



# ANTIMONY-126

## SUMMARY DATA

### GENERAL

### CLASSIFICATION

Isotope: Sb-126  
 Atomic number (Z): 51  
 Mass number (A): 126  
 Neutron number (N): 75

### RADIOACTIVE DECAY

Decay modes:  $\beta^-$   
 Half-life: 12.35 [d]  
 Decay constant:  $6.4960 \times 10^{-7}$  [1/s]  
 Daughters: Te-126 (100.0%)  
 Radioactive daughters: None

### DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]  
 Mean electron energy: 0.35449 [MeV]  
 Mean photon energy: 2.75524 [MeV]  
 Air kerma rate constant,  $\Gamma_{10}$ :  $1.028 \times 10^{-16}$  [Gy  $\cdot$  m<sup>2</sup>/Bq  $\cdot$  s]  
 Air kerma coefficient,  $K_{air}$ :  $1.028 \times 10^{-16}$  [Gy  $\cdot$  m<sup>2</sup>/Bq  $\cdot$  s]  
 Equilibrium dose constant for weakly-penetrating radiations (alpha and/or electrons),  $\Delta_{wp}$ :  $5.680 \times 10^{-14}$  [Gy  $\cdot$  kg/Bq  $\cdot$  s]  
 Equilibrium dose constant for alphas,  $\Delta_{\alpha}$ :  $0.000 \times 10^{+00}$  [Gy  $\cdot$  kg/Bq  $\cdot$  s]

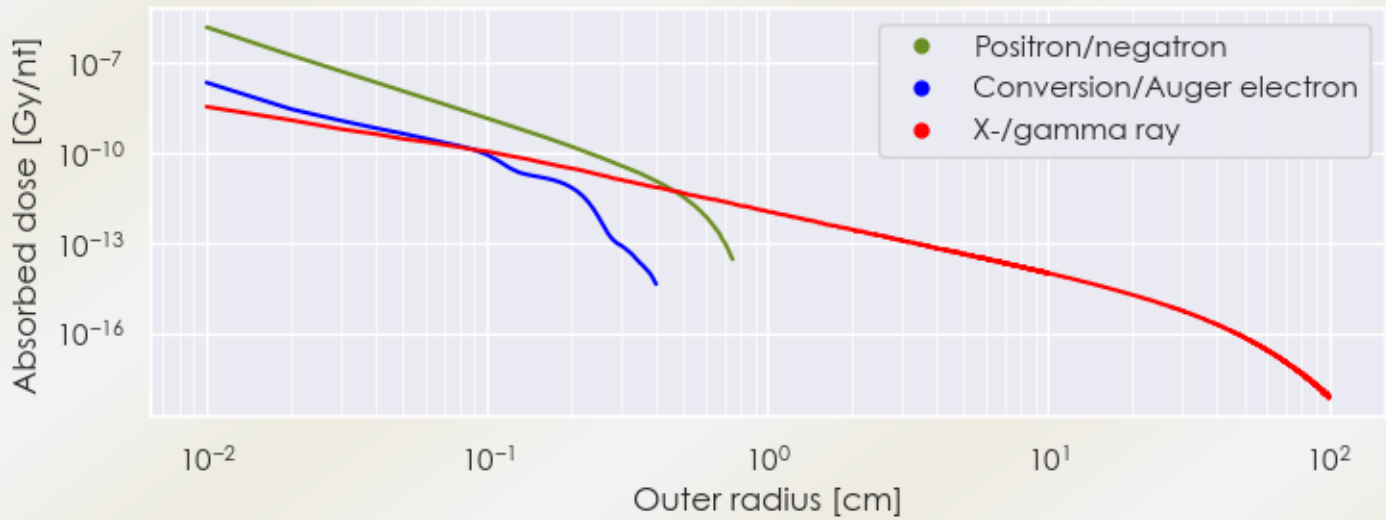
Equilibrium dose constant for betas/electrons,  $\Delta_{\beta,\beta+,e-}$ : 5.680e-14 [Gy·kg/Bq·s]

Equilibrium dose constant for photons,  $\Delta_p$ : 4.414e-13 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

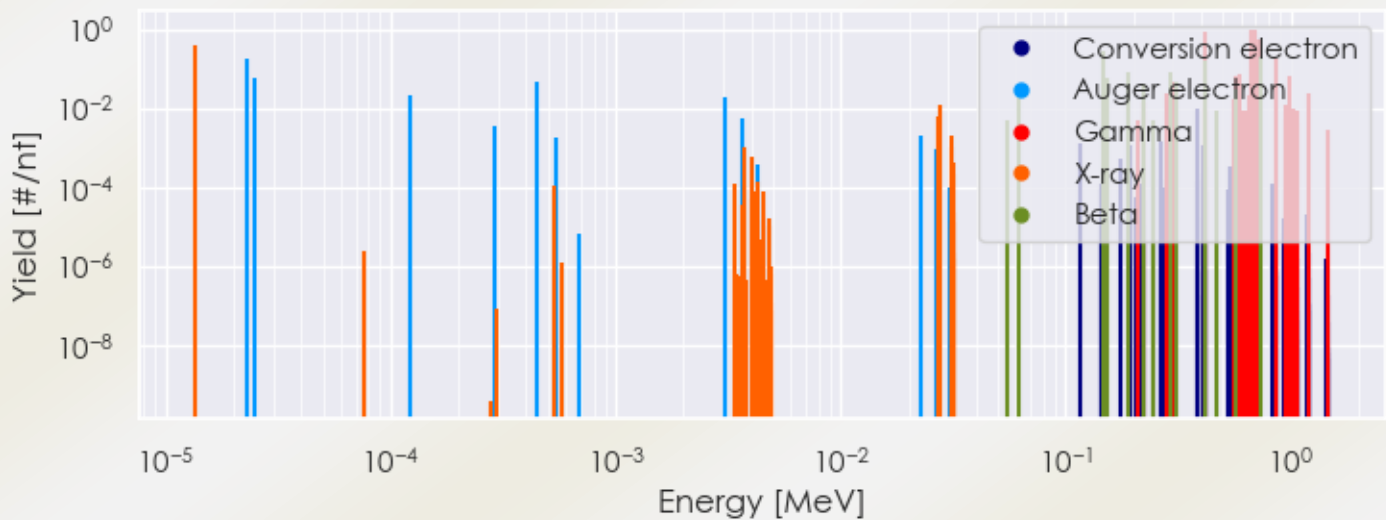
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: [www.mirdsoft.org/products/MIRDspecs/Sb-126 DPK.csv](http://www.mirdsoft.org/products/MIRDspecs/Sb-126 DPK.csv)

