



BROMINE-82M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Br-82m
Atomic number (Z): 35
Mass number (A): 82
Neutron number (N): 47

RADIOACTIVE DECAY

Decay modes: β^- , Internal transition
Half-life: 6.13 [m]
Decay constant: 1.8846×10^{-3} [1/s]
Daughters: Br-82 (97.6%), Kr-82 (2.4%)
Radioactive daughters: Br-82

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.07036 [MeV]
Mean photon energy: 0.00809 [MeV]
Air kerma rate constant, Γ_{10} : 1.749×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 1.749×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.127×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

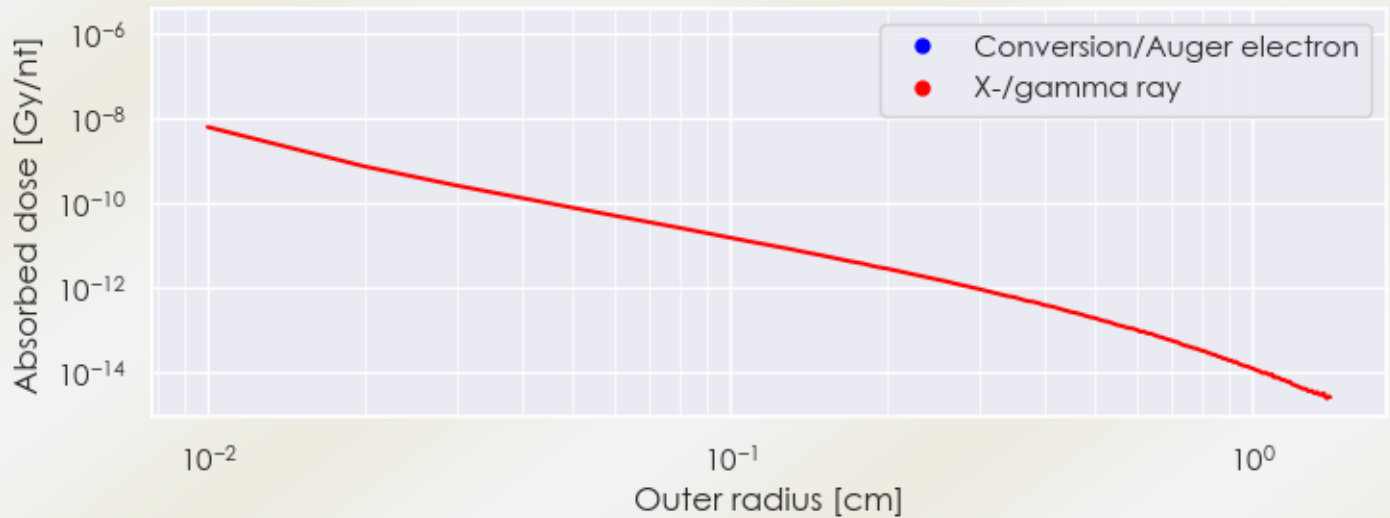
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta+, e^-}$: 1.127×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.296×10^{-15} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

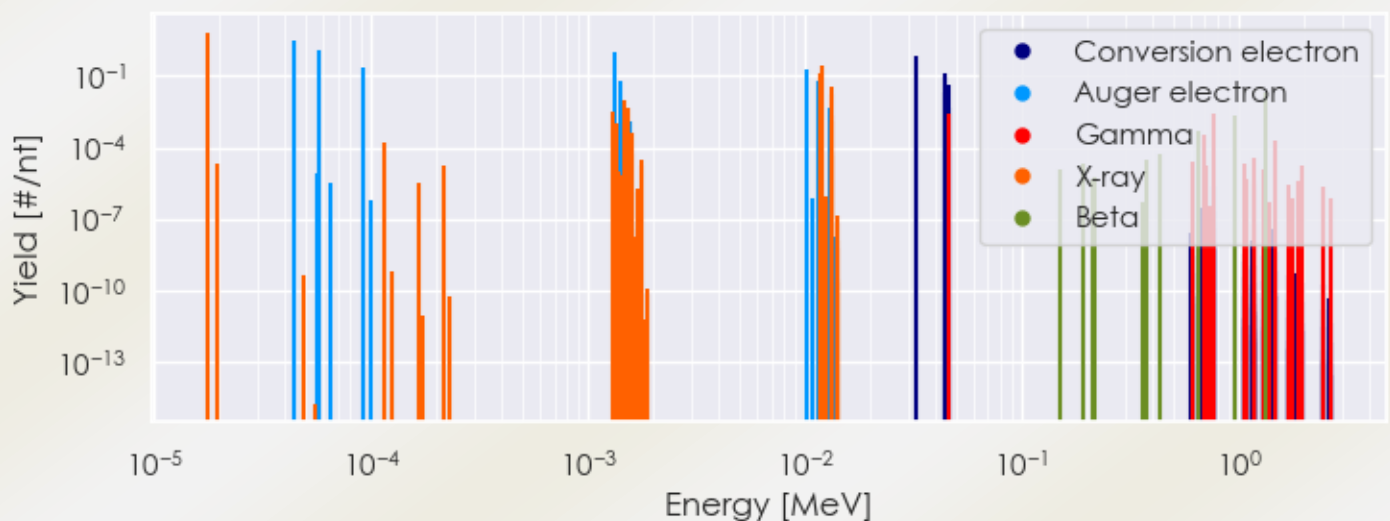
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Br-82m DPK.csv

