



Br-77 (35.04h) CB+	Br-78 (35.46m) CB+B-	Br-79 (STABLE)	Br-80 (17.68m) B-ECB+	Br-81 (2.29E+5y) EC	Br-82 (35.30h) B-	Br-83 (10.756y) B-	Br-84 (31.80m) B-	Br-85 (2.90m) B-	Br-86 (76.3m) B-
Se-77 (STABLE)	Se-78 (STABLE)	Se-79 (2.95E+5y) B-	Se-80 (STABLE)	Se-81 (STABLE)	Se-82 (STABLE)	Se-83 (22.3m) B-	Se-84 (3.1m) B-	Se-85 (STABLE)	Se-86 (STABLE)

BROMINE-82

SUMMARY DATA

GENERAL

CLASSIFICATION

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

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 35.3 [h]
Decay constant: $5.4544\text{e-}06$ [1/s]
Daughters: Kr-82 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.14543 [MeV]
Mean photon energy: 2.63892 [MeV]
Air kerma rate constant, Γ_{10} : $9.544\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : $9.544\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $2.330\text{e-}14$ [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

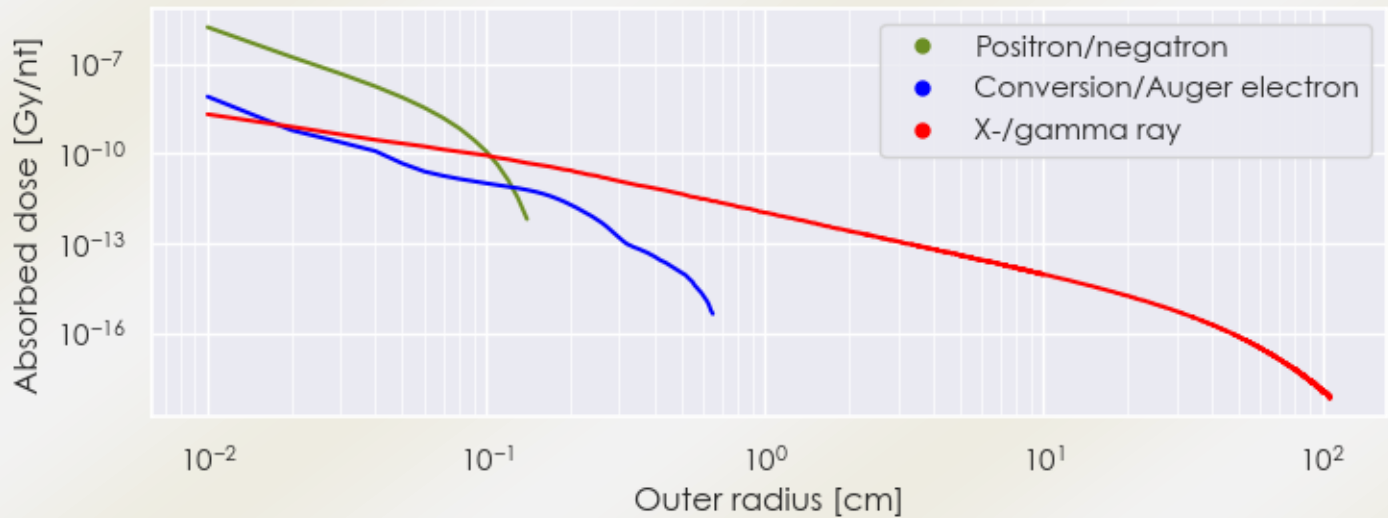
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-, \beta+, e-}$: 2.330×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 4.228×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

