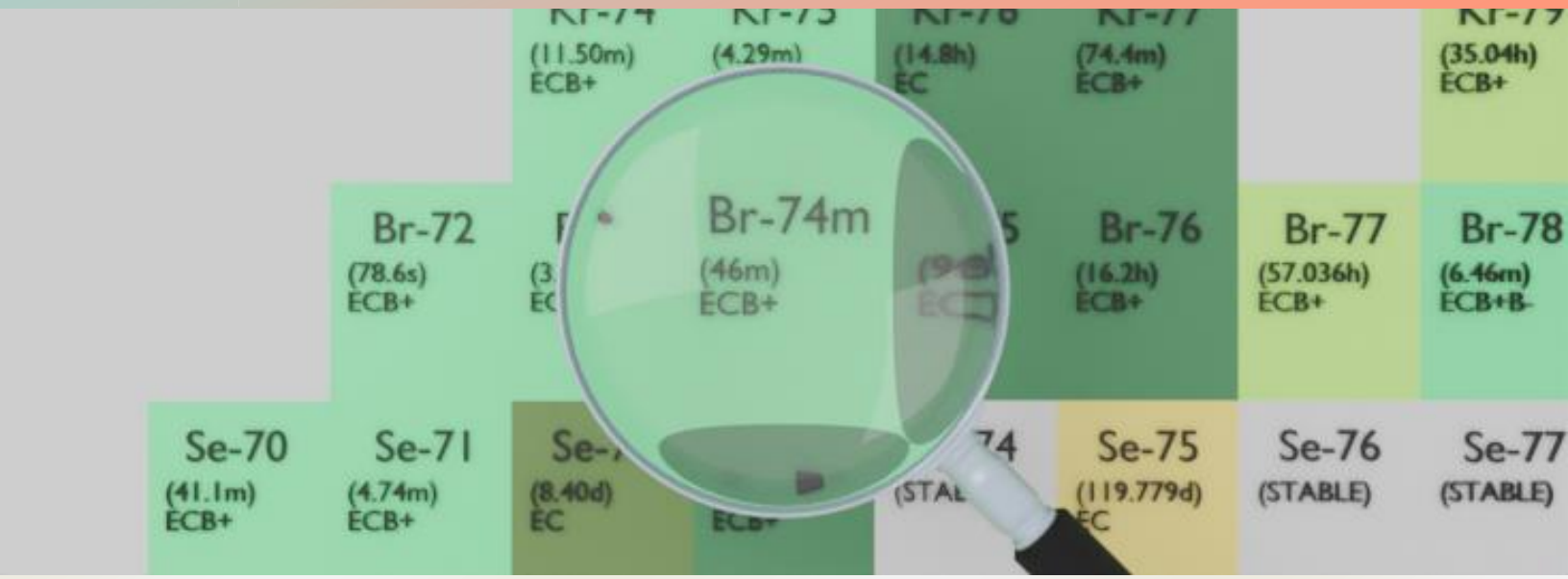


BROMINE-74M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Br-74m
Atomic number (Z): 35
Mass number (A): 74
Neutron number (N): 39

RADIOACTIVE DECAY

Decay modes: β+, Electron capture
Half-life: 46.0 [m]
Decay constant: 2.5114e-04 [1/s]
Daughters: Se-74 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

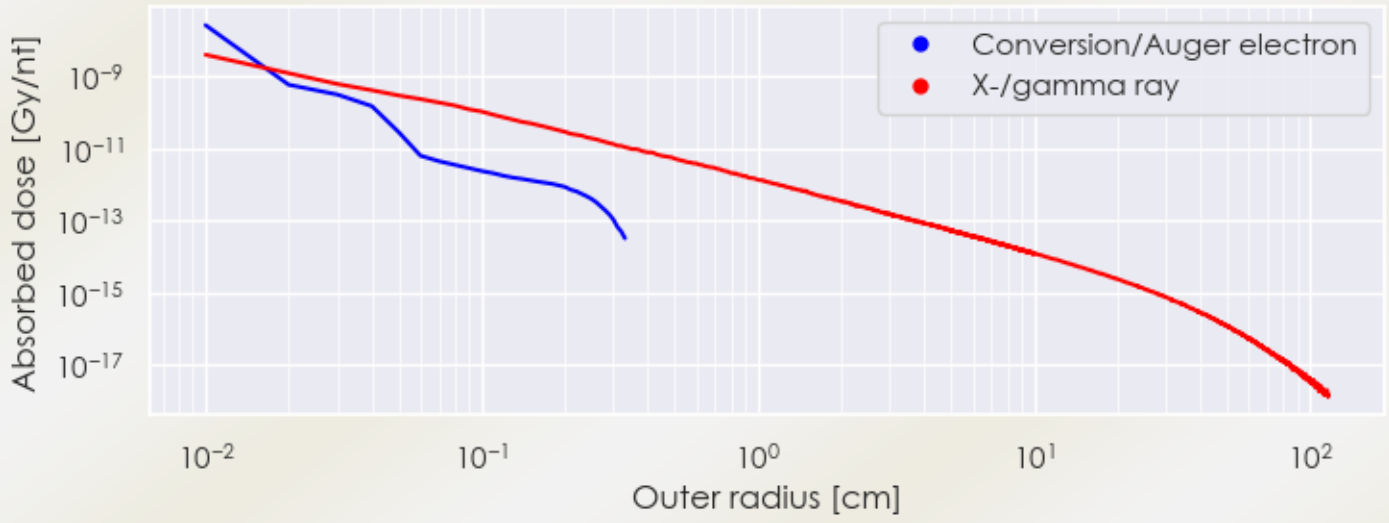
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 1.27473 [MeV]
Mean photon energy: 4.14665 [MeV]
Air kerma rate constant, Γ_{10}*:* 1.061e-16 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air}*:* 1.400e-16 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}*:* 2.042e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}*:* 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 2.042e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 6.644e-13 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

