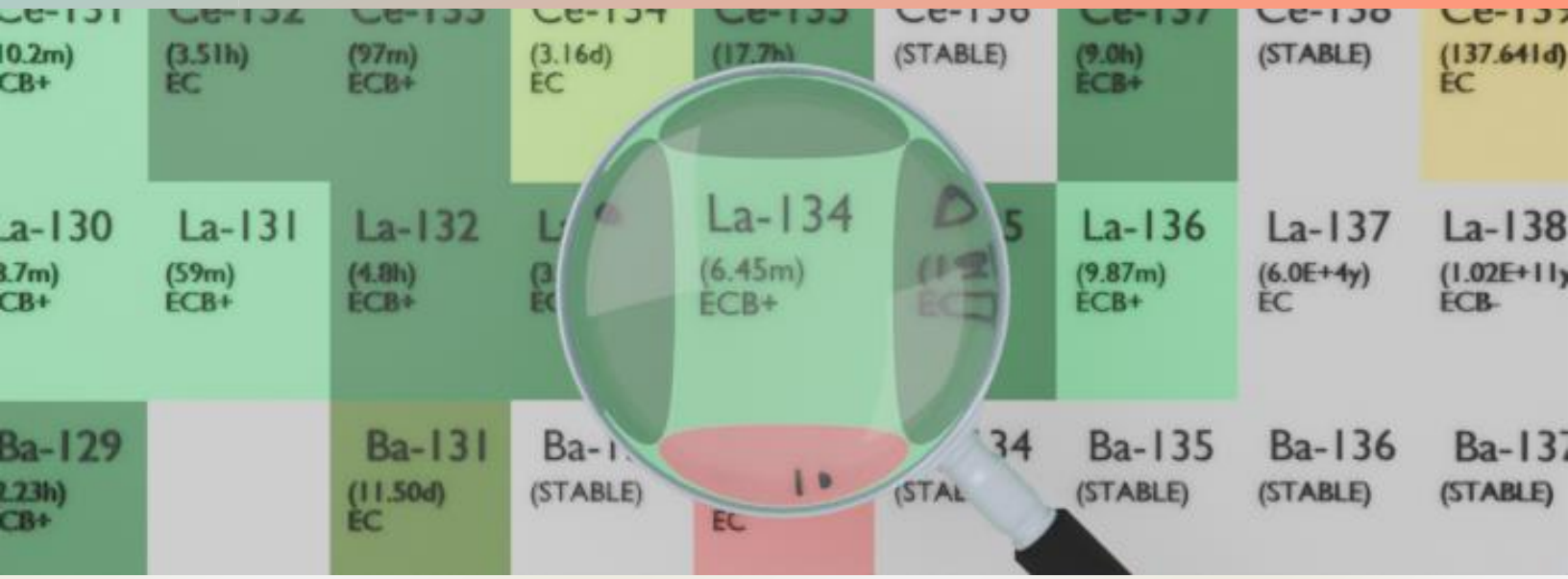


LANTHANUM-134

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: La-134
Atomic number (Z): 57
Mass number (A): 134
Neutron number (N): 77

RADIOACTIVE DECAY

Decay modes: β+, Electron capture
Half-life: 6.45 [m]
Decay constant: 1.7911e-03 [1/s]
Daughters: Ba-134 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

