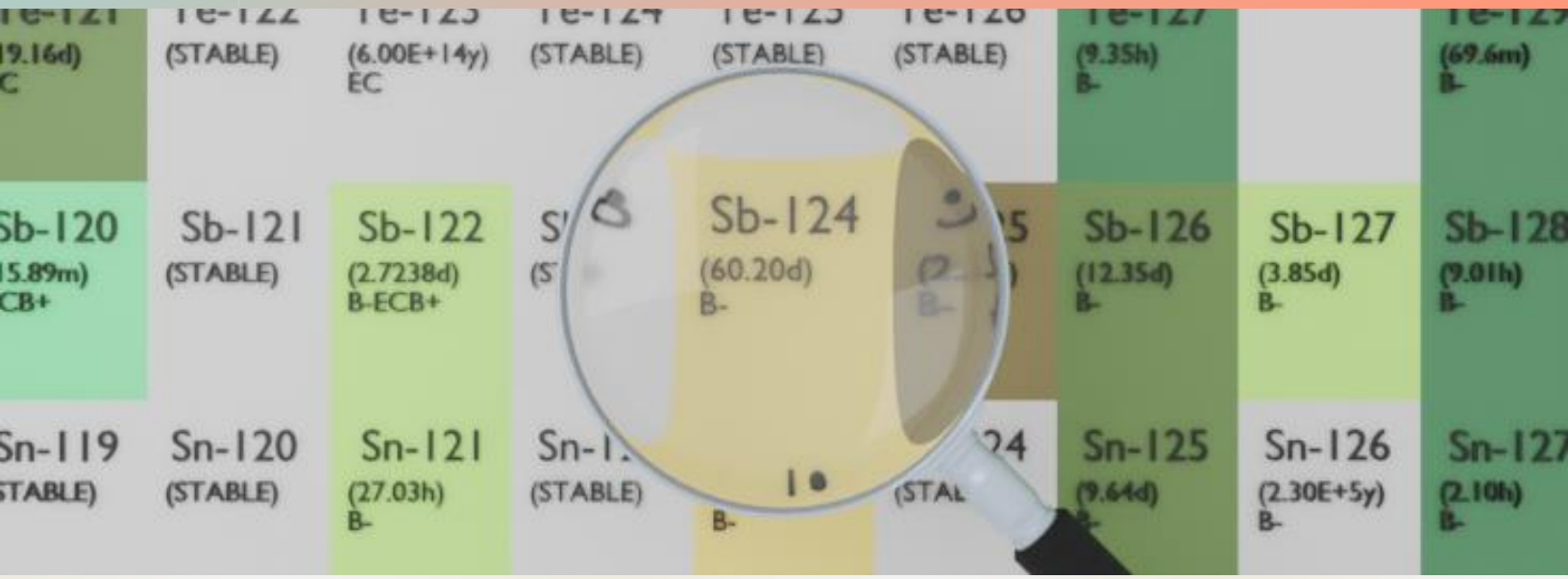


ANTIMONY-124

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Sb-124
Atomic number (Z): 51
Mass number (A): 124
Neutron number (N): 73

RADIOACTIVE DECAY

Decay modes: β-
Half-life: 60.2 [d]
Decay constant: 1.3326e-07 [1/s]
Daughters: Te-124 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