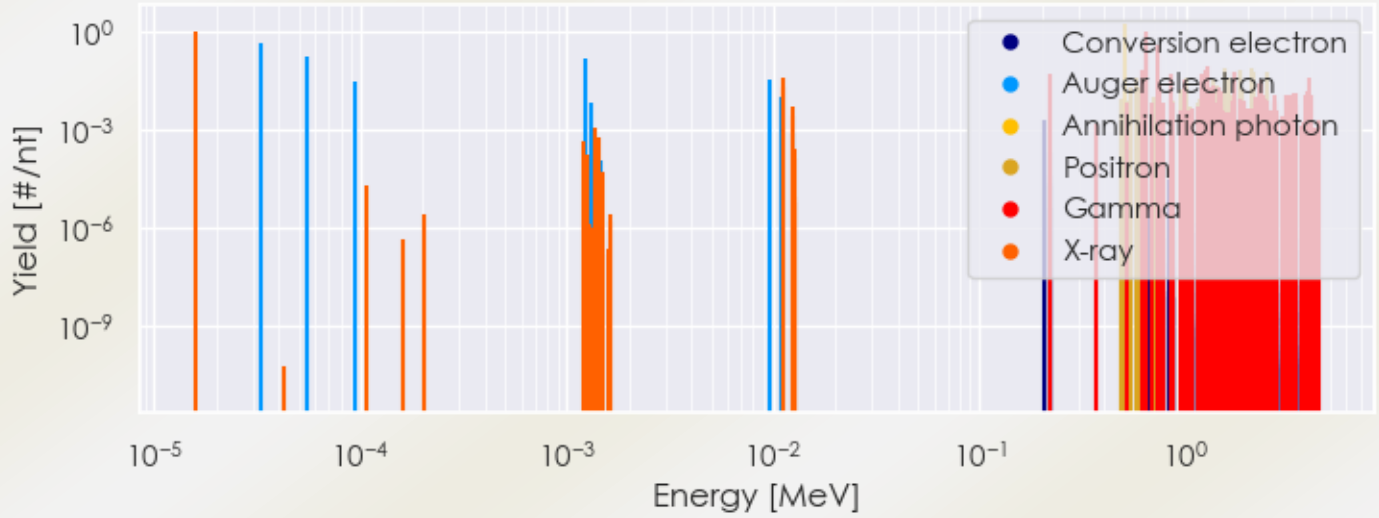
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



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

SUMMARY SPECTRA (PLOT)

