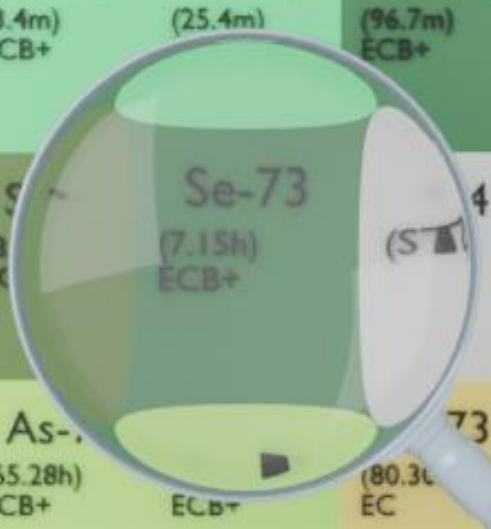




Bi-72 (78.6s) ECB+	Bi-73 (3.4m) ECB+	Bi-74 (25.4m)	Bi-75 (96.7m) ECB+	Bi-76 (16.2h) ECB+	Bi-77 (57.036h) ECB+	Bi-78 (6.46m) ECB+B-		
Se-70 (41.1m) ECB+	Se-71 (4.74m) ECB+	Se-72 (8.0m) ECB+	Se-73 (7.15h) ECB+	Se-74 (5.16m) ECB+	Se-75 (119.779d) EC	Se-76 (STABLE)	Se-77 (STABLE)	
As-68 (51.6s) CB+	As-69 (15.23m) ECB+	As-70 (52.6m) ECB+	As-71 (65.28h) ECB+	As-72 (80.3d) EC	As-73 (17.77d) ECB+B-	As-74 (17.77d) ECB+B-	As-75 (STABLE)	As-76 (1.0778d) B-

SELENIUM-73

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Se-73
Atomic number (Z): 34
Mass number (A): 73
Neutron number (N): 39

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 7.15 [h]
Decay constant: 2.6929×10^{-5} [1/s]
Daughters: As-73 (100.0%)
Radioactive daughters: As-73

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.38709 [MeV]
Mean photon energy: 1.09237 [MeV]
Air kerma rate constant, Γ_{10} : 3.011×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 5.543×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 6.202×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000×10^0 [Gy $\cdot$ kg/Bq $\cdot$ s]

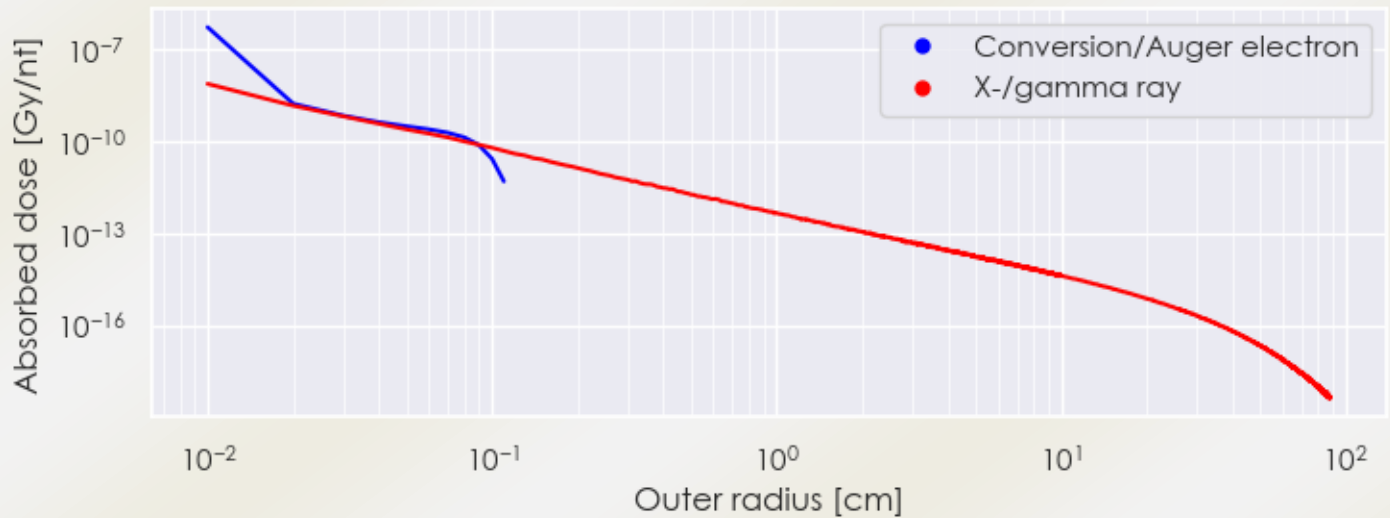
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 6.202×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.750×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

