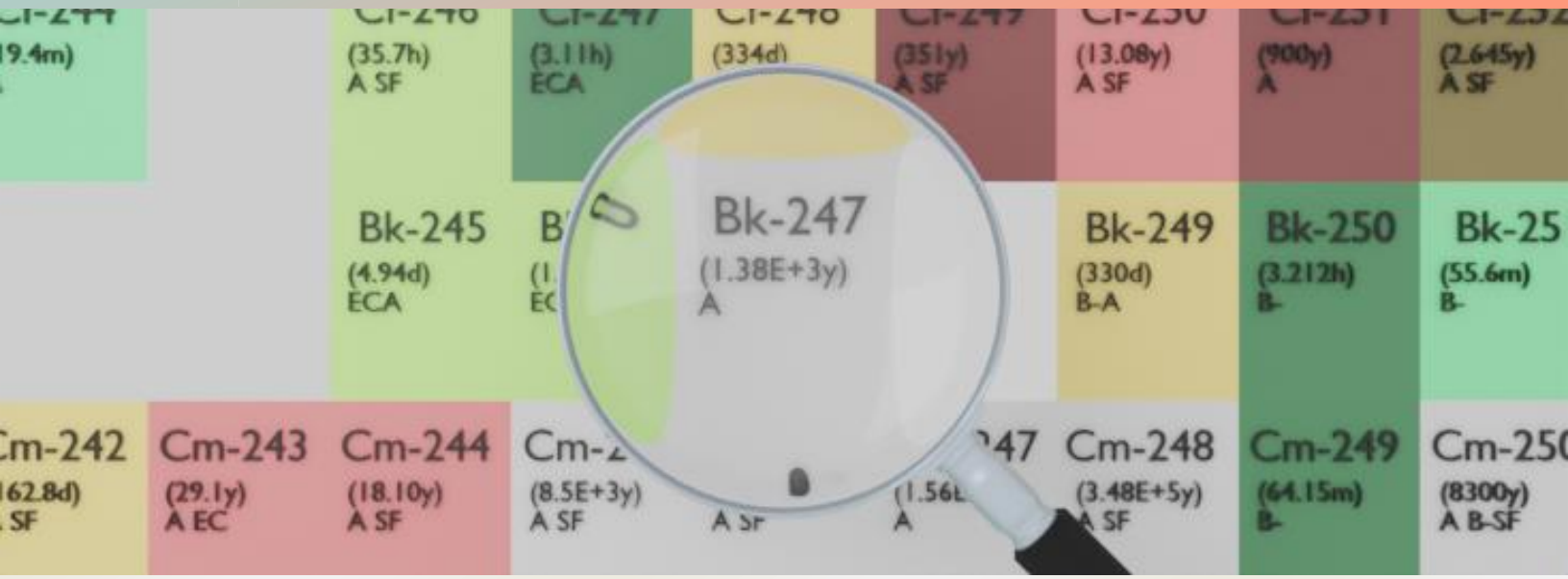


BERKELIUM-247

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Bk-247
Atomic number (Z): 97
Mass number (A): 247
Neutron number (N): 150

RADIOACTIVE DECAY

Decay modes: α
Half-life: 1380.0 [y]
Decay constant: 1.5917e-11 [1/s]
Daughters: Am-243 (100.0%)
Radioactive daughters: Am-243

DOSIMETRIC CONSTANTS

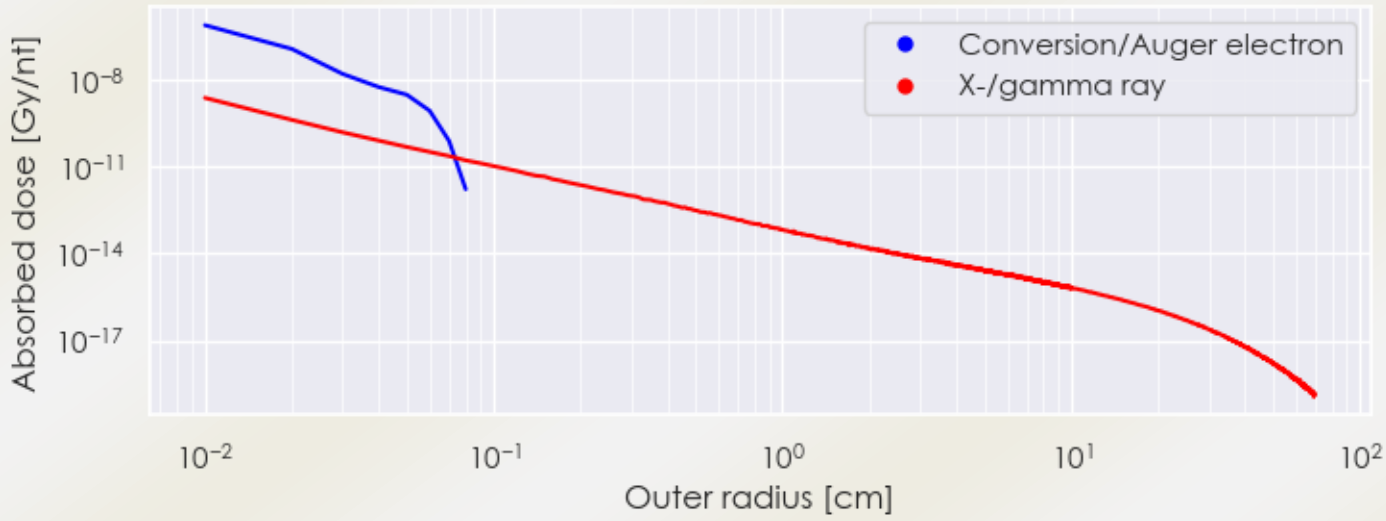
Mean alpha energy: 5.7025 [MeV]
Mean electron energy: 0.06911 [MeV]
Mean photon energy: 0.14675 [MeV]
Air kerma rate constant, Γ_{10}: 8.693e-18 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air}: 8.693e-18 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp}: 9.247e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α}: 9.136e-13 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 1.107e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 2.351e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

