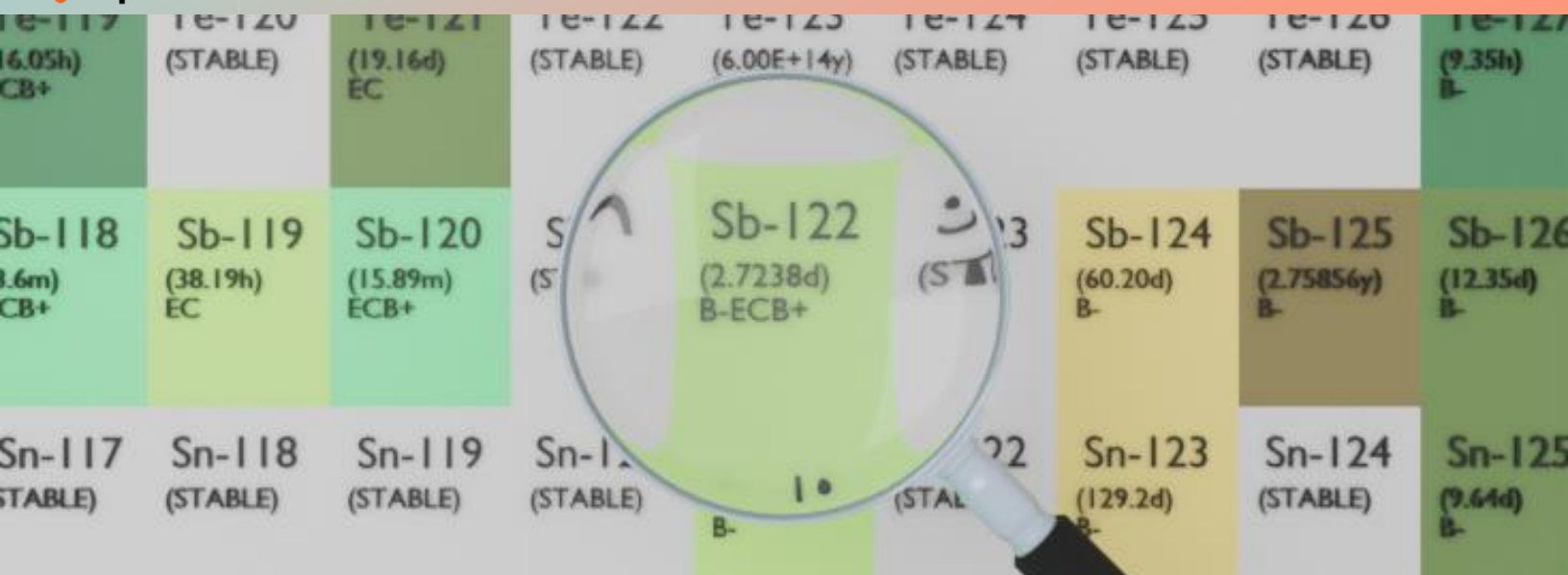




Te-119 (6.05h) CB+	Te-120 (STABLE)	Te-121 (19.16d) EC	Te-122 (STABLE)	Te-123 (6.00E+14y)	Te-124 (STABLE)	Te-125 (STABLE)	Te-126 (STABLE)	Te-127 (9.35h) B-
Sb-118 (3.6m) CB+	Sb-119 (38.19h) EC	Sb-120 (15.89m) ECB+	Sb-121 (5.05d) B-	Sb-122 (2.7238d) B-ECB+	Sb-123 (3.36m) B-	Sb-124 (60.20d) B-	Sb-125 (2.75856y) B-	Sb-126 (12.35d) B-
Sn-117 (STABLE)	Sn-118 (STABLE)	Sn-119 (STABLE)	Sn-120 (STABLE)	Sn-121 (46.5m) B-	Sn-122 (STABLE)	Sn-123 (129.2d) B-	Sn-124 (STABLE)	Sn-125 (9.64d) B-

ANTIMONY-122

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Sb-122
Atomic number (Z): 51
Mass number (A): 122
Neutron number (N): 71

