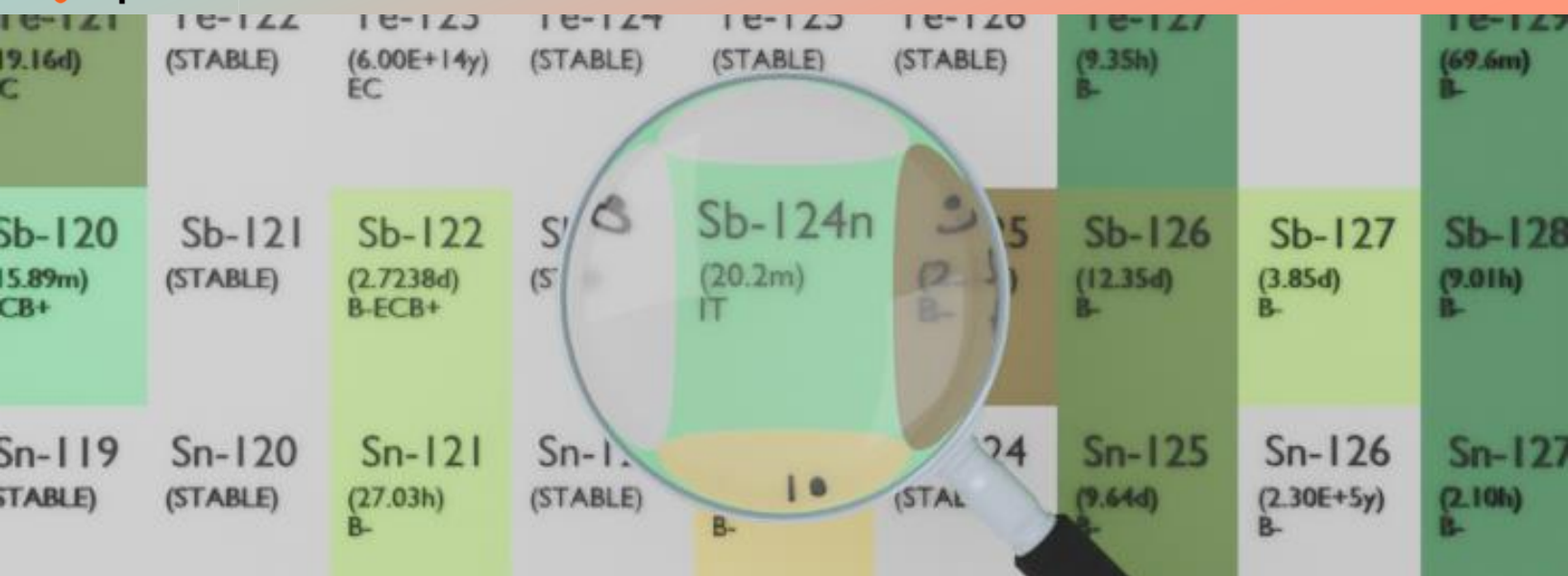




ANTIMONY-124N

SUMMARY DATA

GENERAL

CLASSIFICATION

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

RADIOACTIVE DECAY

Decay modes: Internal transition
Half-life: 20.2 [m]
Decay constant: 5.7190×10^{-4} [1/s]
Daughters: Sb-124m (100.0%)
Radioactive daughters: Sb-124m

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.02561 [MeV]
Mean photon energy: 0.00037 [MeV]
Air kerma rate constant, Γ_{10} : 2.443×10^{-22} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 2.443×10^{-22} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 4.103×10^{-15} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

