



Se-70 (41.1m) ECB+	Se-71 (4.74m) ECB+	Se-72 (8.40d) EC	Se-73 (7.15h) ECB+	Se-74 (STABLE)
As-68 (1.1h) EC	As-69 (15.23m) ECB+	As-70 (5.2h) EC	As-71 (65.28h) ECB+	As-72 (26.0h) ECB+
Ge-66 (2.26h) ECB+	Ge-67 (18.9m) ECB+	Ge-68 (39.0s) ECB+	Ge-69 (1.37h) EC	Ge-70 (STABLE)
			Ge-71 (11.43d) EC	Ge-72 (STABLE)

ARSENIC-69

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: As-69
Atomic number (Z): 33
Mass number (A): 69
Neutron number (N): 36

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 15.23 [m]
Decay constant: 7.5853e-04 [1/s]
Daughters: Ge-69 (100.0%)
Radioactive daughters: Ge-69

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 1.21817 [MeV]
Mean photon energy: 1.14315 [MeV]
Air kerma rate constant, Γ_{10} : 6.307e-18 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : 4.267e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.952e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

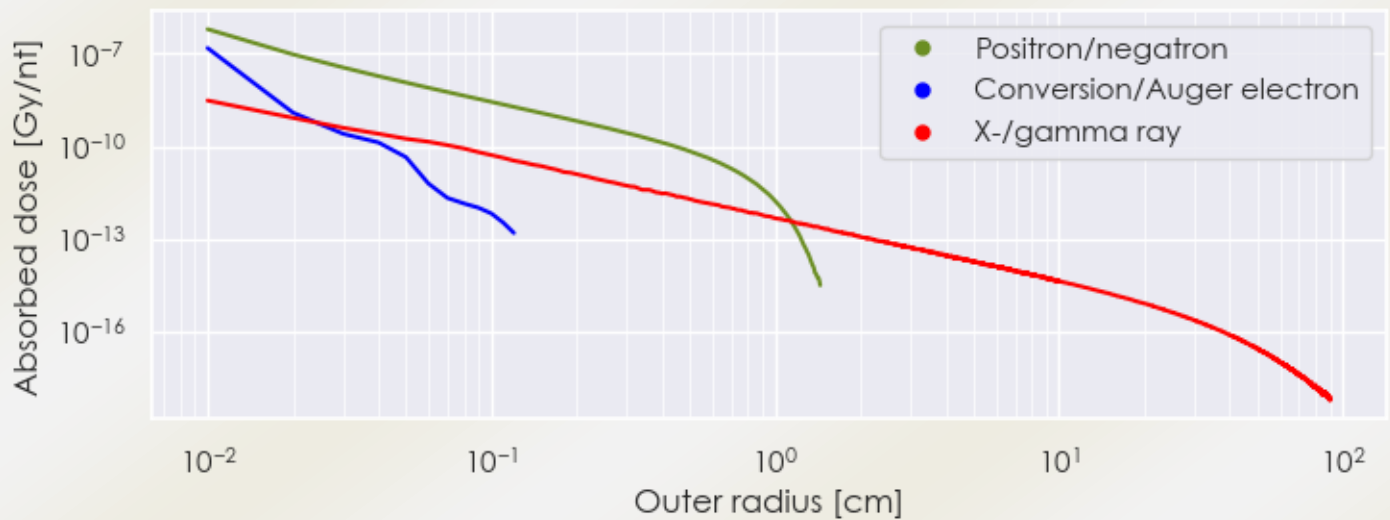
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 1.952×10^{-13} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.832×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