RADIOACTIVE DECAY

Decay modes: β^- , β^+ , Electron capture
Half-life: 2.724 [d]
Decay constant: 2.9453e-06 [1/s]
Daughters: Te-122 (97.6%), Sn-122 (2.41%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.56183 [MeV]
Mean photon energy: 0.44532 [MeV]
Air kerma rate constant, Γ_{10} : 1.690e-17 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : 1.690e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 9.002e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

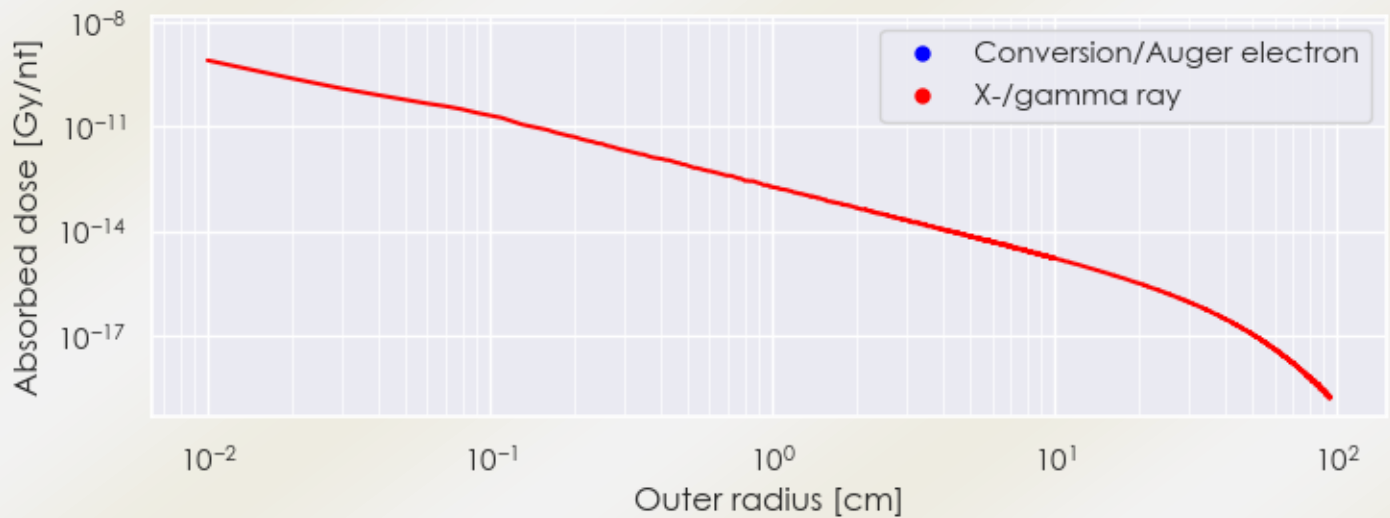
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-, \beta+, e-}$: 9.002×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 7.135×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

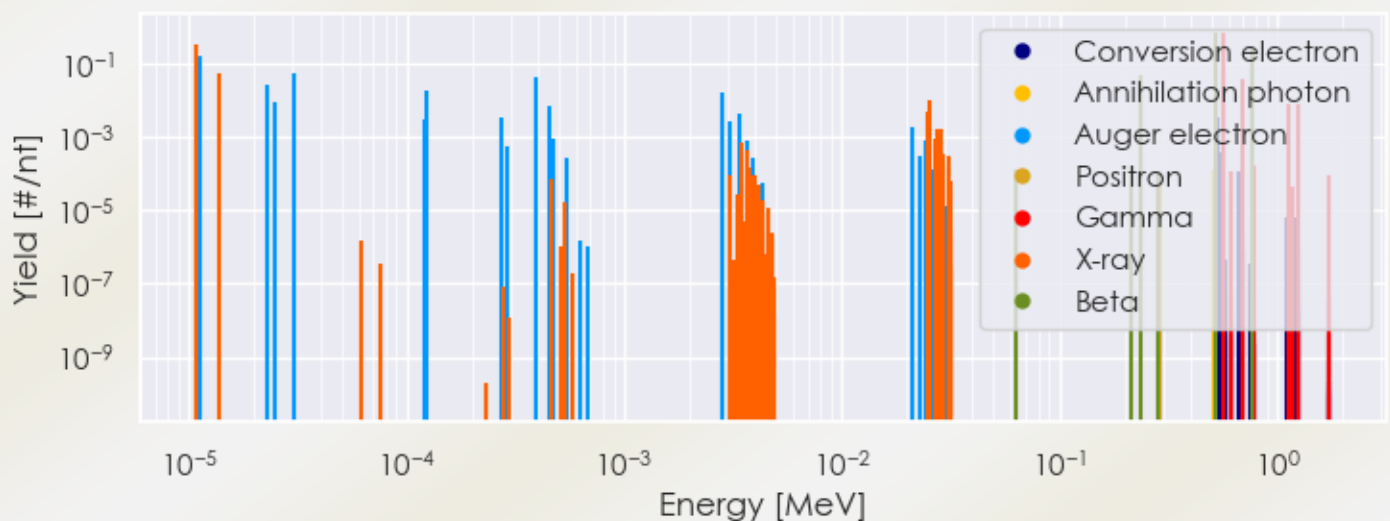
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Sb-122 DPK.csv