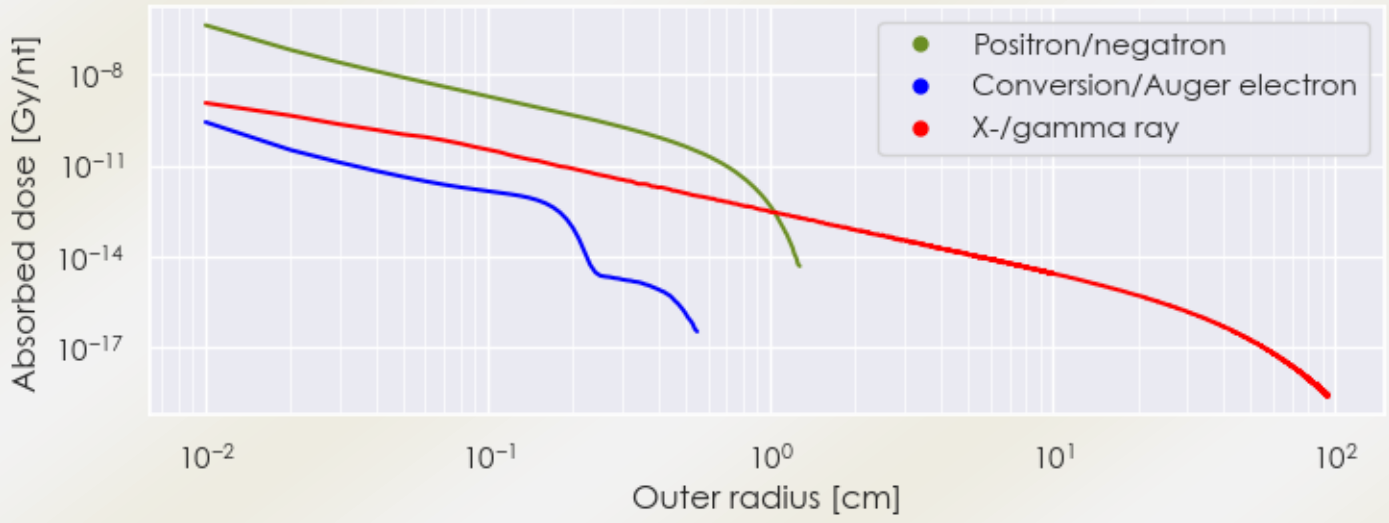
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.76474 [MeV]
Mean photon energy: 0.71962 [MeV]
Air kerma rate constant, Γ_{10}: 3.670e-18 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air}: 2.810e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 1.225e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 1.225e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 1.153e-13 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

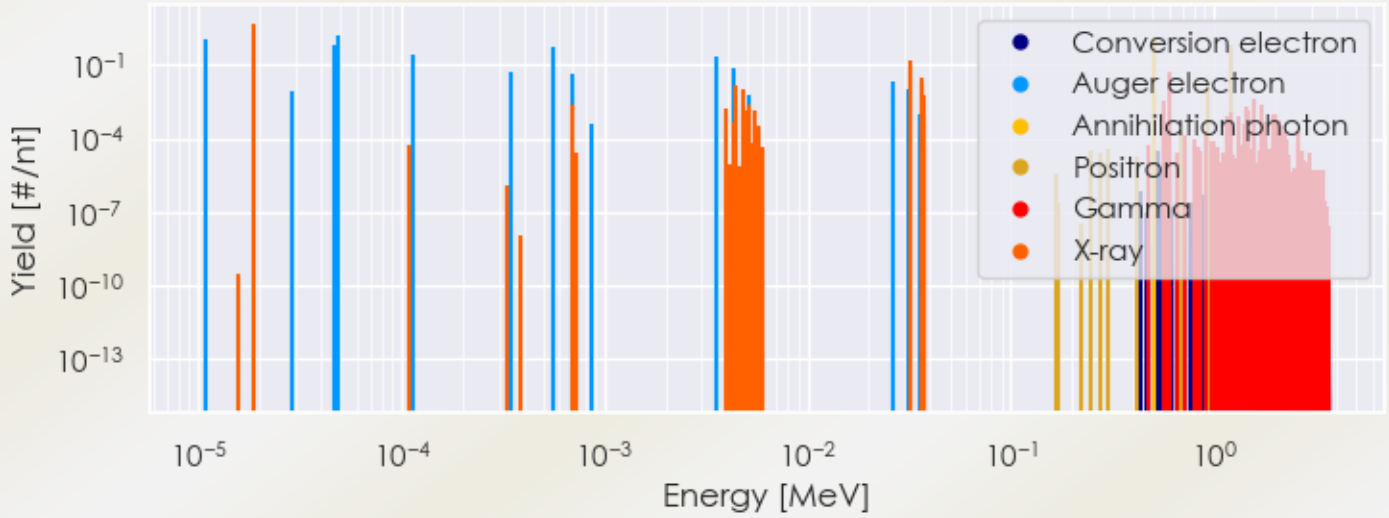
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/La-134 DPK.csv