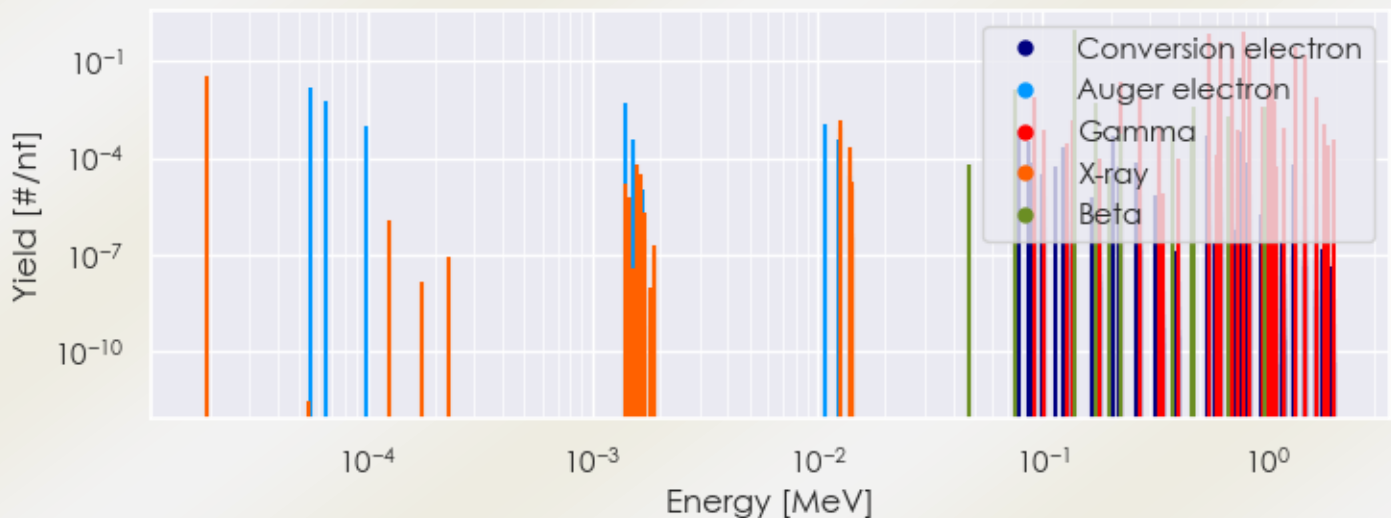
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



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

SUMMARY SPECTRA (PLOT)

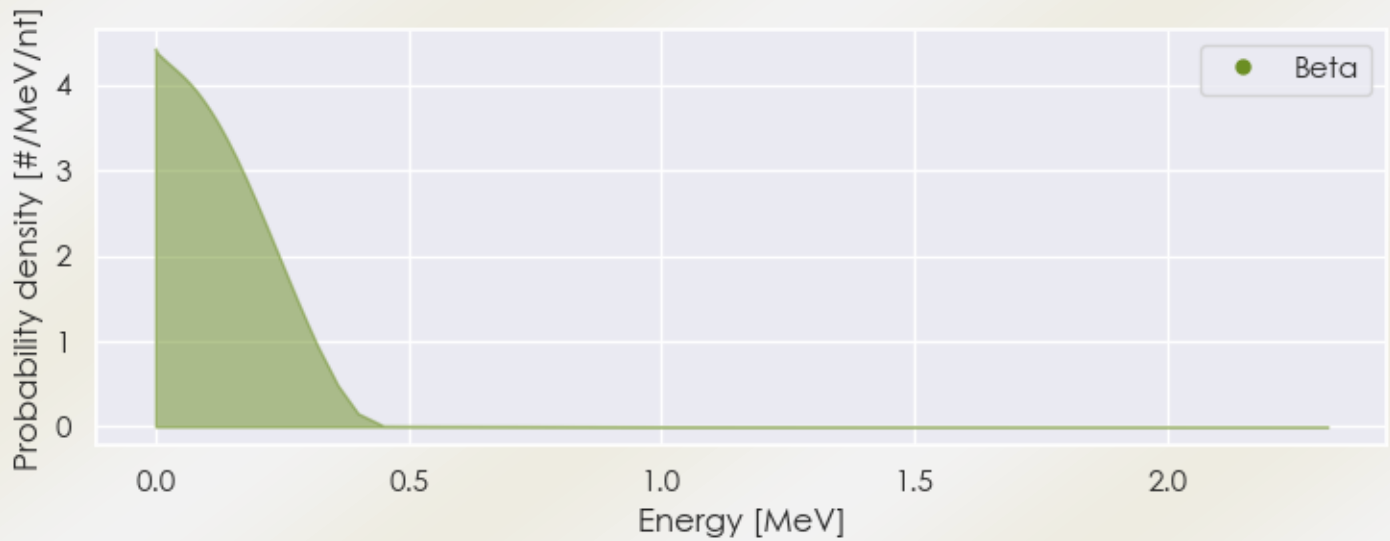
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



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

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.93801e-05	3.284e-02	X-ray
2.21480e-01	2.264e-02	Gamma
5.54348e-01	7.076e-01	Gamma
6.06370e-01	1.211e-02	Gamma
6.19106e-01	4.344e-01	Gamma
6.98374e-01	2.849e-01	Gamma
7.76517e-01	8.354e-01	Gamma
8.27828e-01	2.403e-01	Gamma
1.00759e+00	1.271e-02	Gamma
1.04400e+00	2.723e-01	Gamma

1.31747e+00	2.648e-01	Gamma
1.47488e+00	1.632e-01	Gamma
7.61894e-02	1.281e-02	Beta
1.37756e-01	9.704e-01	Beta
5.62718e-05	1.436e-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/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6