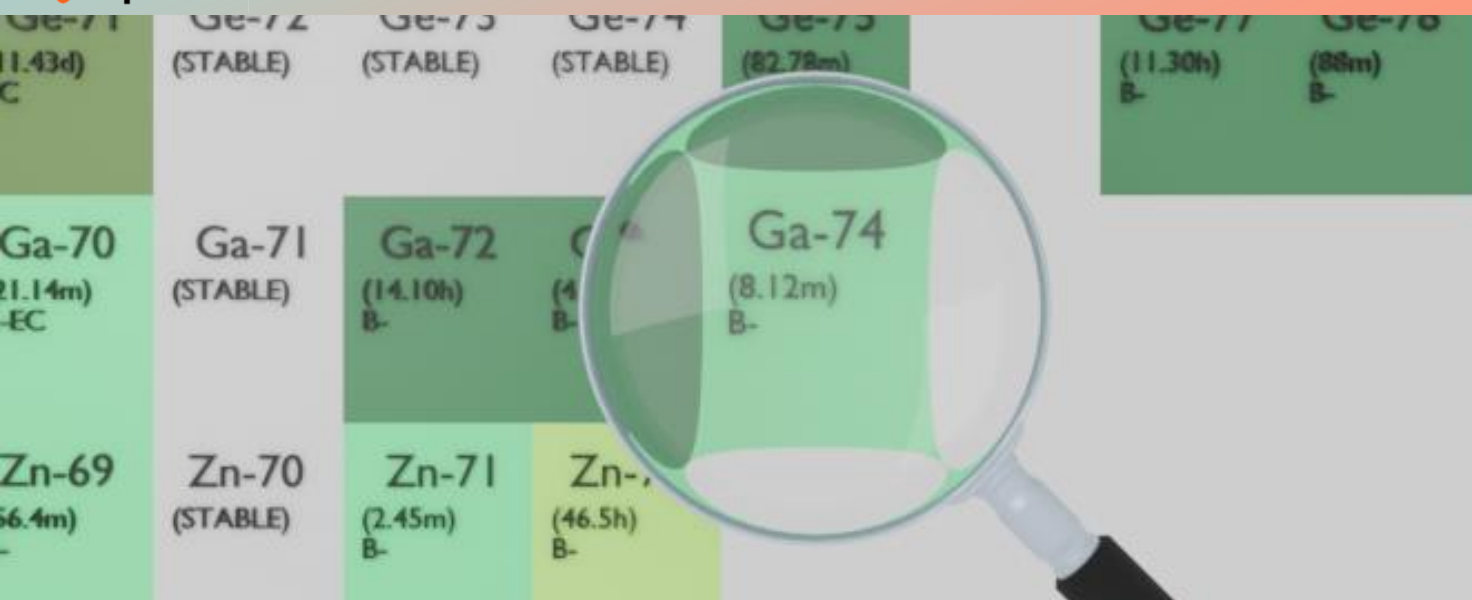




GALLIUM-74

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ga-74
Atomic number (Z): 31
Mass number (A): 74
Neutron number (N): 43

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 8.12 [m]
Decay constant: 1.4227×10^{-3} [1/s]
Daughters: Ge-74 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.99454 [MeV]
Mean photon energy: 3.15401 [MeV]
Air kerma rate constant, Γ_{10} : 1.000×10^{-16} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 1.000×10^{-16} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.593×10^{-13} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000×10^0 [Gy $\cdot$ kg/Bq $\cdot$ s]

