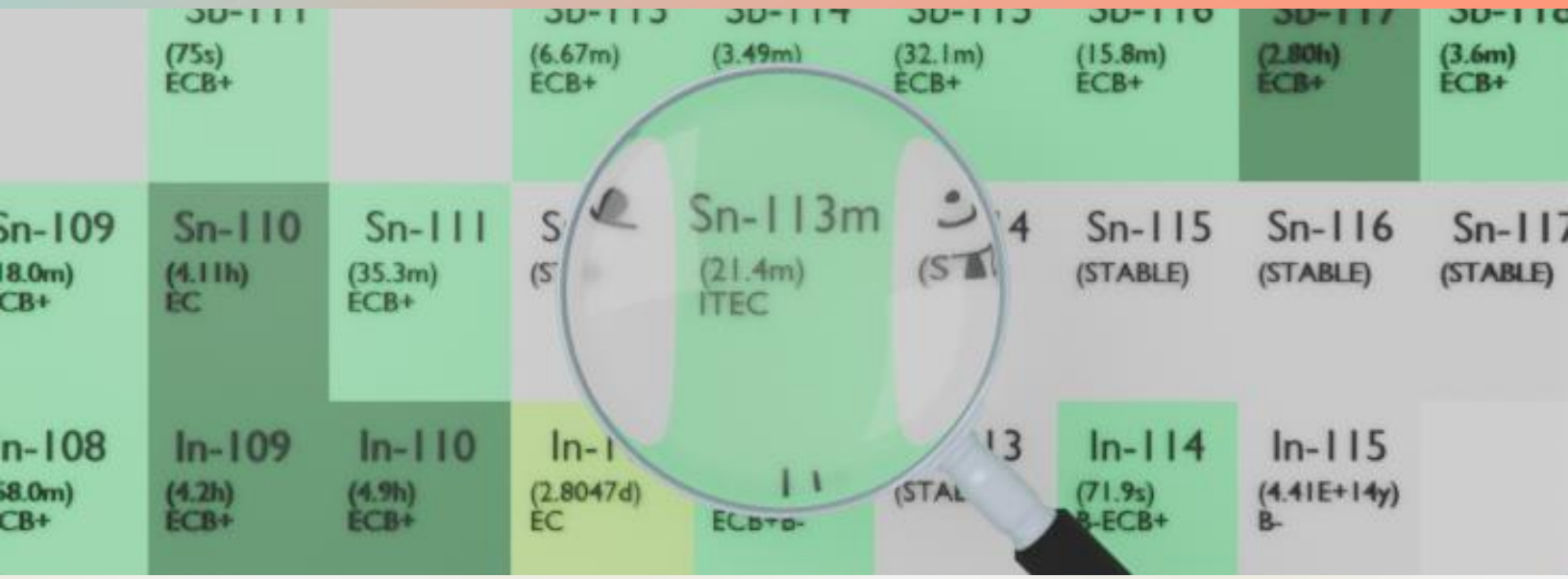


TIN-113M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Sn-113m
Atomic number (Z): 50
Mass number (A): 113
Neutron number (N): 63

RADIOACTIVE DECAY

Decay modes: Electron capture, Internal transition
Half-life: 21.4 [m]
Decay constant: 5.3983e-04 [1/s]
Daughters: Sn-113 (91.1%), In-113 (8.9%)
Radioactive daughters: Sn-113

DOSIMETRIC CONSTANTS

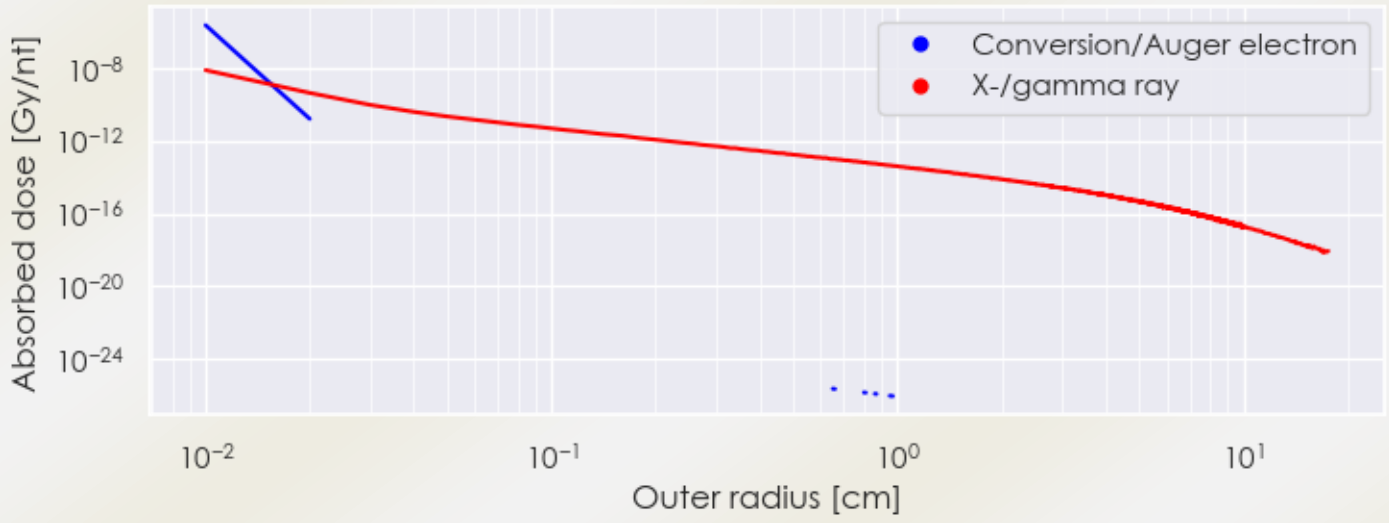
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.05879 [MeV]
Mean photon energy: 0.01368 [MeV]
Air kerma rate constant, Γ_{10}: 4.135e-18 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 4.135e-18 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 9.419e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 9.419e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 2.192e-15 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