SUMMARY SPECTRA (PLOT)

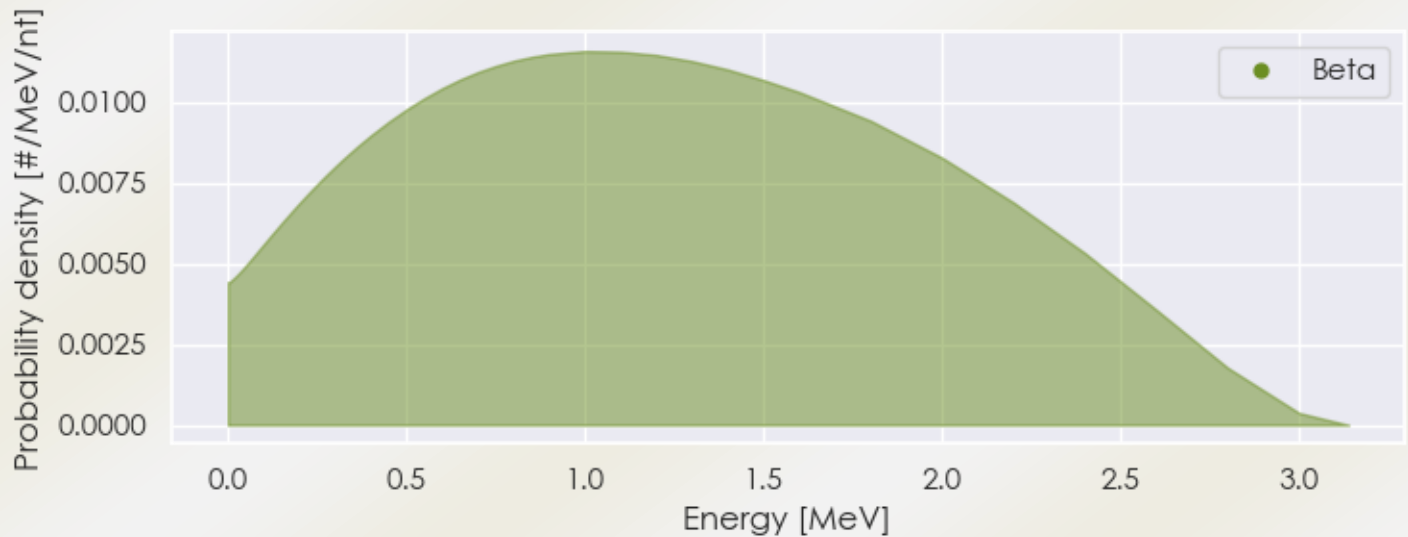
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Br-82m 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-82m 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-82m Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.75909e-05	6.670e+00	X-ray
1.47515e-03	1.025e-02	X-ray
1.18329e-02	1.261e-01	X-ray
1.18814e-02	2.435e-01	X-ray
1.32432e-02	1.739e-02	X-ray
1.32502e-02	3.394e-02	X-ray
1.34134e+00	2.115e-02	Beta
4.38648e-05	3.002e+00	Auger electron
5.77398e-05	1.164e+00	Auger electron
9.17935e-05	2.162e-01	Auger electron

1.32050e-03	9.897e-01	Auger electron
1.41177e-03	5.880e-02	Auger electron
1.02029e-02	2.017e-01	Auger electron
1.16354e-02	6.172e-02	Auger electron
3.25140e-02	6.926e-01	Conversion electron
4.41798e-02	1.263e-01	Conversion electron
4.43469e-02	1.983e-02	Conversion electron
4.43954e-02	8.994e-02	Conversion electron
4.57642e-02	4.081e-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