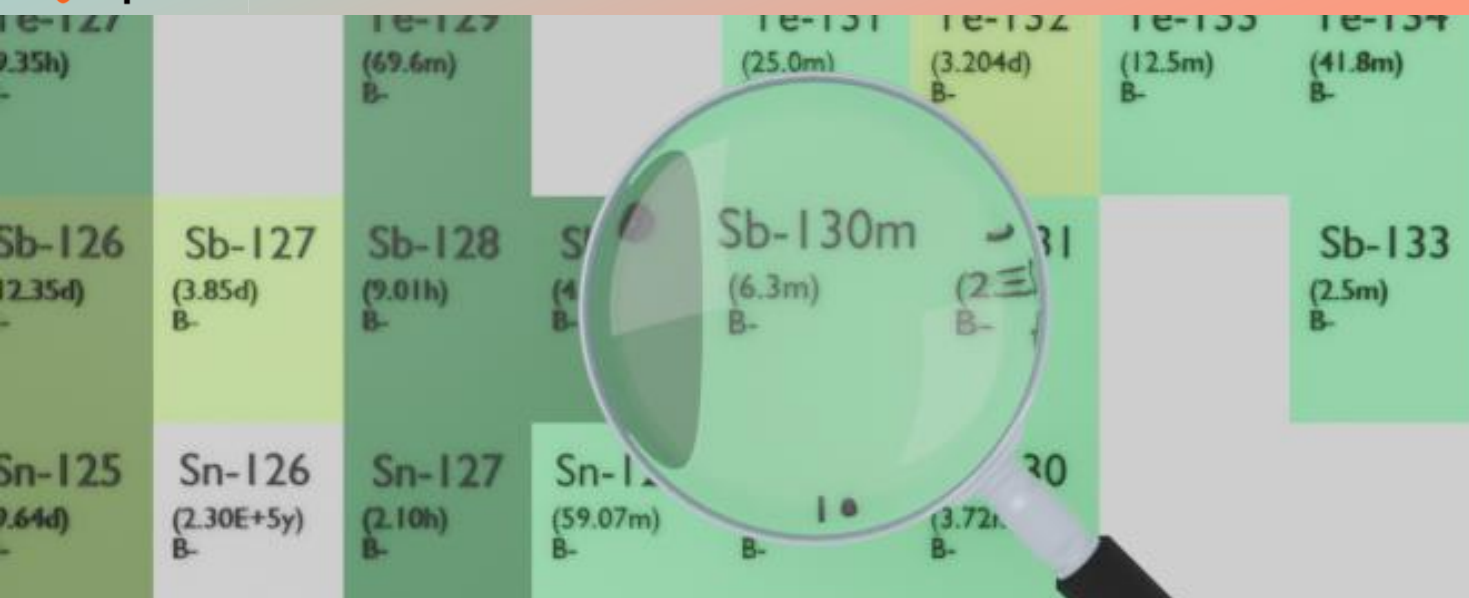




ANTIMONY-130M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Sb-130m
Atomic number (Z): 51
Mass number (A): 130
Neutron number (N): 79

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 6.3 [m]
Decay constant: $1.8337\text{e-}03$ [1/s]
Daughters: Te-130 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

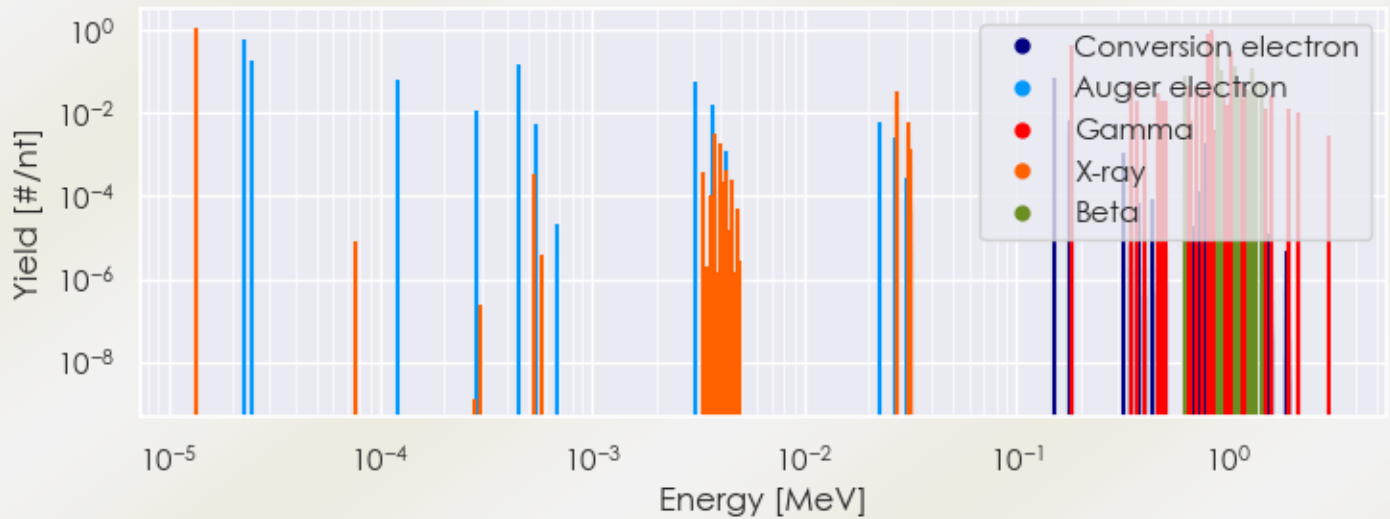
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 1.029 [MeV]
Mean photon energy: 2.70773 [MeV]
Air kerma rate constant, Γ_{10} : $9.790\text{e-}17$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Air kerma coefficient, K_{air} : $9.790\text{e-}17$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $1.649\text{e-}13$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 1.649×10^{-13} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 4.338×10^{-13} [Gy·kg/Bq·s]