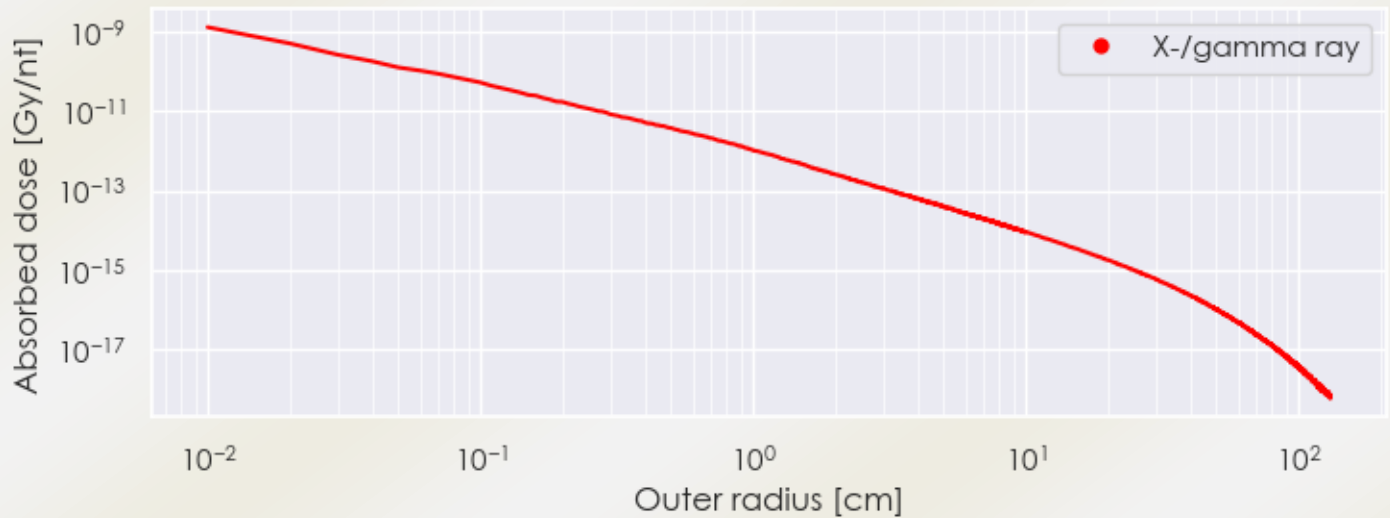
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-\beta+,e-}$: $1.593\text{e-}13$ [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : $5.053\text{e-}13$ [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

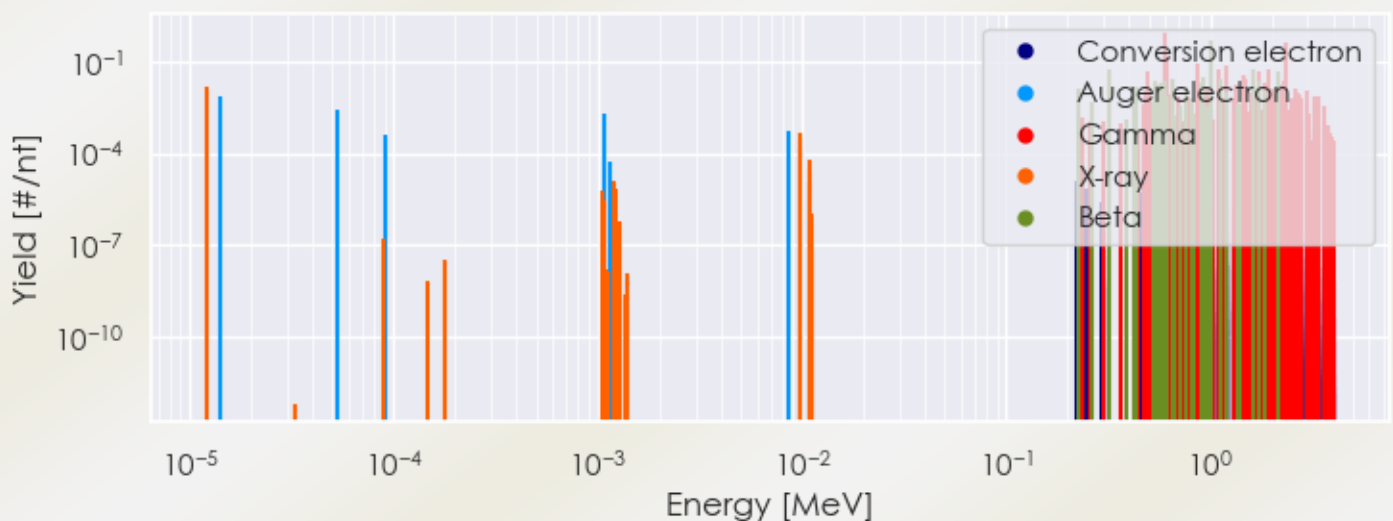
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Ga-74 DPK.csv

SUMMARY SPECTRA (PLOT)

