TIN-117M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Sn-117m
Atomic number (Z): 50
Mass number (A): 117
Neutron number (N): 67

RADIOACTIVE DECAY

Decay modes: Internal transition
Half-life: 13.76 [d]
Decay constant: 5.8303e-07 [1/s]
Daughters: Sn-117 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

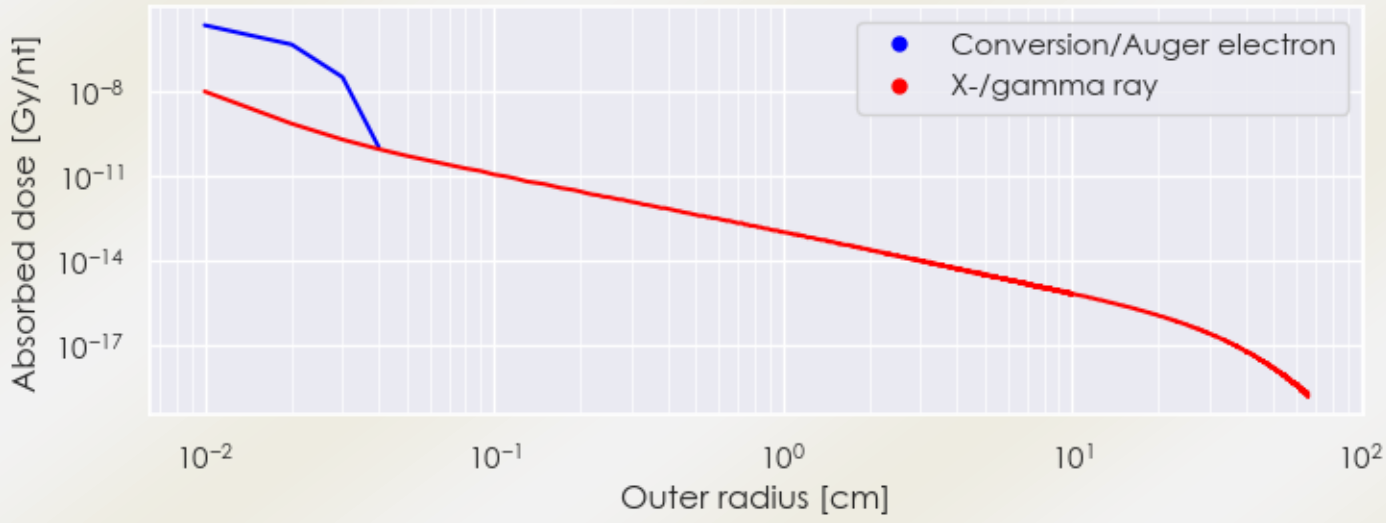
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.16158 [MeV]
Mean photon energy: 0.1581 [MeV]
Air kerma rate constant, Γ_{10}*:* 9.965e-18 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}*:* 9.965e-18 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}*:* 2.589e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}*:* 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 2.589e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 2.533e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

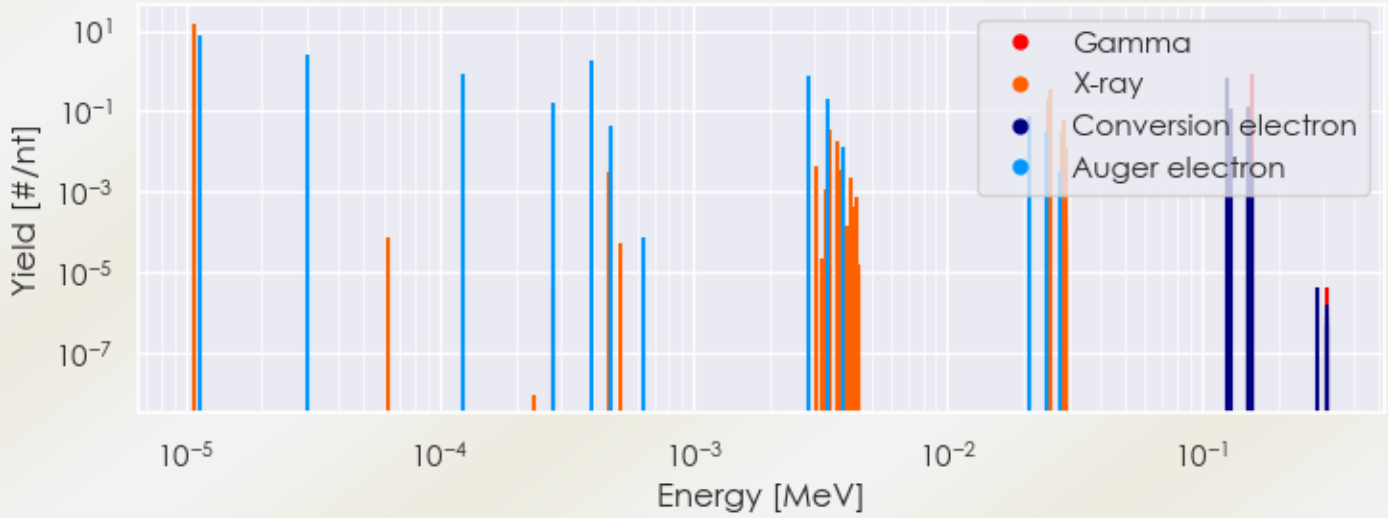
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Sn-117m 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/Sn-117m 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/Sn-117m Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
1.08546e-05	1.535e+01	X-ray
3.43219e-03	3.419e-02	X-ray
3.65722e-03	1.791e-02	X-ray
2.50232e-02	1.941e-01	X-ray
2.52572e-02	3.631e-01	X-ray
2.84307e-02	3.276e-02	X-ray
2.84736e-02	6.360e-02	X-ray
2.90882e-02	1.311e-02	X-ray
1.56020e-01	2.113e-02	Gamma
1.58560e-01	8.640e-01	Gamma
1.13307e-05	7.589e+00	Auger electron
3.03413e-05	2.619e+00	Auger electron
1.23509e-04	8.491e-01	Auger electron
2.78980e-04	1.551e-01	Auger electron
3.96464e-04	1.892e+00	Auger electron
4.70796e-04	4.317e-02	Auger electron
2.84814e-03	7.438e-01	Auger electron
3.36534e-03	1.917e-01	Auger electron
3.90208e-03	1.272e-02	Auger electron
2.09334e-02	7.316e-02	Auger electron
2.44171e-02	3.116e-02	Auger electron
1.26836e-01	6.631e-01	Conversion electron
1.29376e-01	1.188e-01	Conversion electron
1.51580e-01	1.370e-01	Conversion electron
1.51859e-01	3.070e-02	Conversion electron
1.52093e-01	1.064e-01	Conversion electron
1.54120e-01	1.395e-02	Conversion electron

1.55310e-01	6.014e-02	Conversion electron
1.56020e-01	1.267e-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