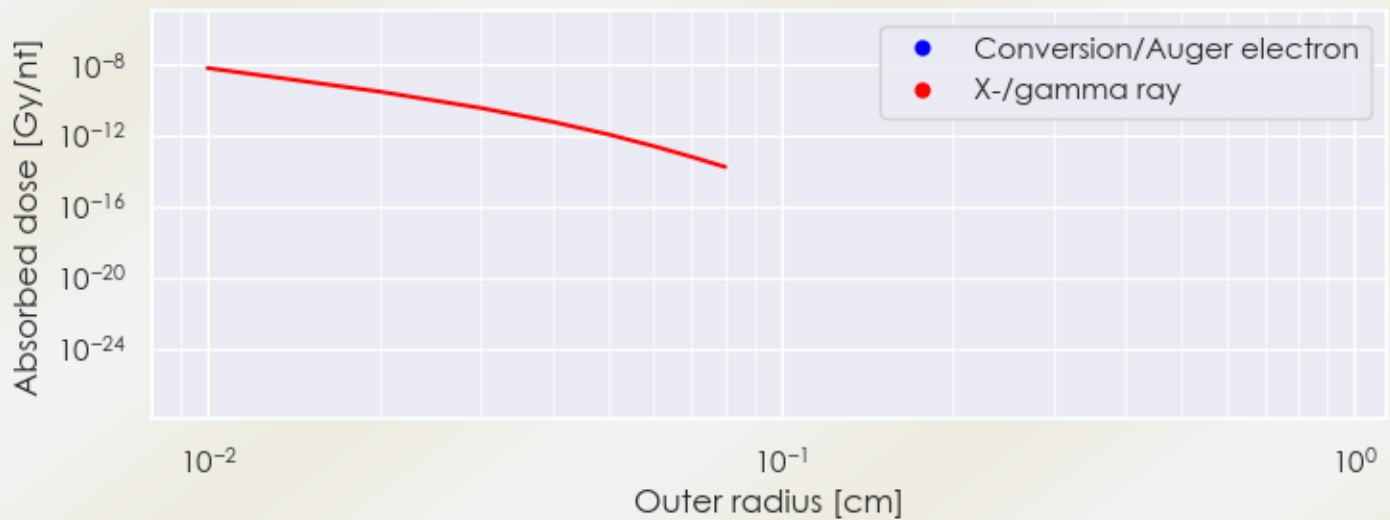
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-\beta+,e-}$: 4.103e-15 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 5.928e-17 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

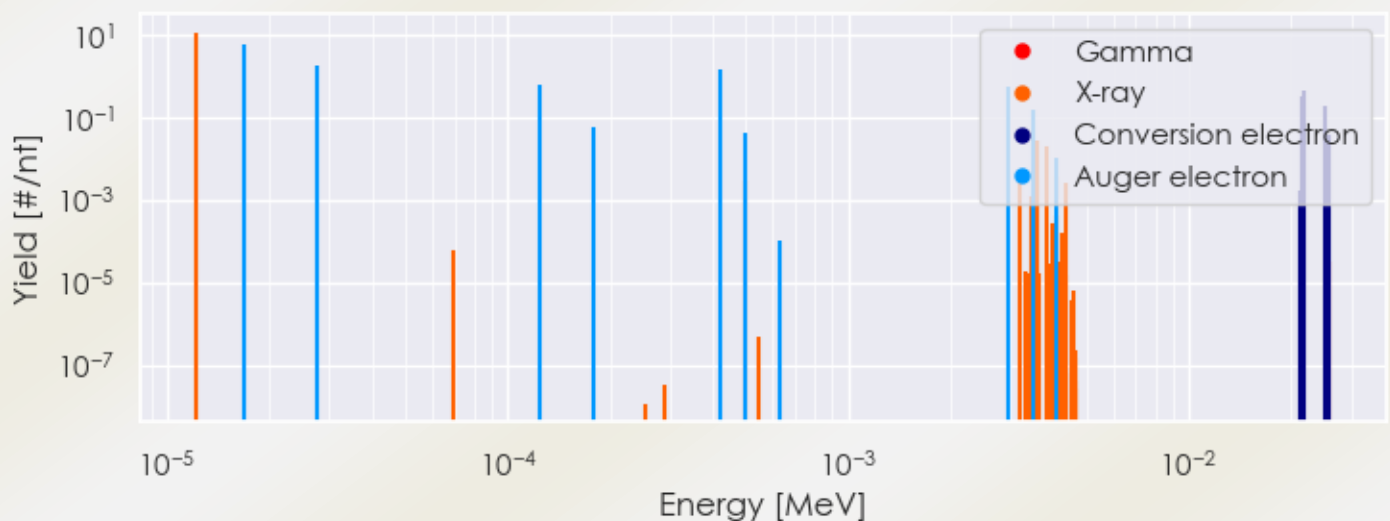
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



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

Energy [MeV]	Yield [# / n _t] if > 0.01	Radiation type
1.22312e-05	1.131e+01	X-ray
3.59265e-03	2.810e-02	X-ray
3.83821e-03	1.962e-02	X-ray
1.68831e-05	5.571e+00	Auger electron
2.75224e-05	1.846e+00	Auger electron
1.24795e-04	6.196e-01	Auger electron
1.79632e-04	5.565e-02	Auger electron
4.21445e-04	1.456e+00	Auger electron
5.00366e-04	4.362e-02	Auger electron
2.94736e-03	5.570e-01	Auger electron
3.49810e-03	1.502e-01	Auger electron
4.06709e-03	1.026e-02	Auger electron
2.15940e-02	3.189e-01	Conversion electron
2.18495e-02	4.595e-01	Conversion electron
2.52183e-02	1.822e-01	Conversion electron
2.59800e-02	3.777e-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/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6