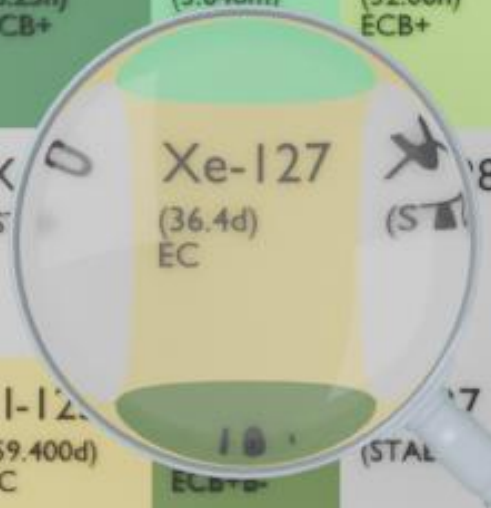




CS-124 (10.8s) CB+	CS-125 (45m) ECB+	CS-126 (1.64m) ECB+	CS-127 (6.25h) ECB+	CS-128 (3.640m) ECB+	CS-129 (32.06h) ECB+	CS-130 (29.21m) ECB+B-	CS-131 (9.689d) EC	CS-132 (6.479d) ECB+B-
Xe-123 (2.08h) CB+		Xe-125 (16.9h) ECB+	Xe-126 (5.10s) ECB+	Xe-127 (36.4d) EC	Xe-128 (5.10s) ECB+	Xe-129 (STABLE)	Xe-130 (STABLE)	Xe-131 (STABLE)
I-122 (4.63m) CB+	I-123 (13.27h) EC	I-124 (4.1760d) ECB+	I-125 (59.400d) EC	I-126 (13.17d) ECB+B-	I-127 (STABLE)	I-128 (24.99m) B-ECB+	I-129 (1.57E+7y) B-	I-130 (12.36h) B-

XENON-127

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Xe-127
Atomic number (Z): 54
Mass number (A): 127
Neutron number (N): 73

RADIOACTIVE DECAY

Decay modes: Electron capture
Half-life: 36.4 [d]
Decay constant: $2.2040\text{e-}07$ [1/s]
Daughters: I-127 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.03251 [MeV]
Mean photon energy: 0.28063 [MeV]
Air kerma rate constant, Γ_{10} : $1.437\text{e-}17$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Air kerma coefficient, K_{air} : $1.437\text{e-}17$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $5.209\text{e-}15$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]

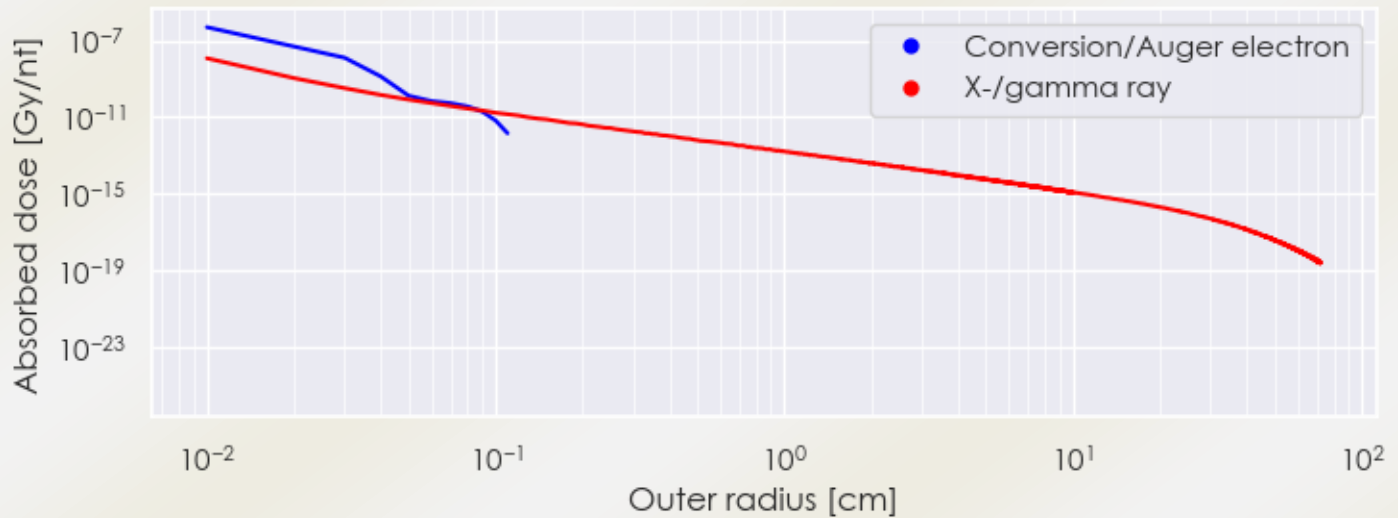
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 5.209e-15 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 4.496e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