SUMMARY SPECTRA (PLOT)

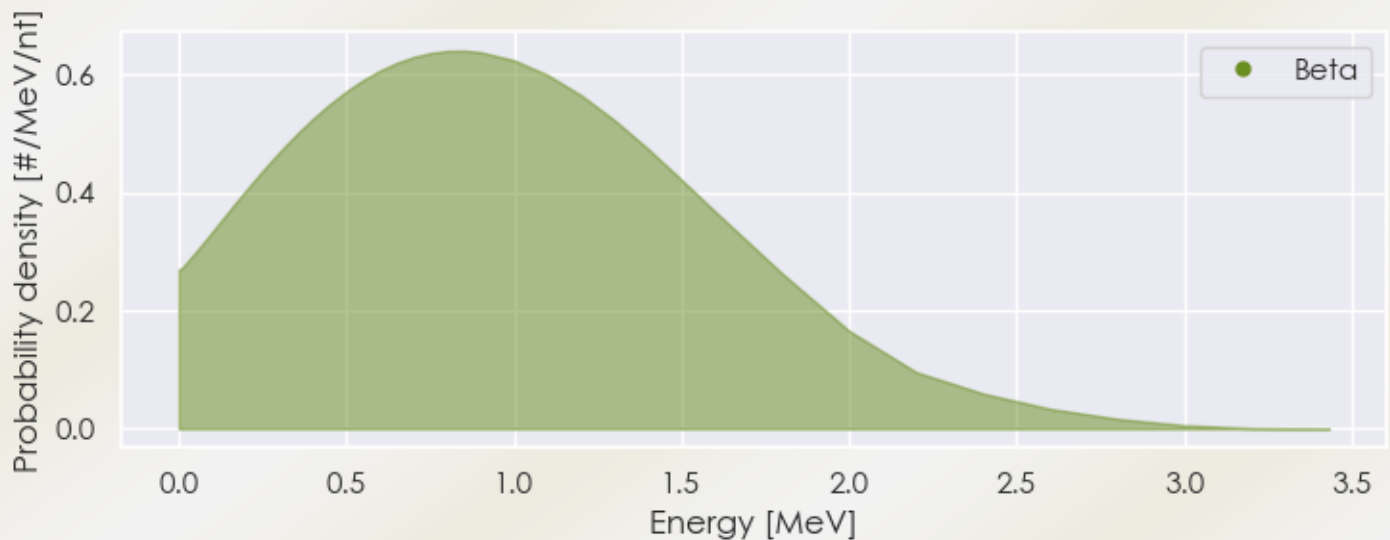
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Sb-130m Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Sb-130m%20Summary%20Spectrum.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-130m Beta Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Sb-130m%20Beta%20Spectrum.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-130m Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Sb-130m%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [# /nt] if > 0.01	Radiation type
1.36106e-05	1.170e+00	X-ray
2.71868e-02	1.864e-02	X-ray
2.74652e-02	3.471e-02	X-ray
1.82330e-01	4.100e-01	Gamma
3.48500e-01	5.100e-02	Gamma
3.70000e-01	2.000e-02	Gamma
4.68000e-01	3.100e-02	Gamma
4.81600e-01	1.900e-02	Gamma
5.02600e-01	1.900e-02	Gamma
6.27100e-01	5.100e-02	Gamma
6.47700e-01	4.800e-02	Gamma
6.97400e-01	4.400e-02	Gamma
7.48600e-01	4.000e-02	Gamma
7.93400e-01	8.600e-01	Gamma
8.16300e-01	1.200e-01	Gamma
8.39520e-01	1.000e+00	Gamma
9.20800e-01	4.000e-02	Gamma
9.42200e-01	2.800e-02	Gamma
9.49800e-01	1.000e-02	Gamma
9.85400e-01	1.600e-02	Gamma
1.01750e+00	3.000e-01	Gamma
1.03960e+00	1.000e-02	Gamma
1.04650e+00	2.800e-02	Gamma
1.07170e+00	2.200e-02	Gamma
1.10280e+00	3.700e-02	Gamma
1.13190e+00	1.300e-02	Gamma
1.14200e+00	5.600e-02	Gamma

1.17730e+00	2.200e-02	Gamma
1.20000e+00	3.600e-02	Gamma
1.23230e+00	1.300e-02	Gamma
1.49120e+00	1.300e-02	Gamma
1.59800e+00	2.600e-02	Gamma
1.89690e+00	1.300e-02	Gamma
2.11660e+00	1.000e-02	Gamma
6.25184e-01	8.052e-02	Beta
8.86301e-01	3.863e-01	Beta
9.17265e-01	1.088e-02	Beta
9.30702e-01	1.034e-01	Beta
1.06252e+00	1.349e-01	Beta
1.11750e+00	3.591e-02	Beta
1.22410e+00	3.373e-02	Beta
1.27977e+00	1.164e-01	Beta
1.34463e+00	4.353e-02	Beta
1.44272e+00	5.441e-02	Beta
2.29188e-05	5.720e-01	Auger electron
2.49476e-05	1.901e-01	Auger electron
1.21493e-04	6.532e-02	Auger electron
2.83996e-04	1.099e-02	Auger electron
4.49172e-04	1.484e-01	Auger electron
3.08071e-03	5.825e-02	Auger electron
3.67399e-03	1.649e-02	Auger electron
1.50525e-01	6.726e-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/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6