SUMMARY SPECTRA (PLOT)

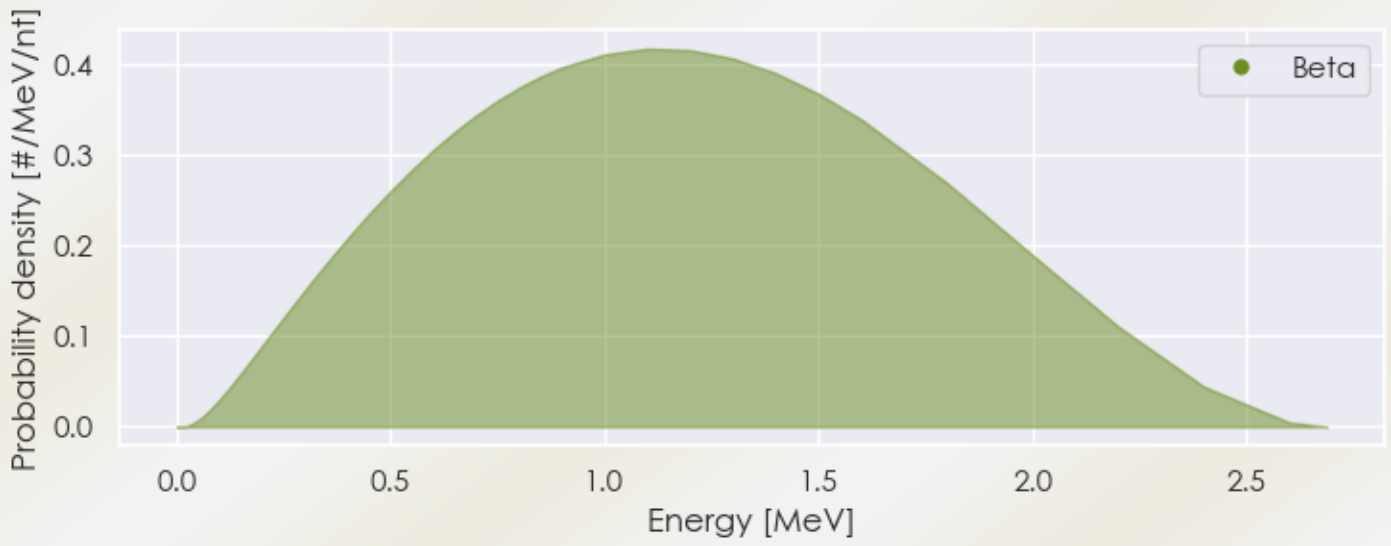
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/La-134 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/La-134 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/La-134 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
1.86002e-05	4.940e+00	X-ray
4.45292e-03	1.557e-02	X-ray
3.18187e-02	8.152e-02	X-ray
3.22056e-02	1.501e-01	X-ray
3.63167e-02	1.435e-02	X-ray
3.63920e-02	2.780e-02	X-ray
5.11000e-01	1.262e+00	Annihilation photon
6.04721e-01	5.040e-02	Gamma
9.37317e-01	1.519e-02	Positron
1.21463e+00	6.156e-01	Positron

1.08630e-05	1.054e+00	Auger electron
4.69849e-05	6.117e-01	Auger electron
4.88201e-05	1.671e+00	Auger electron
1.14461e-04	2.418e-01	Auger electron
3.42434e-04	4.908e-02	Auger electron
5.52288e-04	5.458e-01	Auger electron
6.90657e-04	4.019e-02	Auger electron
3.56926e-03	2.141e-01	Auger electron
4.33578e-03	6.842e-02	Auger electron
2.63448e-02	1.999e-02	Auger 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