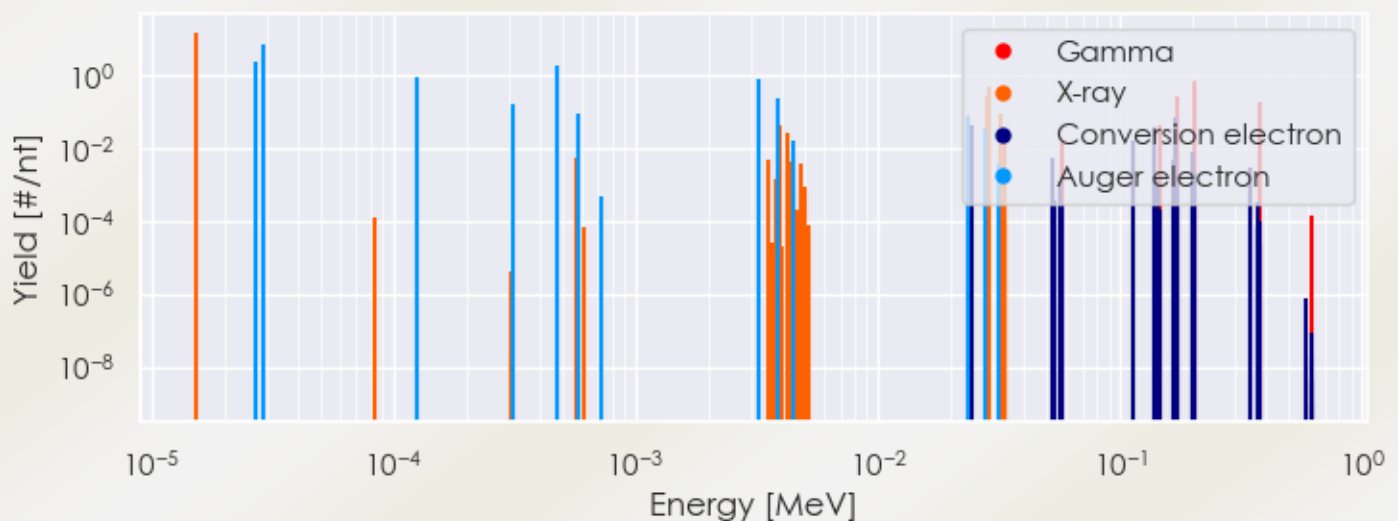
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Xe-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/Xe-127 Summary 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/Xe-127 Summary Spectrum.csv

Energy [MeV]	Yield [# / n _t] if > 0.01	Radiation type
1.52652e-05	1.471e+01	X-ray
3.92520e-03	4.243e-02	X-ray
4.21605e-03	2.465e-02	X-ray
2.83065e-02	2.542e-01	X-ray
2.86096e-02	4.719e-01	X-ray
3.22368e-02	4.389e-02	X-ray
3.22942e-02	8.511e-02	X-ray
3.30298e-02	1.790e-02	X-ray
5.76100e-02	1.321e-02	Gamma
1.45252e-01	4.289e-02	Gamma
1.72132e-01	2.554e-01	Gamma
2.02860e-01	6.830e-01	Gamma
3.74991e-01	1.721e-01	Gamma
2.70523e-05	2.210e+00	Auger electron
2.89571e-05	7.087e+00	Auger electron
1.25031e-04	8.163e-01	Auger electron
3.10962e-04	1.649e-01	Auger electron
4.77172e-04	1.880e+00	Auger electron
5.79056e-04	8.955e-02	Auger electron
3.20798e-03	7.369e-01	Auger electron
3.84313e-03	2.178e-01	Auger electron
4.50220e-03	1.587e-02	Auger electron
2.35598e-02	7.632e-02	Auger electron
2.44460e-02	4.267e-02	Conversion electron
2.75866e-02	3.417e-02	Auger electron
1.12088e-01	1.531e-02	Conversion electron
1.38968e-01	3.682e-02	Conversion electron

1.69696e-01

6.684e-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