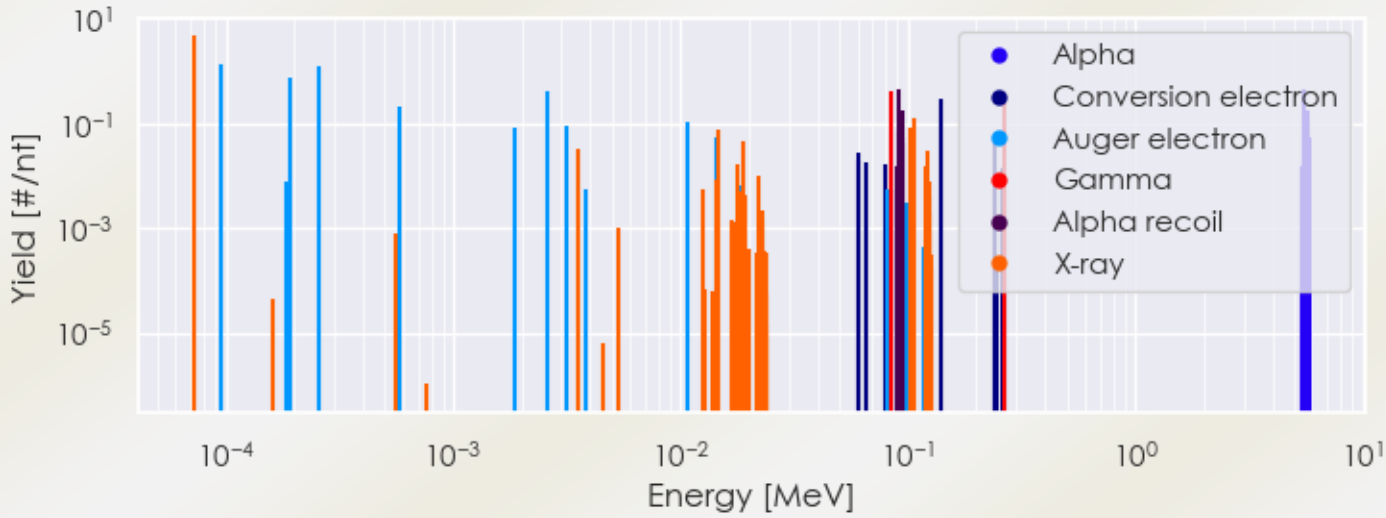
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Bk-247 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/Bk-247 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/Bk-247 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
7.21564e-05	4.832e+00	X-ray
3.54543e-03	3.288e-02	X-ray
1.46345e-02	7.466e-02	X-ray
1.77003e-02	1.600e-02	X-ray
1.89584e-02	4.472e-02	X-ray
2.21841e-02	1.041e-02	X-ray
8.40000e-02	4.000e-01	Gamma
1.02508e-01	8.314e-02	X-ray
1.07043e-01	1.309e-01	X-ray
1.19828e-01	1.522e-02	X-ray
1.20885e-01	2.989e-02	X-ray
2.65000e-01	3.000e-01	Gamma
9.53021e-05	1.353e+00	Auger electron
1.89939e-04	7.463e-01	Auger electron
2.58774e-04	1.269e+00	Auger electron
5.79180e-04	2.054e-01	Auger electron
1.86914e-03	8.123e-02	Auger electron
2.60905e-03	4.142e-01	Auger electron
3.17033e-03	8.835e-02	Auger electron
1.08115e-02	1.036e-01	Auger electron
1.44575e-02	5.416e-02	Auger electron
6.01730e-02	2.703e-02	Conversion electron
6.09380e-02	2.023e-02	Conversion electron
6.54730e-02	1.796e-02	Conversion electron
7.93145e-02	1.621e-02	Conversion electron
1.39430e-01	2.848e-01	Conversion electron
2.41173e-01	5.041e-02	Conversion electron

2.60315e-01	1.379e-02	Conversion electron
5.45515e+00	1.512e-02	Alpha
5.50040e+00	7.056e-02	Alpha
5.53188e+00	4.536e-01	Alpha
5.65387e+00	5.544e-02	Alpha
5.68732e+00	1.310e-01	Alpha
5.71093e+00	1.714e-01	Alpha
5.75324e+00	4.335e-02	Alpha
5.79357e+00	5.544e-02	Alpha
8.98550e-02	1.512e-02	Alpha recoil
9.06004e-02	7.056e-02	Alpha recoil
9.11190e-02	4.536e-01	Alpha recoil
9.31283e-02	5.544e-02	Alpha recoil
9.36793e-02	1.310e-01	Alpha recoil
9.40682e-02	1.714e-01	Alpha recoil
9.47650e-02	4.335e-02	Alpha recoil
9.54294e-02	5.544e-02	Alpha recoil

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