

		La-126 (5.18m) ECB+	La-127 (11.6m) ECB+	La-130 (8.7m) ECB+	La-131 (59m) ECB+	La-132 (4.8h) ECB+
Ba-124 (11.0m) ECB+	Ba-125 (10.7m) ECB+	Ba-127 (12.7m) ECB+	Ba-128 (2.23h) ECB+	Ba-129 (2.23h) ECB+	Ba-130 (11.50d) EC	Ba-131 (11.50d) EC
Cs-123 (5.88m) ECB+	Cs-124 (30.8s) ECB+	Cs-125 (45m) ECB+	Cs-126 (6.25h) ECB+	Cs-127 (3.640m) ECB+	Cs-128 (32.06h) ECB+	Cs-130 (29.21m) ECB+B-

BARIUM-127

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ba-127
Atomic number (Z): 56
Mass number (A): 127
Neutron number (N): 71

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 12.7 [m]
Decay constant: $9.0964\text{e-}04$ [1/s]
Daughters: Cs-127 (100.0%)
Radioactive daughters: Cs-127

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.5971 [MeV]
Mean photon energy: 0.72824 [MeV]
Air kerma rate constant, Γ_{10} : $7.813\text{e-}18$ [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : $2.878\text{e-}17$ [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $9.567\text{e-}14$ [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

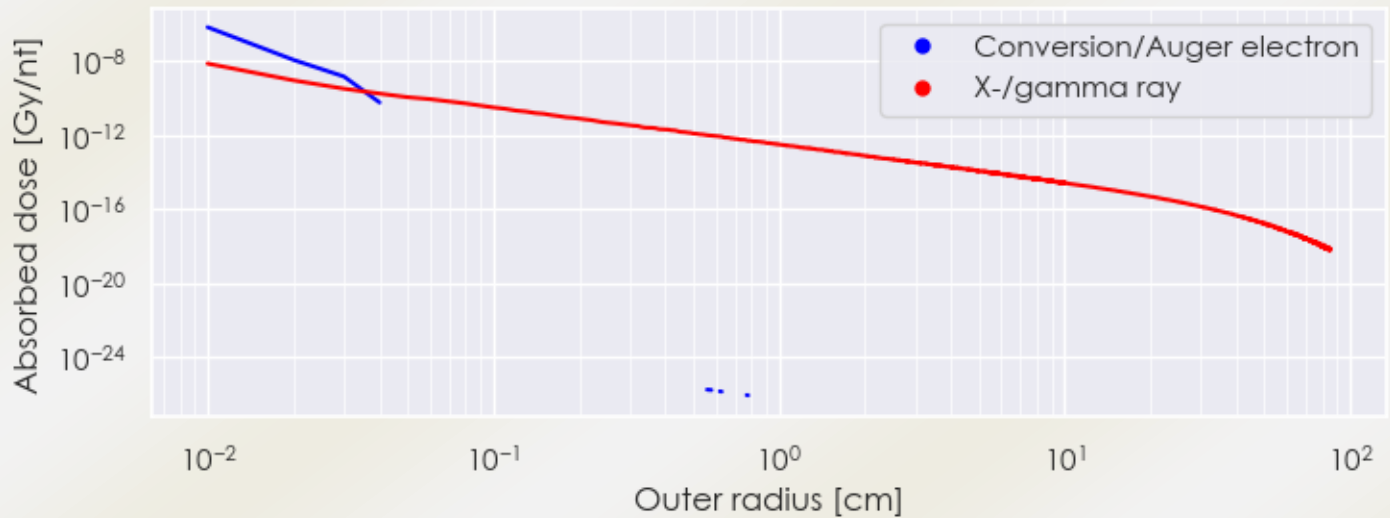
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 9.567×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.167×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

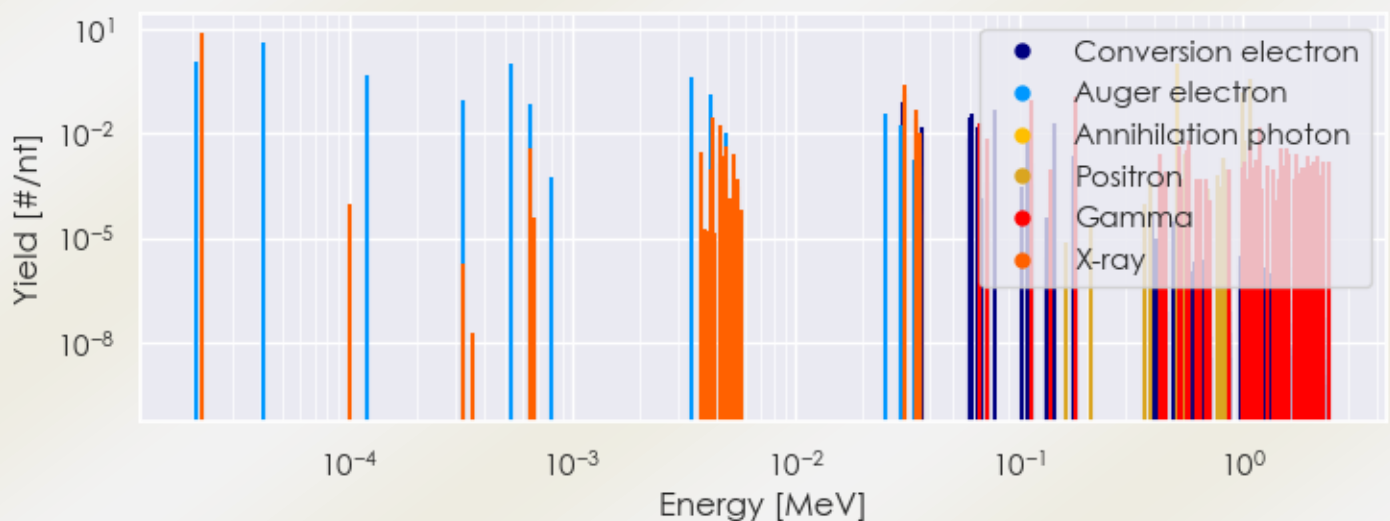
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Ba-127 DPK.csv