SUMMARY SPECTRA (PLOT)

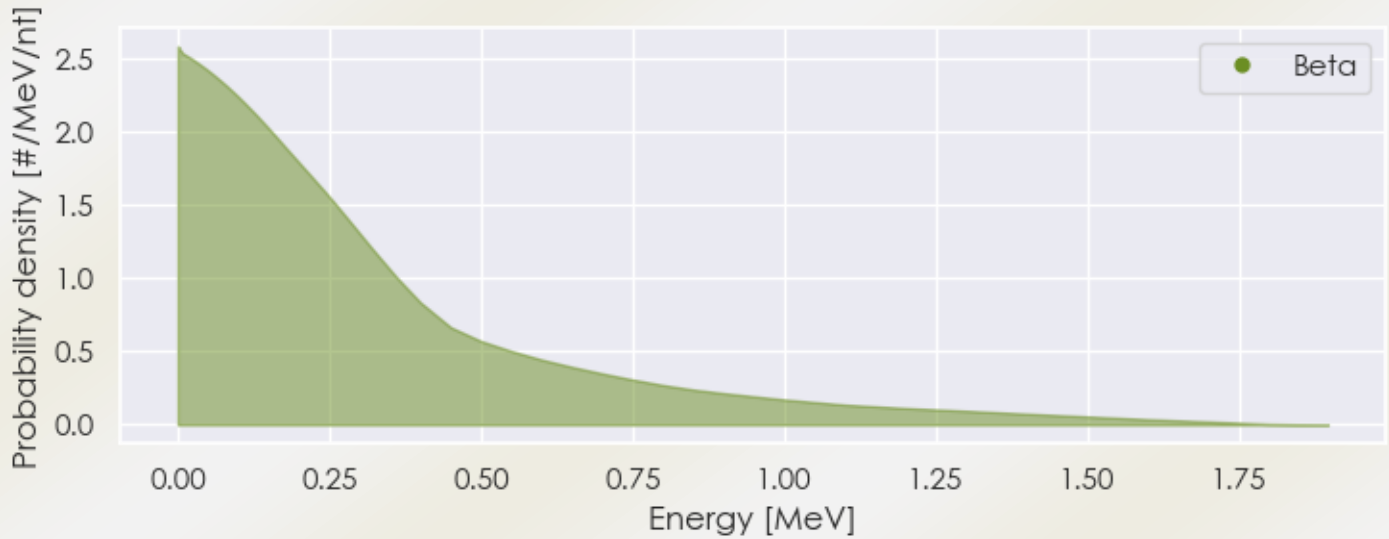
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Sb-126 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Sb-126 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-126 Beta Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Sb-126 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-126 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Sb-126 Summary Spectrum.csv)

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.36106e-05	3.750e-01	X-ray
2.74652e-02	1.163e-02	X-ray
2.23900e-01	1.394e-02	Gamma
2.78200e-01	2.390e-02	Gamma
2.96500e-01	4.482e-02	Gamma
4.14700e-01	8.327e-01	Gamma
5.56300e-01	1.693e-02	Gamma
5.73900e-01	6.673e-02	Gamma
5.93200e-01	7.470e-02	Gamma
6.56300e-01	2.191e-02	Gamma

6.66500e-01	9.960e-01	Gamma
6.74800e-01	3.685e-02	Gamma
6.95000e-01	9.960e-01	Gamma
6.97000e-01	2.888e-01	Gamma
7.20700e-01	5.378e-01	Gamma
8.56800e-01	1.763e-01	Gamma
9.53700e-01	1.195e-02	Gamma
9.89600e-01	6.773e-02	Gamma
1.21330e+00	2.390e-02	Gamma
6.17047e-02	2.004e-02	Beta
1.46227e-01	2.781e-01	Beta
1.54114e-01	5.657e-02	Beta
1.90592e-01	8.054e-02	Beta
2.21086e-01	4.027e-02	Beta
2.90255e-01	7.767e-02	Beta
3.08607e-01	4.698e-02	Beta
4.19426e-01	1.534e-01	Beta
5.65663e-01	2.877e-02	Beta
7.35362e-01	1.918e-01	Beta
2.29203e-05	1.832e-01	Auger electron
2.49381e-05	6.100e-02	Auger electron
1.21290e-04	2.097e-02	Auger electron
4.49271e-04	4.740e-02	Auger electron
3.08194e-03	1.863e-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](https://sites.snmmi.org/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6)