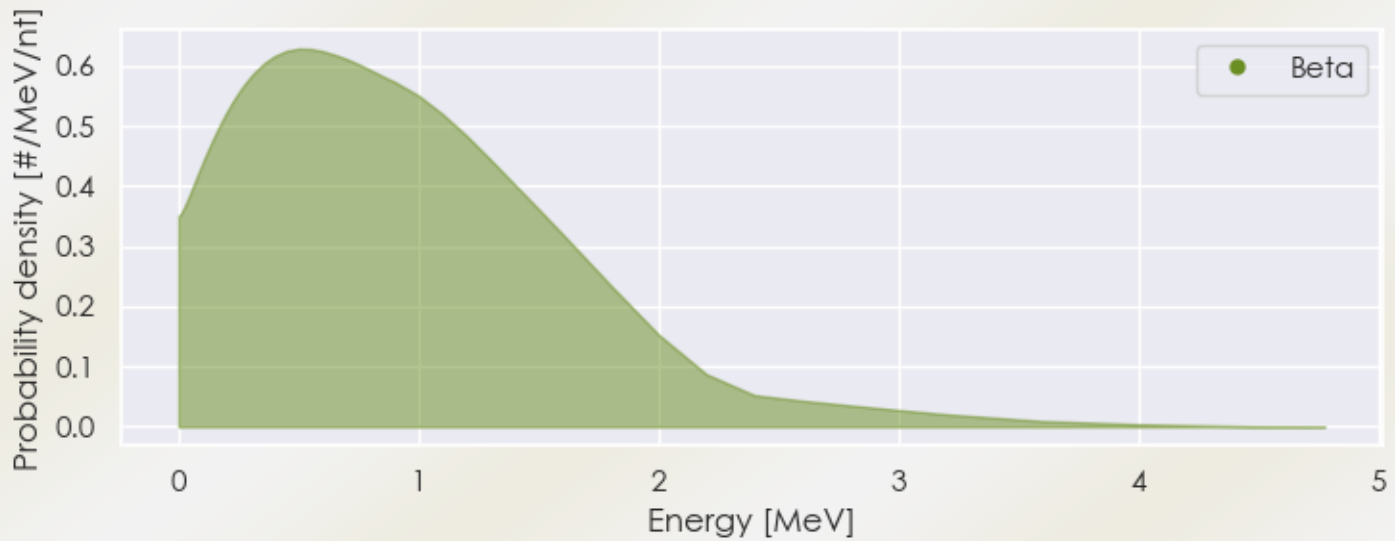
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Ga-74 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/Ga-74 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/Ga-74 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.21069e-05	1.462e-02	X-ray
4.84900e-01	1.065e-02	Gamma
4.92990e-01	4.957e-02	Gamma
5.95870e-01	9.180e-01	Gamma
6.04210e-01	2.846e-02	Gamma
6.08400e-01	1.441e-01	Gamma
8.67830e-01	8.721e-02	Gamma
9.42470e-01	1.267e-02	Gamma
9.60990e-01	1.616e-02	Gamma
1.10132e+00	5.416e-02	Gamma

1.20422e+00	7.619e-02	Gamma
1.33210e+00	1.744e-02	Gamma
1.33718e+00	1.606e-02	Gamma
1.33718e+00	1.606e-02	Gamma
1.44338e+00	3.672e-02	Gamma
1.44338e+00	3.690e-02	Gamma
1.48937e+00	2.883e-02	Gamma
1.74490e+00	4.820e-02	Gamma
1.82975e+00	1.900e-02	Gamma
1.94063e+00	5.416e-02	Gamma
2.01445e+00	1.294e-02	Gamma
2.25706e+00	1.753e-02	Gamma
2.27905e+00	2.341e-02	Gamma
2.35361e+00	4.471e-01	Gamma
2.58007e+00	1.276e-02	Gamma
2.69096e+00	1.001e-02	Gamma
2.97092e+00	1.083e-02	Gamma
2.26741e-01	1.357e-02	Beta
3.16355e-01	5.915e-02	Beta
4.34006e-01	1.605e-02	Beta
5.33112e-01	2.319e-02	Beta
5.44920e-01	1.694e-02	Beta
5.69419e-01	2.091e-02	Beta
5.99472e-01	2.388e-02	Beta
6.48086e-01	2.517e-02	Beta
6.59058e-01	1.149e-02	Beta
7.59081e-01	1.417e-02	Beta
8.99440e-01	1.942e-02	Beta
9.15939e-01	2.982e-02	Beta
1.00552e+00	4.954e-01	Beta
1.12633e+00	2.873e-02	Beta
1.60250e+00	5.747e-02	Beta
1.71491e+00	2.279e-02	Beta
1.84008e+00	1.189e-02	Beta
2.13434e+00	4.657e-02	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