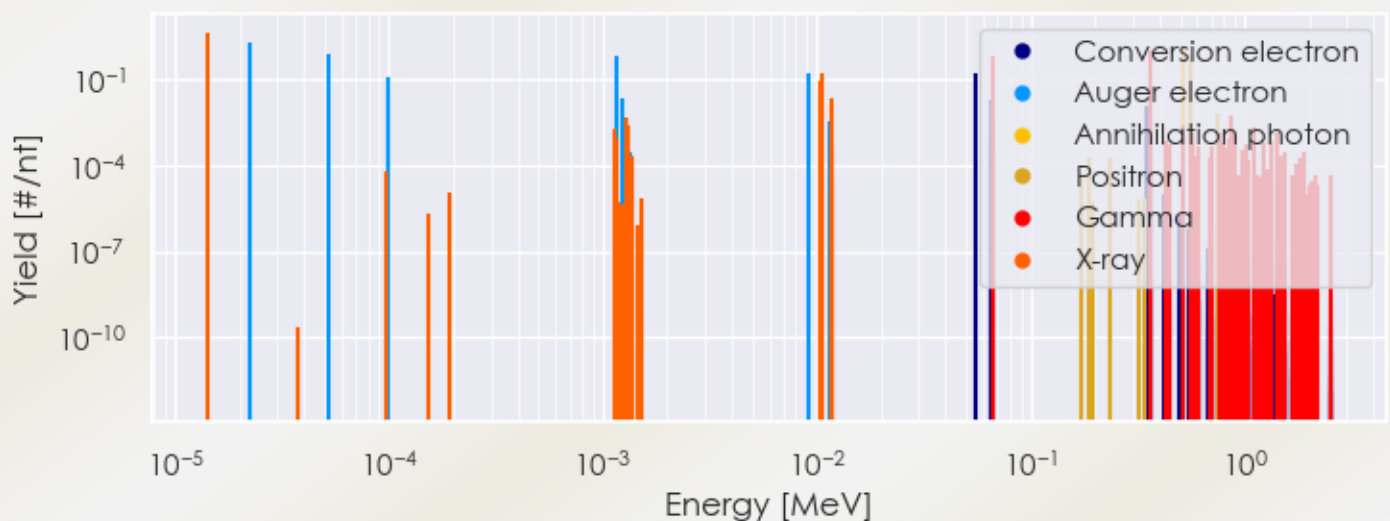
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Se-73 DPK.csv

SUMMARY SPECTRA (PLOT)

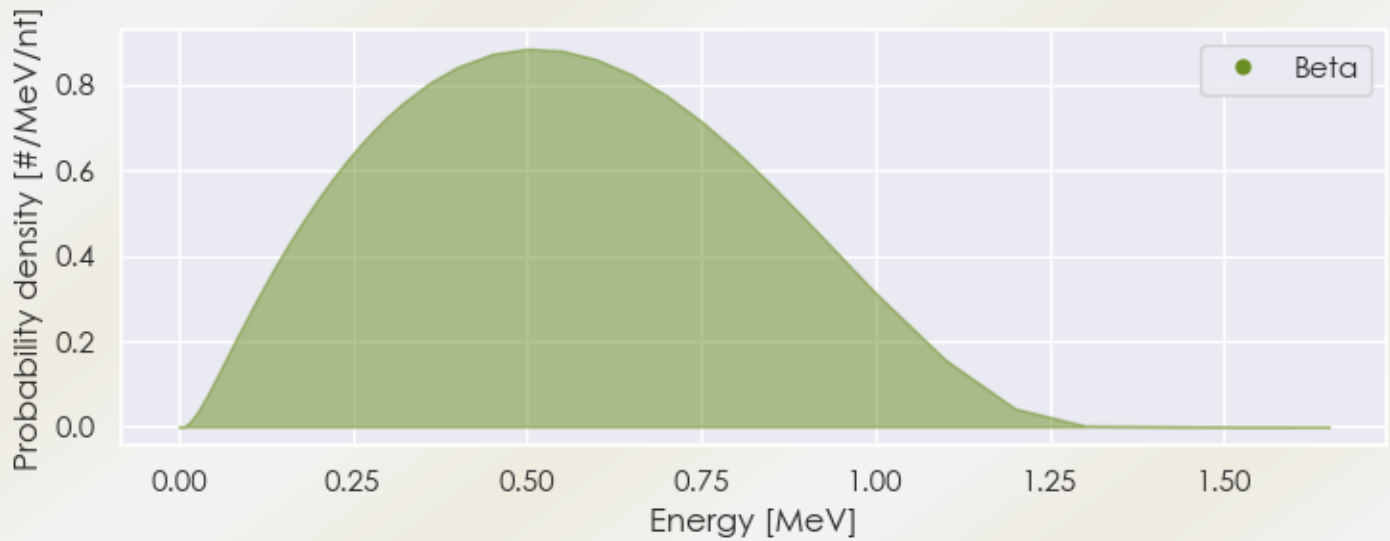
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Se-73 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-73 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-73 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.42084e-05	4.392e+00	X-ray
1.04633e-02	8.156e-02	X-ray
1.05007e-02	1.580e-01	X-ray
1.16800e-02	1.078e-02	X-ray
1.16852e-02	2.106e-02	X-ray
6.70700e-02	6.984e-01	Gamma
3.61200e-01	9.700e-01	Gamma
5.11000e-01	1.308e+00	Annihilation photon
5.62036e-01	6.472e-01	Positron
2.23273e-05	2.071e+00	Auger electron

5.24629e-05	7.630e-01	Auger electron
9.85443e-05	1.259e-01	Auger electron
1.15644e-03	6.400e-01	Auger electron
1.22326e-03	2.267e-02	Auger electron
9.06608e-03	1.658e-01	Auger electron
1.02994e-02	4.707e-02	Auger electron
5.52410e-02	1.729e-01	Conversion electron
6.55508e-02	1.776e-02	Conversion electron
3.49371e-01	1.139e-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