

Te-121 (19.16d) EC	Te-122 (STABLE)	Te-123 (6.00E+14y) EC	Te-124 (STABLE)	Te-125 (STABLE)	Te-126 (STABLE)	Te-127 (9.35h) B-	Te-128 (69.6m) B-	
Sb-120 (5.89m) CB+	Sb-121 (STABLE)	Sb-122 (2.7238d) B-ECB+	Sb-123 (5.8h) B-	Sb-124m (93s) ITB-	Sb-125 (35.8h) B-	Sb-126 (12.35d) B-	Sb-127 (3.85d) B-	Sb-128 (9.01h) B-
Sn-119 (STABLE)	Sn-120 (STABLE)	Sn-121 (27.03h) B-	Sn-122 (STABLE)	Sn-123 (37.1d) B-	Sn-124 (STABLE)	Sn-125 (9.64d) B-	Sn-126 (2.30E+5y) B-	Sn-127 (2.10h) B-

ANTIMONY-124M

SUMMARY DATA

GENERAL

CLASSIFICATION

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

RADIOACTIVE DECAY

Decay modes: β^- , Internal transition
Half-life: 93.0 [s]
Decay constant: 7.4532e-03 [1/s]
Daughters: Sb-124 (75.0%), Te-124 (25.0%)
Radioactive daughters: Sb-124

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.11566 [MeV]
Mean photon energy: 0.44013 [MeV]
Air kerma rate constant, Γ_{10} : 1.659e-17 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : 1.659e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.853e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

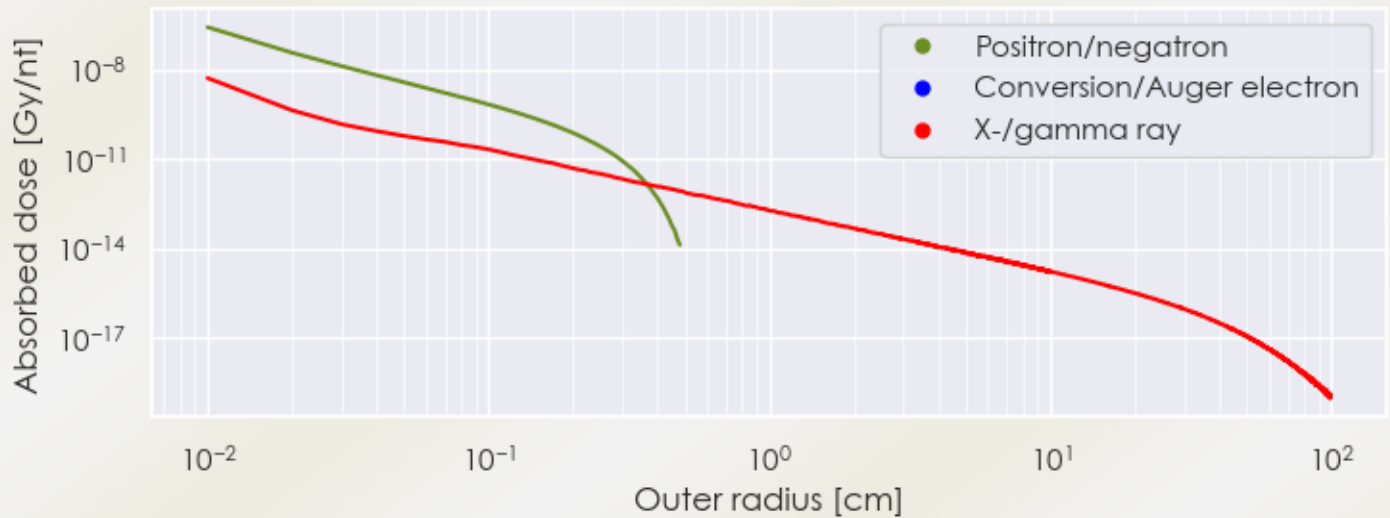
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 1.853×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 7.052×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

