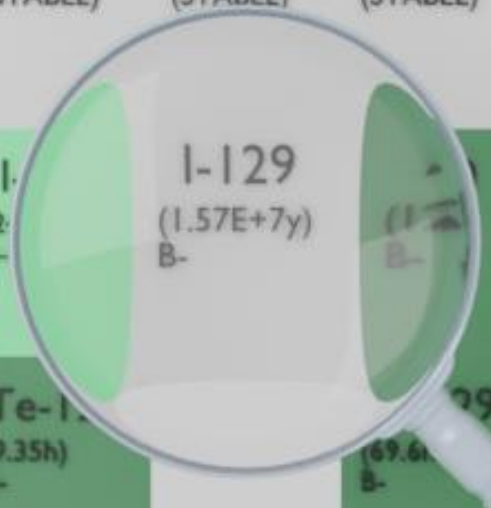




Xe-120 (STABLE)	Xe-127 (36.4d) EC	Xe-128 (STABLE)	Xe-129 (STABLE)	Xe-130 (STABLE)	Xe-131 (STABLE)	Xe-132 (STABLE)	Xe-133 (5.243d) B-	Xe-135 (STABLE)
I-125 (59.400d) EC	I-126 (12.93d) ECB+B-	I-127 (STABLE)	I-129 (1.57E+7y) B-	I-130 (12.36h) B-	I-131 (8.02070d) B-	I-132 (2.295h) B-	I-133 (20.8h) B-	
Te-124 (STABLE)	Te-125 (STABLE)	Te-126 (STABLE)	Te-127 (9.35h) B-	Te-128 (2.2e6y) B-	Te-129 (69.61d) B-	Te-130 (8.0e4y) B-	Te-131 (25.0m) B-	Te-132 (3.204d) B-

IODINE-129

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: I-129
Atomic number (Z): 53
Mass number (A): 129
Neutron number (N): 76

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 15700000.0 [y]
Decay constant: $1.3990\text{e-}15$ [1/s]
Daughters: Xe-129 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.06507 [MeV]
Mean photon energy: 0.02517 [MeV]
Air kerma rate constant, Γ_{10} : $4.378\text{e-}18$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Air kerma coefficient, K_{air} : $4.378\text{e-}18$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $1.043\text{e-}14$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]

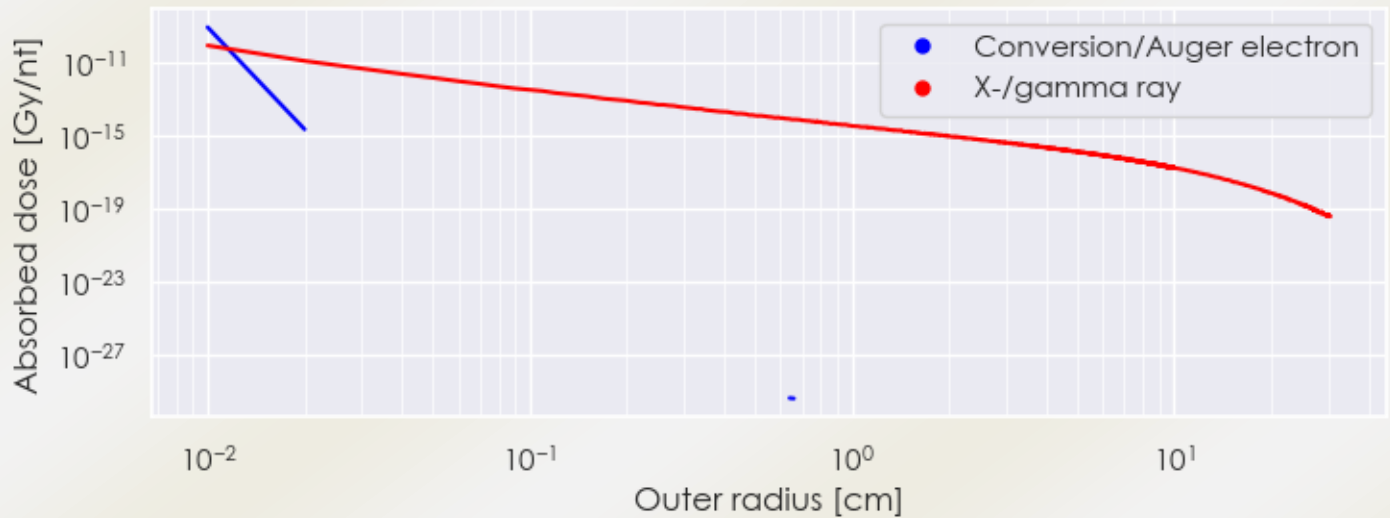
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-, \beta+, e-}$: 1.043×10^{-14} [Gy · kg/Bq · s]

Equilibrium dose constant for photons, Δ_p : 4.033×10^{-15} [Gy · kg/Bq · s]

DOSE POINT KERNELS (PLOT)

