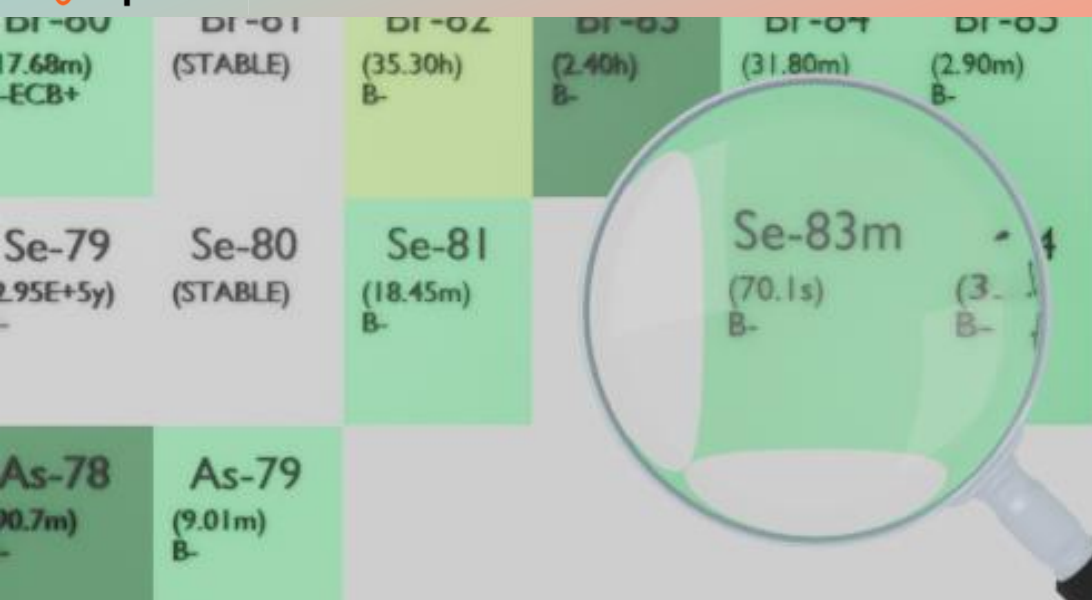




SELENIUM-83M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Se-83m
Atomic number (Z): 34
Mass number (A): 83
Neutron number (N): 49

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 70.1 [s]
Decay constant: $9.8880\text{e-}03$ [1/s]
Daughters: Br-83 (100.0%)
Radioactive daughters: Br-83

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 1.25701 [MeV]
Mean photon energy: 0.98493 [MeV]
Air kerma rate constant, Γ_{10} : $3.371\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : $3.371\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $2.014\text{e-}13$ [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [Gy $\cdot$ kg/Bq $\cdot$ s]

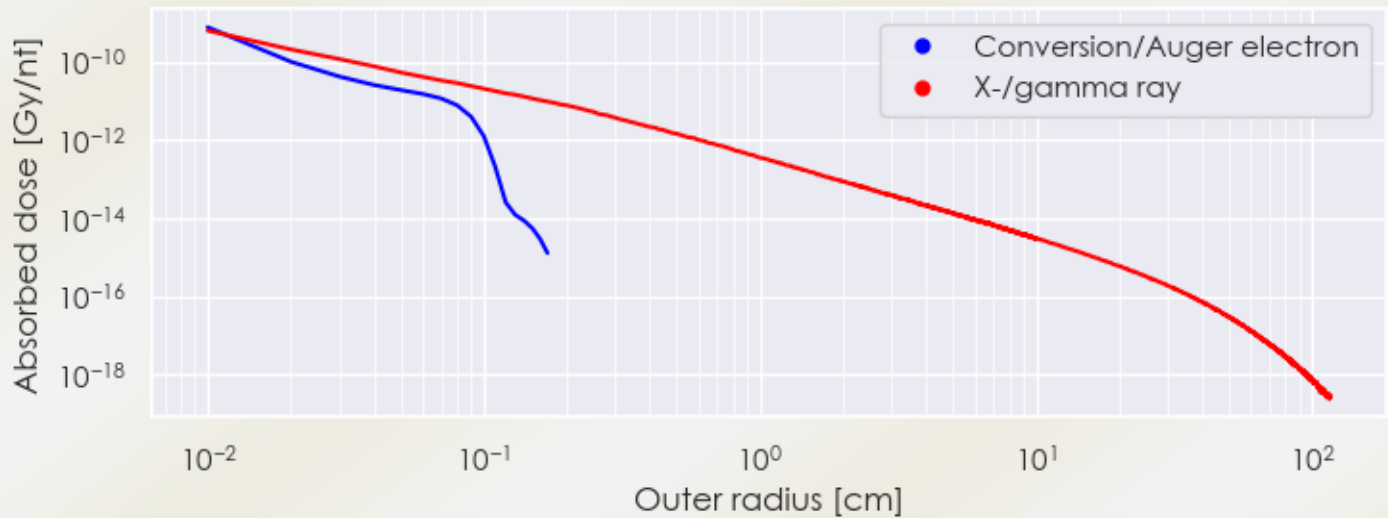
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta+, e-}$: 2.014e-13 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.578e-13 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