SUMMARY SPECTRA (PLOT)

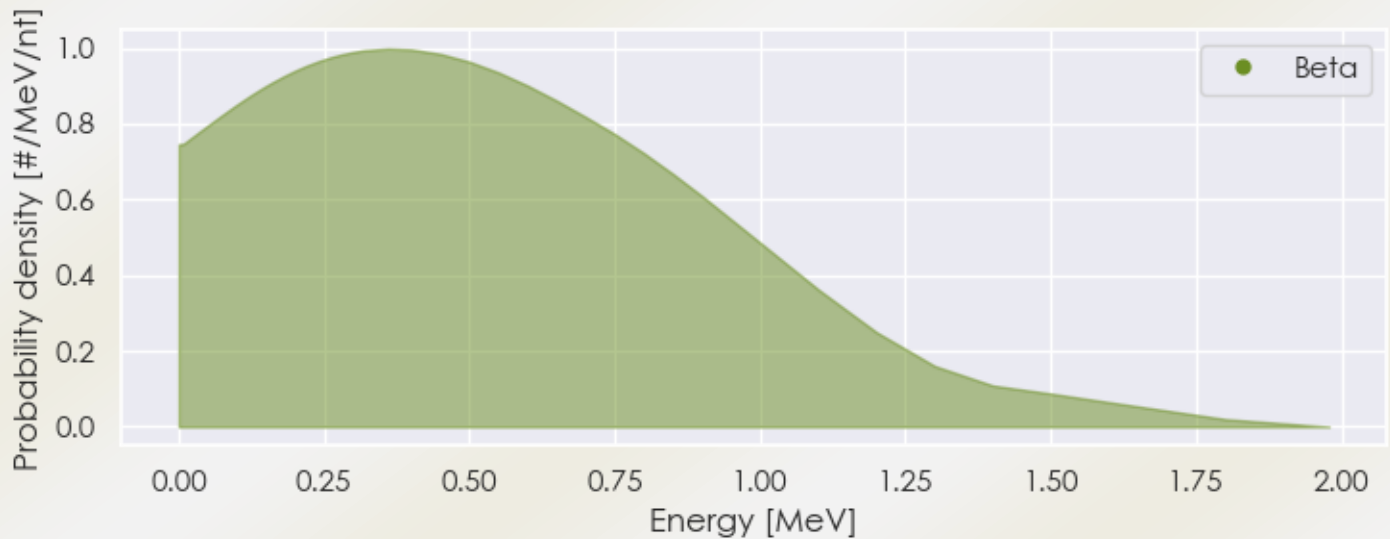
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Sb-122 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-122 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-122 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.08543e-05	3.287e-01	X-ray
1.36106e-05	5.500e-02	X-ray
5.64240e-01	7.067e-01	Gamma
6.92650e-01	3.852e-02	Gamma
2.35625e-01	4.660e-02	Beta
5.21184e-01	6.722e-01	Beta
7.70975e-01	2.567e-01	Beta
1.13316e-05	1.625e-01	Auger electron
2.29207e-05	2.688e-02	Auger electron
3.03580e-05	5.598e-02	Auger electron

1.23811e-04	1.809e-02	Auger electron
3.96353e-04	4.062e-02	Auger electron
2.84936e-03	1.603e-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/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6