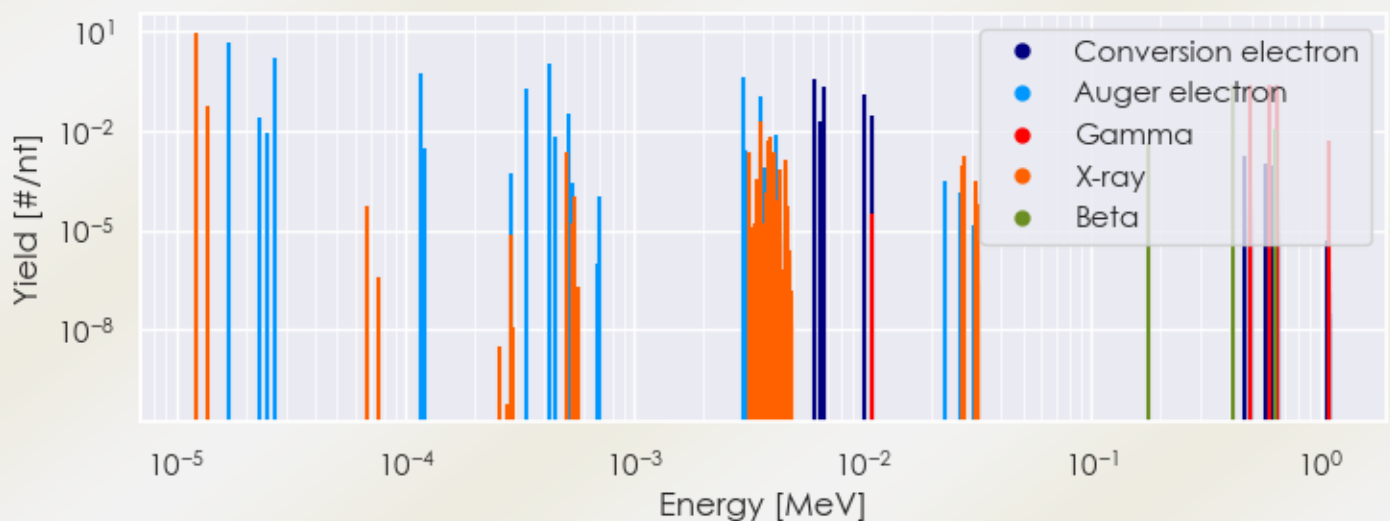
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



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

SUMMARY SPECTRA (PLOT)

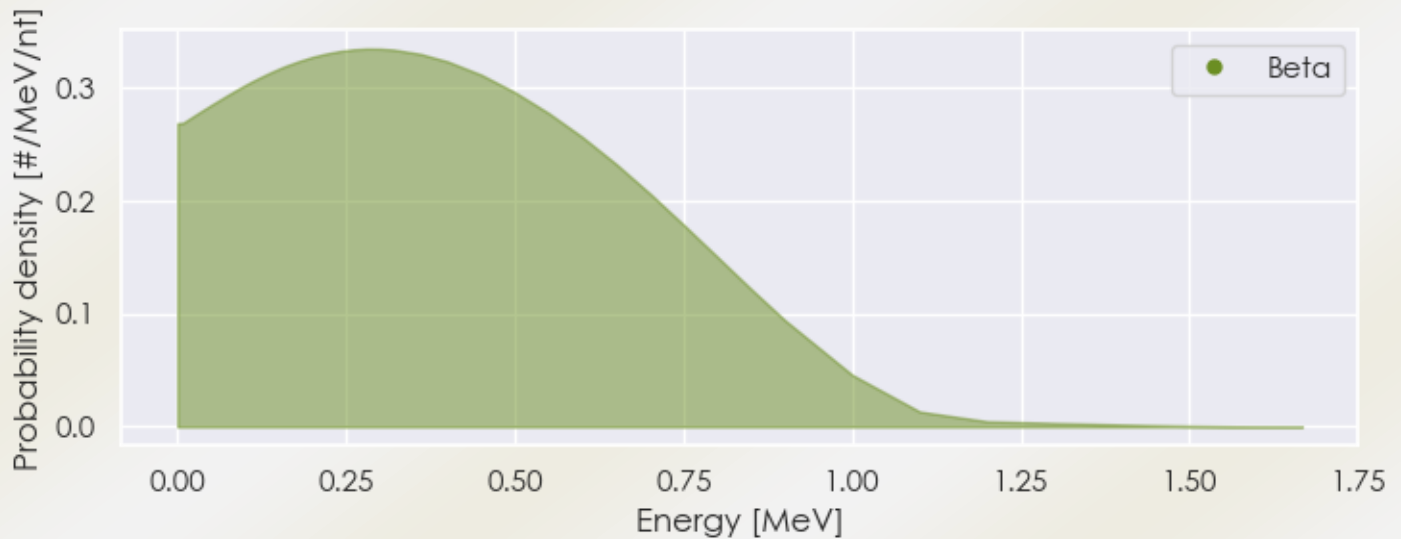
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



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

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.22365e-05	9.616e+00	X-ray
1.36106e-05	5.495e-02	X-ray
3.59265e-03	1.891e-02	X-ray
4.98400e-01	2.450e-01	Gamma
6.02720e-01	2.500e-01	Gamma
6.45820e-01	2.500e-01	Gamma
4.16118e-01	2.333e-01	Beta
6.31829e-01	1.190e-02	Beta
1.69293e-05	4.728e+00	Auger electron

2.29207e-05	2.685e-02	Auger electron
2.70703e-05	1.680e+00	Auger electron
1.17241e-04	5.891e-01	Auger electron
3.36214e-04	1.984e-01	Auger electron
4.26371e-04	1.091e+00	Auger electron
5.17625e-04	3.398e-02	Auger electron
3.01352e-03	4.207e-01	Auger electron
3.57780e-03	1.149e-01	Auger electron
6.18630e-03	3.529e-01	Conversion electron
6.47400e-03	1.915e-02	Conversion electron
6.72950e-03	2.175e-01	Conversion electron
1.00983e-02	1.308e-01	Conversion electron
1.08600e-02	2.960e-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