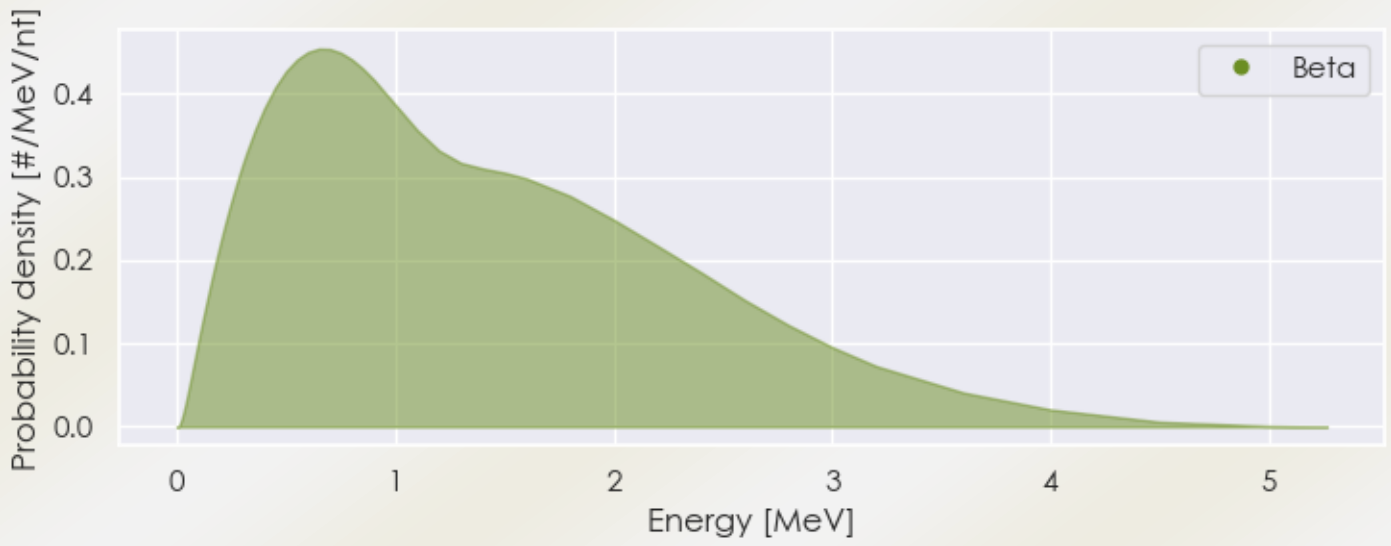
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



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

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
1.58643e-05	9.661e-01	X-ray
1.11378e-02	1.964e-02	X-ray
1.11804e-02	3.799e-02	X-ray
2.19000e-01	5.016e-02	Gamma
5.11000e-01	1.754e+00	Annihilation photon
6.15150e-01	6.658e-02	Gamma
6.34300e-01	1.642e-01	Gamma
6.34800e-01	9.120e-01	Gamma
7.28300e-01	3.557e-01	Gamma
7.44700e-01	2.462e-02	Gamma

8.38960e-01	5.107e-02	Gamma
9.84700e-01	3.374e-02	Gamma
1.20050e+00	5.198e-02	Gamma
1.24950e+00	6.658e-02	Gamma
1.26910e+00	8.846e-02	Gamma
1.29460e+00	2.006e-02	Gamma
1.36660e+00	2.280e-02	Gamma
1.45570e+00	1.824e-02	Gamma
1.47310e+00	1.459e-02	Gamma
1.71480e+00	6.110e-02	Gamma
1.71480e+00	6.110e-02	Gamma
2.18340e+00	1.003e-02	Gamma
2.28380e+00	2.462e-02	Gamma
2.31210e+00	3.374e-02	Gamma
2.38830e+00	1.186e-02	Gamma
2.70180e+00	1.186e-02	Gamma
3.04040e+00	1.094e-02	Gamma
3.04040e+00	1.094e-02	Gamma
3.15330e+00	1.003e-02	Gamma
3.17310e+00	1.094e-02	Gamma
3.29770e+00	1.368e-02	Gamma
3.33630e+00	1.186e-02	Gamma
3.43080e+00	1.277e-02	Gamma
3.80670e+00	1.094e-02	Gamma
3.86180e+00	1.459e-02	Gamma
3.95150e+00	1.094e-02	Gamma
3.95760e+00	3.739e-02	Gamma
4.02710e+00	1.094e-02	Gamma
5.38950e-01	1.969e-02	Positron
5.70128e-01	3.741e-02	Positron
5.72784e-01	1.772e-02	Positron
6.04113e-01	2.067e-02	Positron
6.13072e-01	2.363e-02	Positron
6.37604e-01	2.166e-02	Positron
9.44132e-01	1.674e-02	Positron
1.01241e+00	3.741e-02	Positron
1.23001e+00	2.264e-02	Positron
1.26865e+00	2.560e-02	Positron

1.27162e+00	1.083e-02	Positron
1.36188e+00	3.446e-02	Positron
1.40859e+00	2.166e-02	Positron
1.52796e+00	7.679e-02	Positron
1.61466e+00	3.938e-02	Positron
1.64512e+00	1.122e-02	Positron
1.73032e+00	4.824e-02	Positron
1.83766e+00	6.596e-02	Positron
1.86996e+00	1.772e-02	Positron
2.08834e+00	7.876e-02	Positron
2.14097e+00	5.907e-02	Positron
2.44464e+00	5.907e-02	Positron
3.25136e-05	4.461e-01	Auger electron
5.45920e-05	1.650e-01	Auger electron
9.46442e-05	2.892e-02	Auger electron
1.23735e-03	1.422e-01	Auger electron
9.62662e-03	3.536e-02	Auger electron
1.09573e-02	1.042e-02	Auger 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