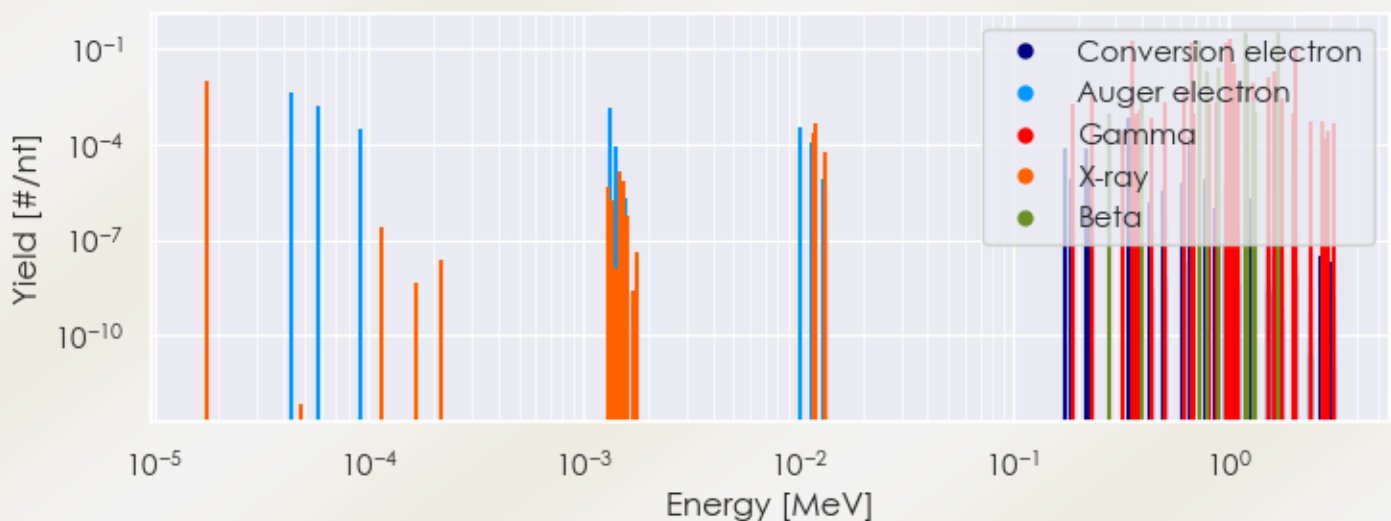
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Se-83m DPK.csv

SUMMARY SPECTRA (PLOT)

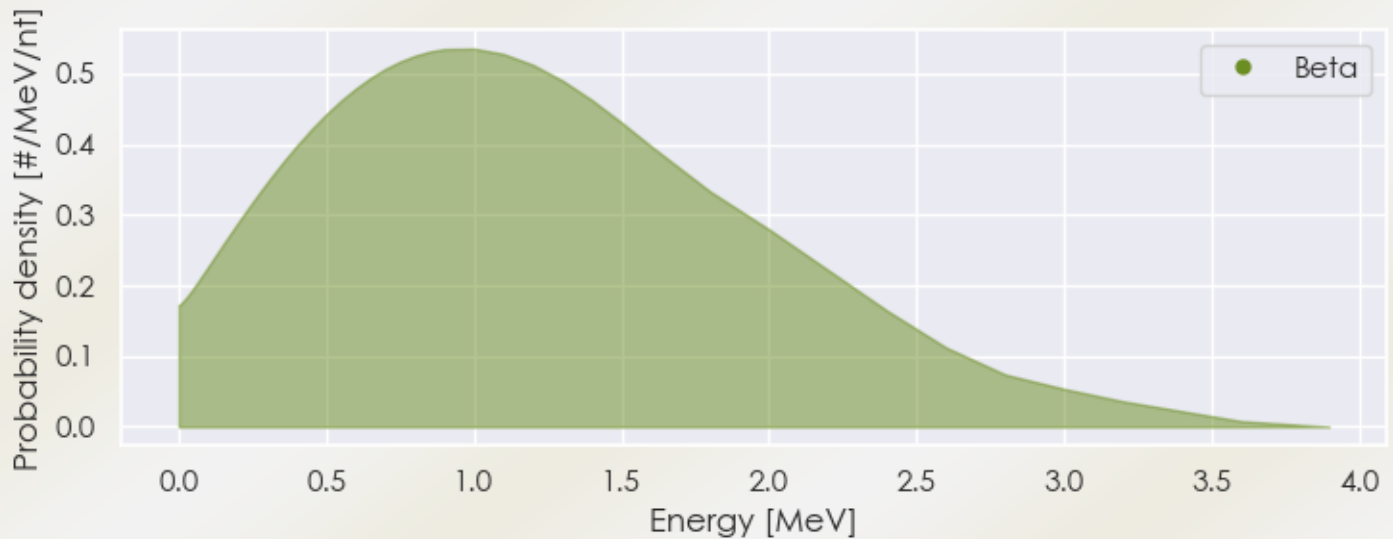
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Se-83m 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/Se-83m 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/Se-83m Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
3.56690e-01	1.750e-01	Gamma
6.73980e-01	1.522e-01	Gamma
7.99150e-01	1.264e-02	Gamma
9.88050e-01	1.610e-01	Gamma
9.97550e-01	1.225e-02	Gamma
1.02075e+00	2.170e-02	Gamma
1.03061e+00	2.117e-01	Gamma
1.05370e+00	1.593e-02	Gamma
1.06364e+00	3.570e-02	Gamma
1.55890e+00	1.225e-02	Gamma

1.66006e+00	1.960e-02	Gamma
2.05152e+00	1.125e-01	Gamma
7.32994e-01	1.836e-01	Beta
7.95415e-01	2.043e-02	Beta
9.13969e-01	2.596e-02	Beta
1.21030e+00	3.267e-01	Beta
1.23056e+00	1.263e-01	Beta
1.70289e+00	3.060e-01	Beta

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