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

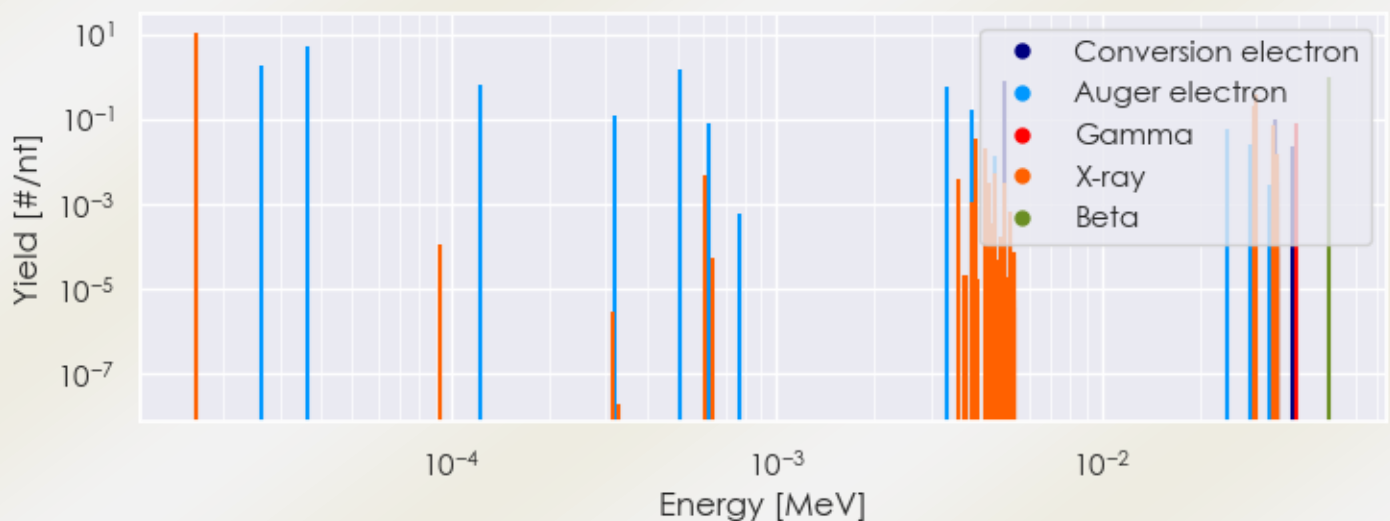
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/I-129 DPK.csv

SUMMARY SPECTRA (PLOT)

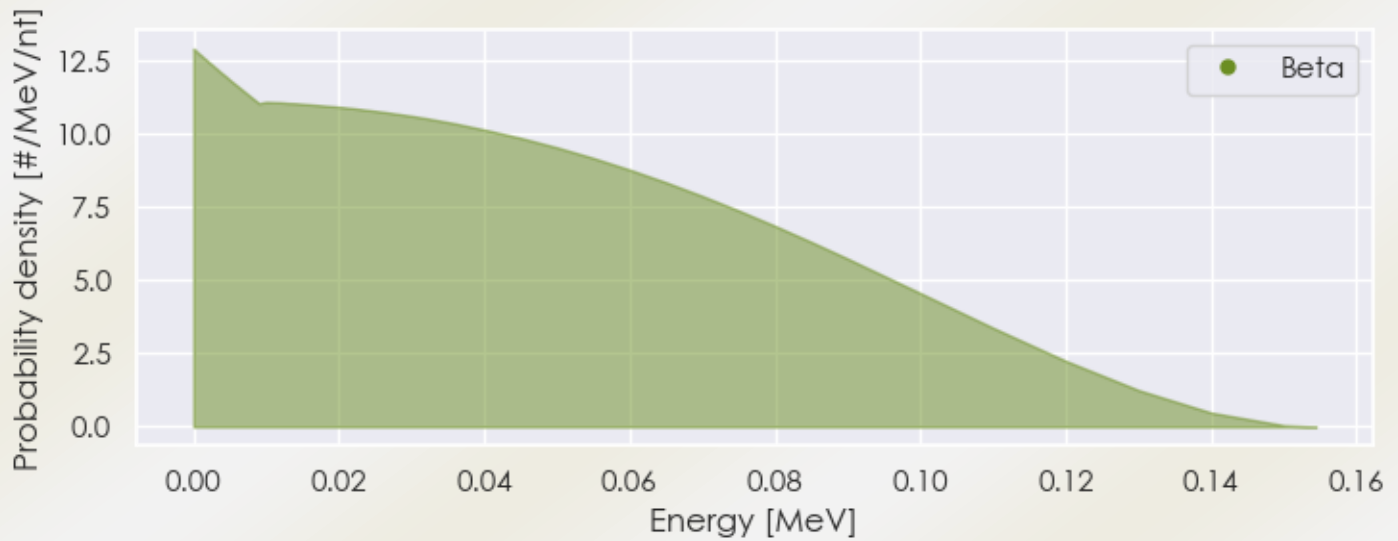
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/I-129 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-129 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-129 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.66175e-05	1.106e+01	X-ray
4.09719e-03	3.552e-02	X-ray
4.41300e-03	2.086e-02	X-ray
2.94521e-02	2.044e-01	X-ray
2.97812e-02	3.786e-01	X-ray
3.35665e-02	3.554e-02	X-ray
3.36295e-02	6.890e-02	X-ray
3.44080e-02	1.453e-02	X-ray
3.95780e-02	7.510e-02	Gamma
5.02689e-02	1.000e+00	Beta

2.61607e-05	1.722e+00	Auger electron
3.62385e-05	5.261e+00	Auger electron
1.23783e-04	6.466e-01	Auger electron
3.19360e-04	1.218e-01	Auger electron
5.05066e-04	1.444e+00	Auger electron
6.17165e-04	8.260e-02	Auger electron
3.32456e-03	5.694e-01	Auger electron
4.00169e-03	1.689e-01	Auger electron
4.70571e-03	1.283e-02	Auger electron
5.02200e-03	7.986e-01	Conversion electron
2.44715e-02	5.747e-02	Auger electron
2.86854e-02	2.571e-02	Auger electron
3.41611e-02	9.696e-02	Conversion electron
3.86514e-02	2.220e-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