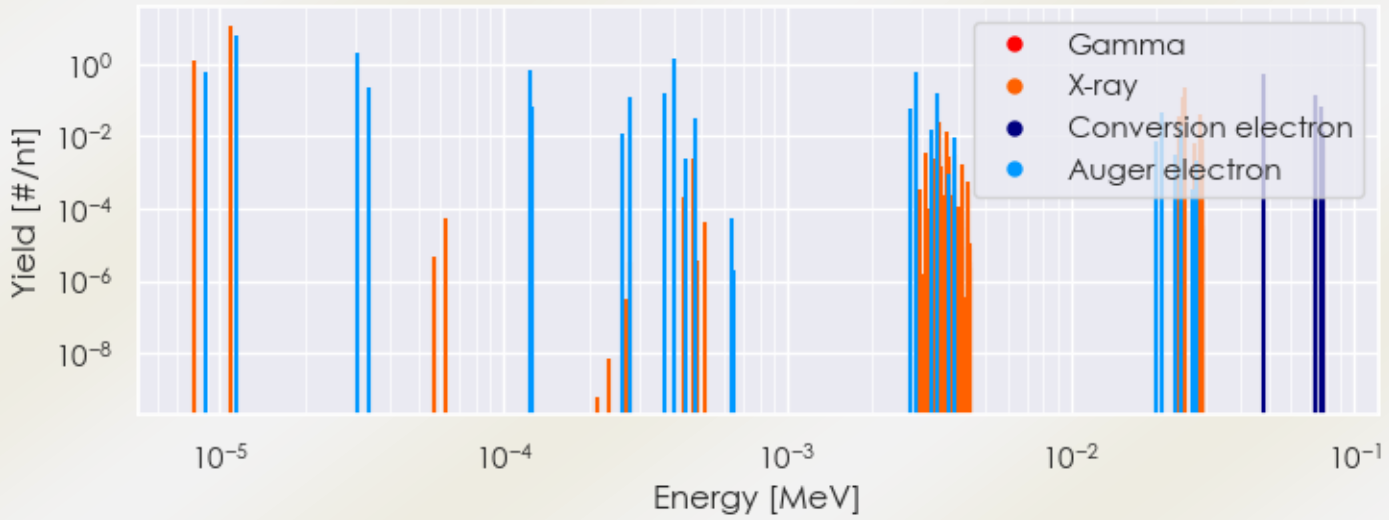
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Sn-113m 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-113m 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-113m Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
8.12530e-06	1.255e+00	X-ray
1.08546e-05	1.189e+01	X-ray
3.43219e-03	2.637e-02	X-ray
3.65722e-03	1.376e-02	X-ray
2.39785e-02	1.875e-02	X-ray
2.41926e-02	3.517e-02	X-ray
2.50232e-02	1.264e-01	X-ray
2.52572e-02	2.365e-01	X-ray
2.84307e-02	2.134e-02	X-ray
2.84736e-02	4.144e-02	X-ray
8.85911e-06	6.224e-01	Auger electron
1.13309e-05	5.877e+00	Auger electron
3.03406e-05	2.030e+00	Auger electron
3.35249e-05	2.188e-01	Auger electron
1.23493e-04	6.597e-01	Auger electron
1.25691e-04	6.817e-02	Auger electron
2.63038e-04	1.201e-02	Auger electron
2.79409e-04	1.200e-01	Auger electron
3.70864e-04	1.540e-01	Auger electron
3.96521e-04	1.463e+00	Auger electron
4.70938e-04	3.341e-02	Auger electron
2.73443e-03	6.101e-02	Auger electron
2.84823e-03	5.734e-01	Auger electron
3.21475e-03	1.492e-02	Auger electron
3.36546e-03	1.478e-01	Auger electron
2.09334e-02	4.767e-02	Auger electron
2.44171e-02	2.030e-02	Auger electron

4.82050e-02	5.094e-01	Conversion electron
7.29487e-02	1.232e-01	Conversion electron
7.32282e-02	5.216e-02	Conversion electron
7.34622e-02	1.353e-01	Conversion electron
7.66787e-02	6.898e-02	Conversion electron
7.73890e-02	1.429e-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