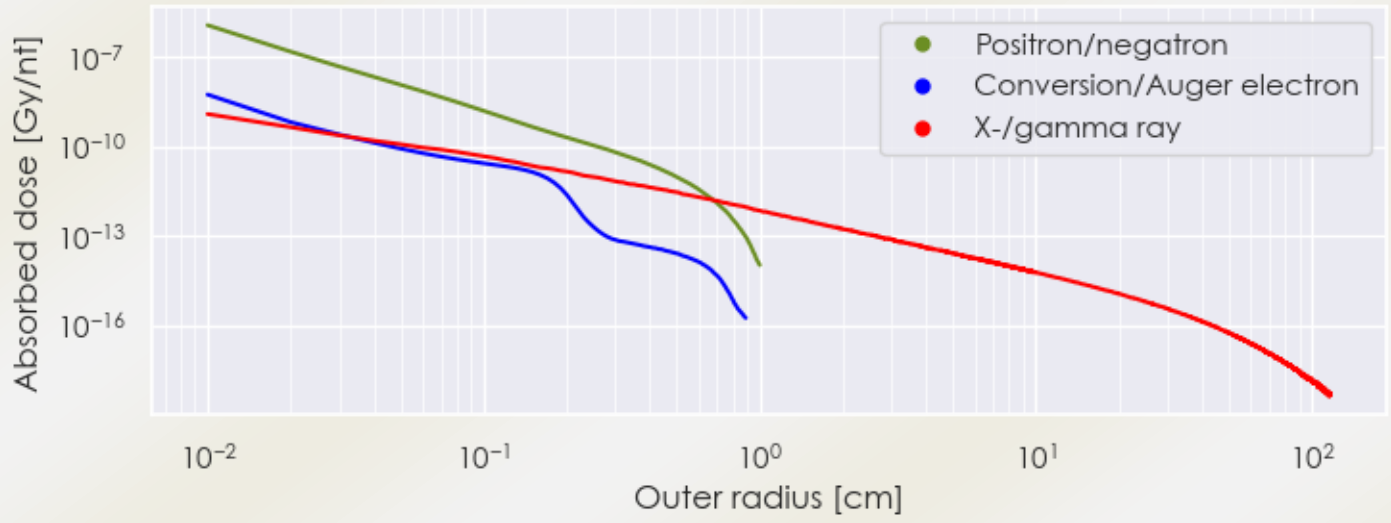
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.38311 [MeV]
Mean photon energy: 1.85311 [MeV]
Air kerma rate constant, Γ_{10}: 6.323e-17 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air}: 6.323e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 6.138e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 6.138e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 2.969e-13 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

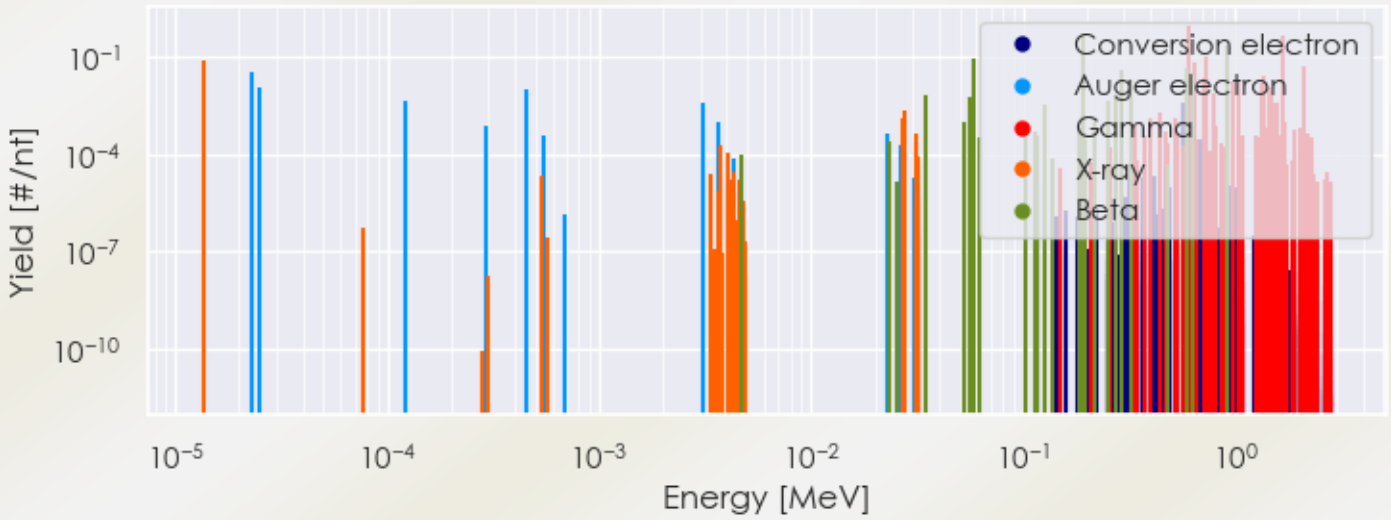
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Sb-124 DPK.csv

