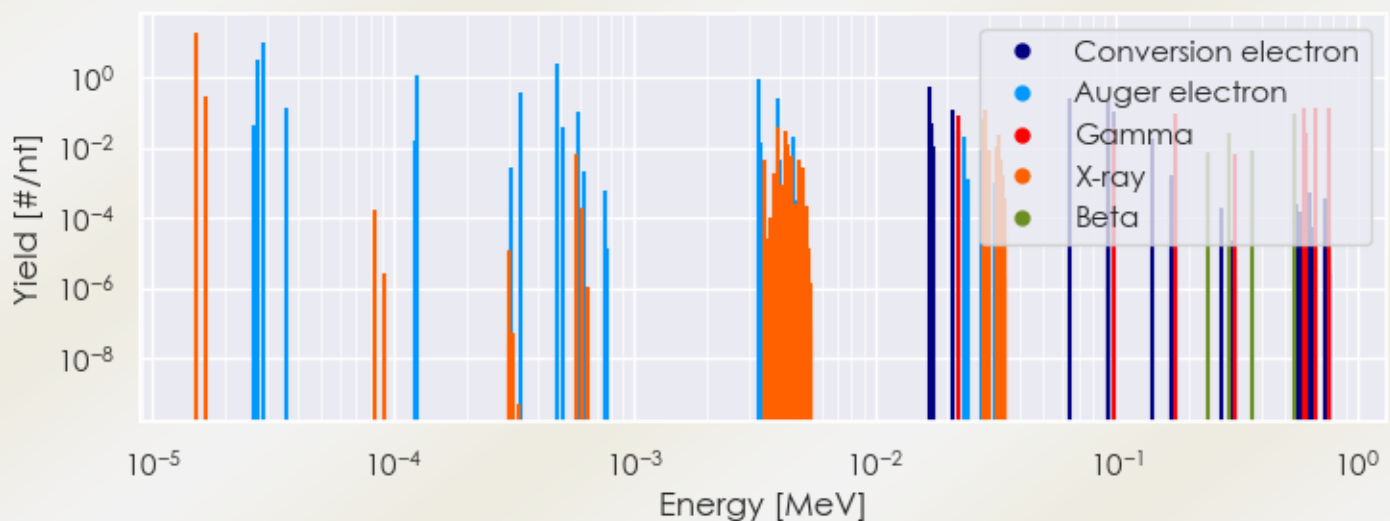
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



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

SUMMARY SPECTRA (PLOT)

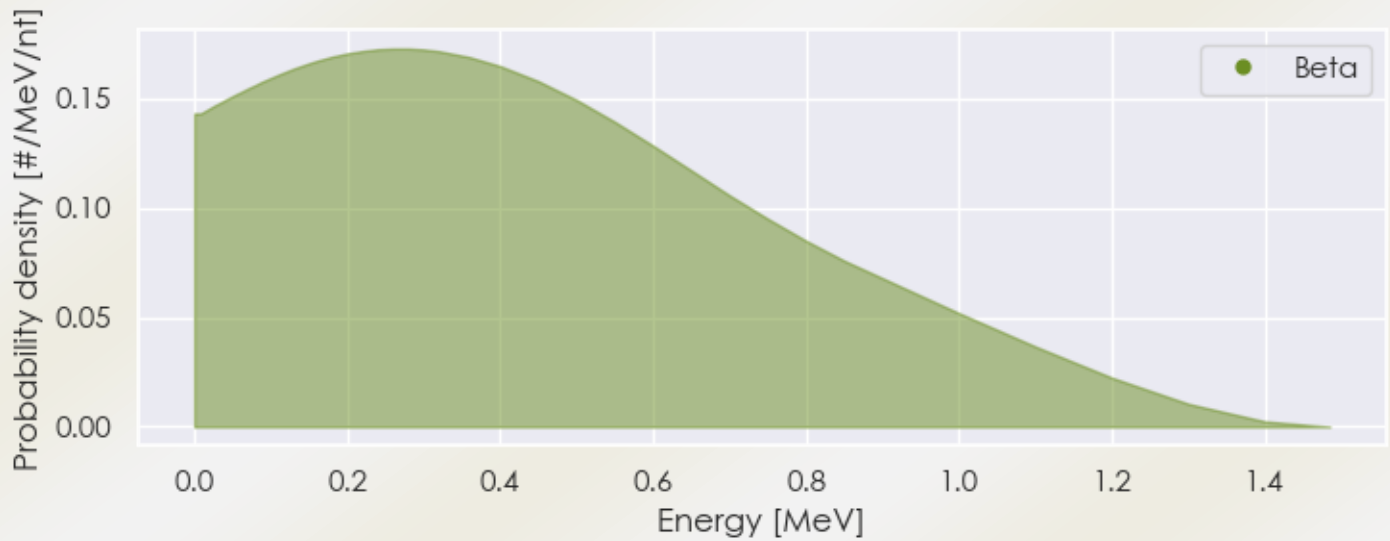
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



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

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.52573e-05	1.931e+01	X-ray
1.66170e-05	2.837e-01	X-ray
3.92520e-03	4.018e-02	X-ray
4.21605e-03	3.187e-02	X-ray
4.29209e-03	1.243e-02	X-ray
2.20000e-02	8.447e-02	Gamma
2.83065e-02	6.629e-02	X-ray
2.86096e-02	1.231e-01	X-ray
3.22368e-02	1.145e-02	X-ray
3.22942e-02	2.220e-02	X-ray

9.80000e-02	3.715e-02	Gamma
1.75000e-01	8.820e-02	Gamma
5.99800e-01	1.400e-01	Gamma
6.10000e-01	1.470e-02	Gamma
6.14000e-01	2.520e-02	Gamma
6.67718e-01	1.394e-01	Gamma
7.72600e-01	1.396e-01	Gamma
2.93032e-01	2.791e-02	Beta
5.49840e-01	9.601e-02	Beta
2.60941e-05	4.404e-02	Auger electron
2.74766e-05	2.989e+00	Auger electron
2.90355e-05	9.280e+00	Auger electron
3.62272e-05	1.350e-01	Auger electron
1.24002e-04	1.649e-02	Auger electron
1.26357e-04	1.126e+00	Auger electron
3.39828e-04	3.917e-01	Auger electron
4.79933e-04	2.317e+00	Auger electron
5.04844e-04	3.723e-02	Auger electron
5.86219e-04	1.118e-01	Auger electron
3.26989e-03	8.984e-01	Auger electron
3.32150e-03	1.466e-02	Auger electron
3.91203e-03	2.673e-01	Auger electron
4.58280e-03	1.973e-02	Auger electron
1.68381e-02	5.609e-01	Conversion electron
1.71425e-02	4.739e-02	Conversion electron
1.74455e-02	1.157e-02	Conversion electron
2.11302e-02	1.250e-01	Conversion electron
2.20000e-02	3.069e-02	Conversion electron
2.35598e-02	1.990e-02	Auger electron
6.48360e-02	2.607e-01	Conversion electron
9.28381e-02	2.061e-02	Conversion electron
9.31425e-02	2.079e-01	Conversion electron
9.34455e-02	2.189e-01	Conversion electron
9.71302e-02	9.988e-02	Conversion electron
9.80000e-02	2.238e-02	Conversion electron
1.40444e-01	1.740e-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/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6