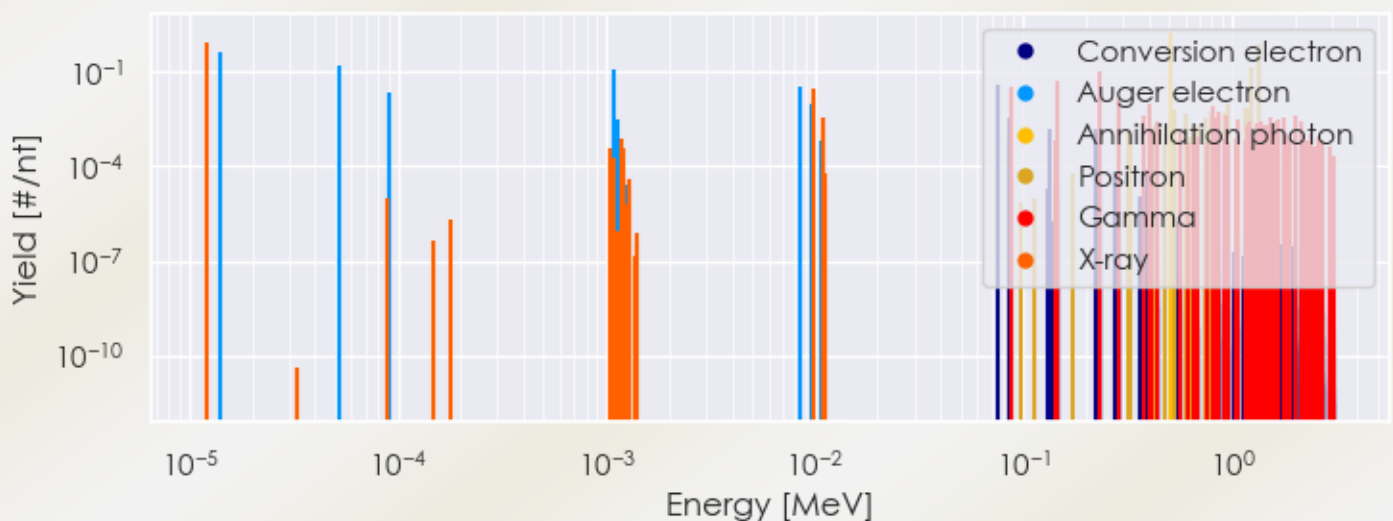
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/As-69 DPK.csv

SUMMARY SPECTRA (PLOT)

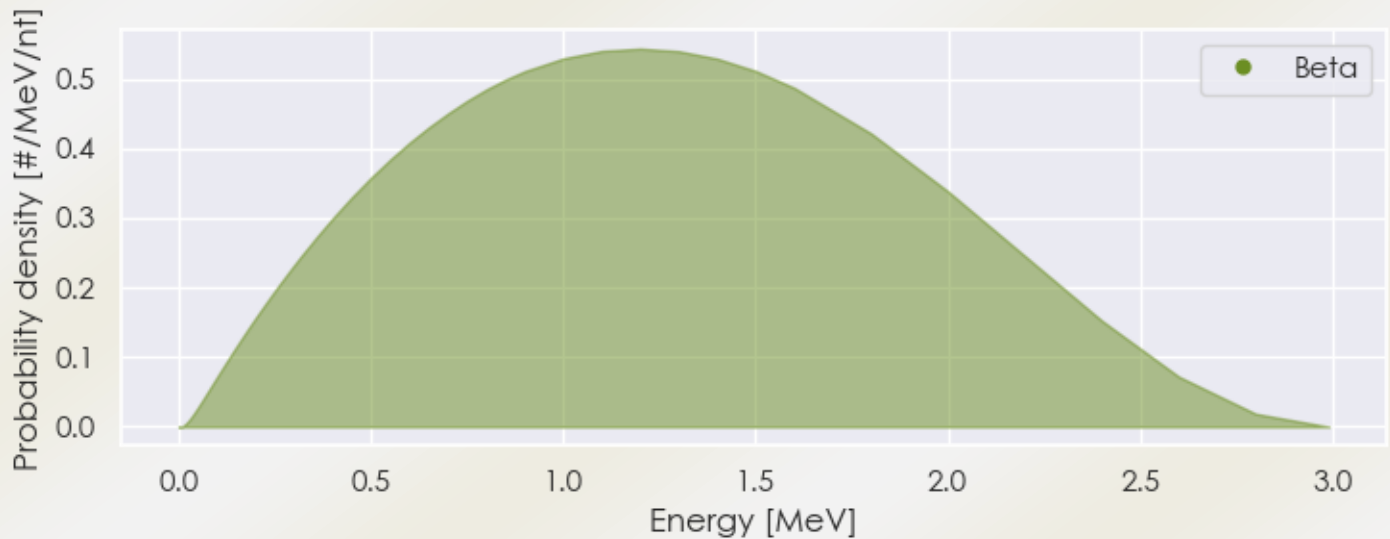
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/As-69 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/As-69 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/As-69 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.21070e-05	8.999e-01	X-ray
9.81159e-03	1.499e-02	X-ray
9.84420e-03	2.909e-02	X-ray
8.67900e-02	3.440e-02	Gamma
1.45960e-01	4.958e-02	Gamma
2.32730e-01	1.092e-01	Gamma
2.87300e-01	1.420e-02	Gamma
3.98100e-01	1.026e-02	Gamma
5.11000e-01	1.879e+00	Annihilation photon
1.23822e+00	1.399e-01	Positron

1.34826e+00	7.276e-01	Positron
1.41917e-05	4.321e-01	Auger electron
5.27890e-05	1.585e-01	Auger electron
9.14636e-05	2.421e-02	Auger electron
1.07856e-03	1.291e-01	Auger electron
8.52330e-03	3.451e-02	Auger electron
7.57230e-02	3.775e-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