SUMMARY SPECTRA (PLOT)

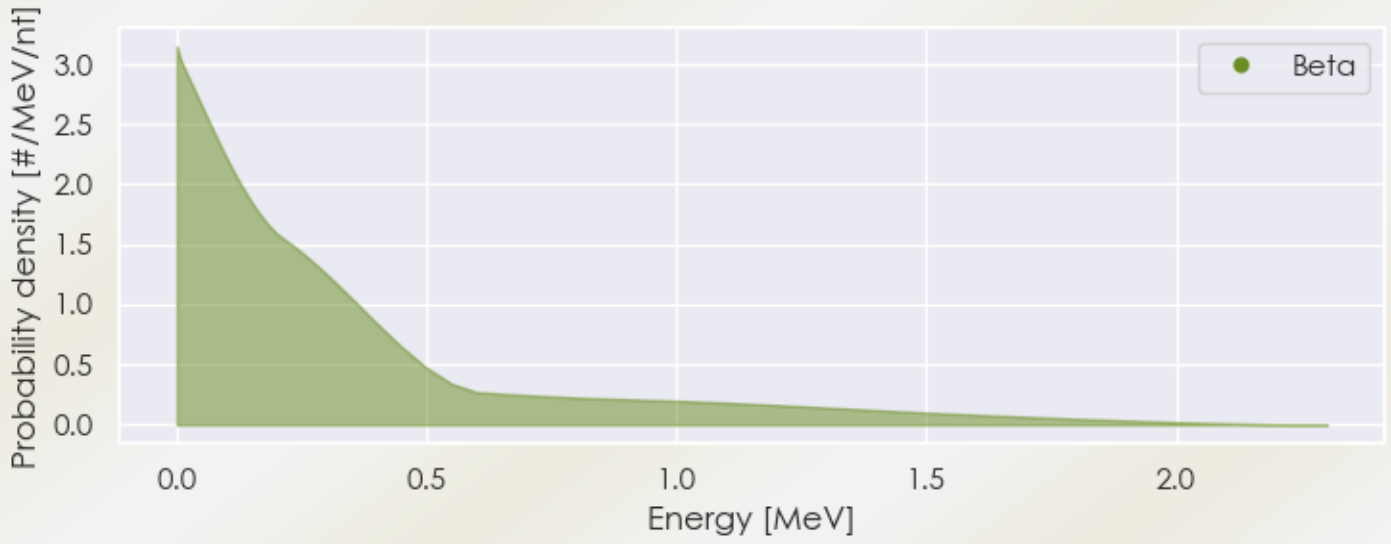
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Sb-124 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/Sb-124 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/Sb-124 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
1.36107e-05	7.679e-02	X-ray
6.02728e-01	9.826e-01	Gamma
6.45854e-01	7.456e-02	Gamma
7.09320e-01	1.360e-02	Gamma
7.13781e-01	2.287e-02	Gamma
7.22784e-01	1.081e-01	Gamma
9.68199e-01	1.892e-02	Gamma
1.04513e+00	1.841e-02	Gamma
1.32551e+00	1.588e-02	Gamma
1.35518e+00	1.043e-02	Gamma

1.36816e+00	2.623e-02	Gamma
1.43656e+00	1.222e-02	Gamma
1.69098e+00	4.779e-01	Gamma
2.09094e+00	5.512e-02	Gamma
5.81421e-02	8.904e-02	Beta
1.93770e-01	5.216e-01	Beta
2.91772e-01	3.889e-02	Beta
3.24462e-01	2.040e-02	Beta
5.93062e-01	4.804e-02	Beta
6.27001e-01	2.583e-02	Beta
9.18266e-01	2.241e-01	Beta
2.29207e-05	3.752e-02	Auger electron
2.49344e-05	1.250e-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