SUMMARY SPECTRA (PLOT)

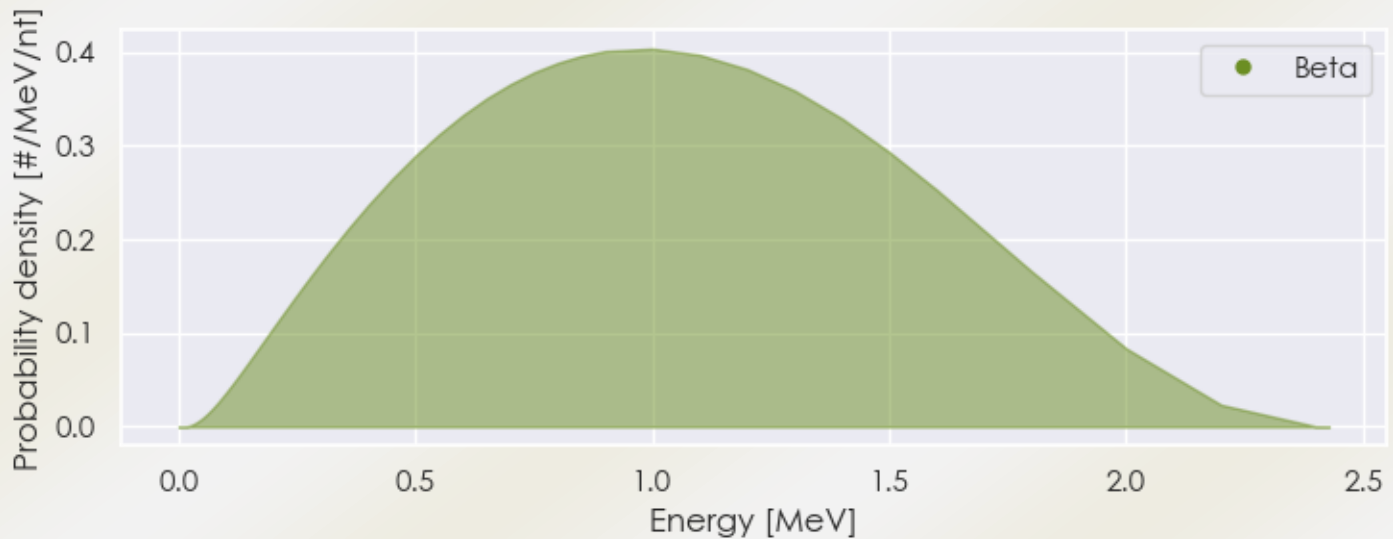
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Ba-127 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/Ba-127 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/Ba-127 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
2.18865e-05	8.368e+00	X-ray
4.27312e-03	2.900e-02	X-ray
4.61551e-03	1.756e-02	X-ray
3.06218e-02	1.437e-01	X-ray
3.09789e-02	2.654e-01	X-ray
3.49256e-02	2.514e-02	X-ray
3.49944e-02	4.873e-02	X-ray
3.58172e-02	1.031e-02	X-ray
6.63000e-02	2.120e-02	Gamma
1.14800e-01	9.300e-02	Gamma

1.80800e-01	1.240e-01	Gamma
5.11000e-01	1.083e+00	Annihilation photon
1.20100e+00	1.612e-02	Gamma
1.01160e+00	1.559e-01	Positron
1.09457e+00	3.680e-01	Positron
2.08765e-05	1.113e+00	Auger electron
4.14338e-05	3.974e+00	Auger electron
1.19716e-04	4.870e-01	Auger electron
3.24187e-04	8.982e-02	Auger electron
5.28181e-04	1.096e+00	Auger electron
6.52506e-04	7.181e-02	Auger electron
3.44389e-03	4.301e-01	Auger electron
4.16458e-03	1.326e-01	Auger electron
4.91365e-03	1.021e-02	Auger electron
2.53980e-02	3.769e-02	Auger electron
2.98089e-02	1.713e-02	Auger electron
3.03150e-02	8.261e-02	Conversion electron
3.68150e-02	1.482e-02	Conversion electron
6.09368e-02	2.950e-02	Conversion electron
6.12939e-02	3.668e-02	Conversion electron
6.53093e-02	1.604e-02	Conversion electron
7.88150e-02	4.953e-02	Conversion electron
1.44815e-01	1.938e-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