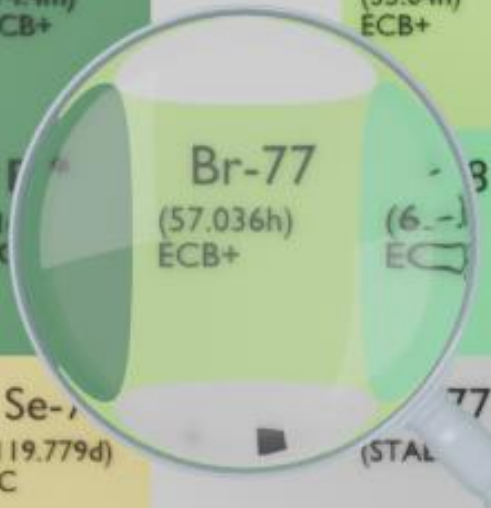




Br-73 (3.4m) EC+	Br-74 (25.4m) ECB+	Br-75 (96.7m) ECB+	Br-76 (14.8h) EC	Br-77 (57.036h) ECB+	Br-78 (6.8m) EC	Br-79 (STABLE)	Br-80 (17.68m) B-ECB+	Br-81 (2.29E+5y) EC	Br-82 (STABLE)
Se-72 (3.40d) EC	Se-73 (7.15h) ECB+	Se-74 (STABLE)	Se-75 (119.779d) EC	Se-76 (STABLE)	Se-77 (STABLE)	Se-78 (STABLE)	Se-79 (2.95E+5y) B-	Se-80 (STABLE)	Se-81 (STABLE)

BROMINE-77

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Br-77
Atomic number (Z): 35
Mass number (A): 77
Neutron number (N): 42

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 57.04 [h]
Decay constant: $3.3758\text{e-}06$ [1/s]
Daughters: Se-77 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.00937 [MeV]
Mean photon energy: 0.3209 [MeV]
Air kerma rate constant, Γ_{10} : $3.554\text{e-}17$ [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : $3.582\text{e-}17$ [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $1.501\text{e-}15$ [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 1.501×10^{-15} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 5.141×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

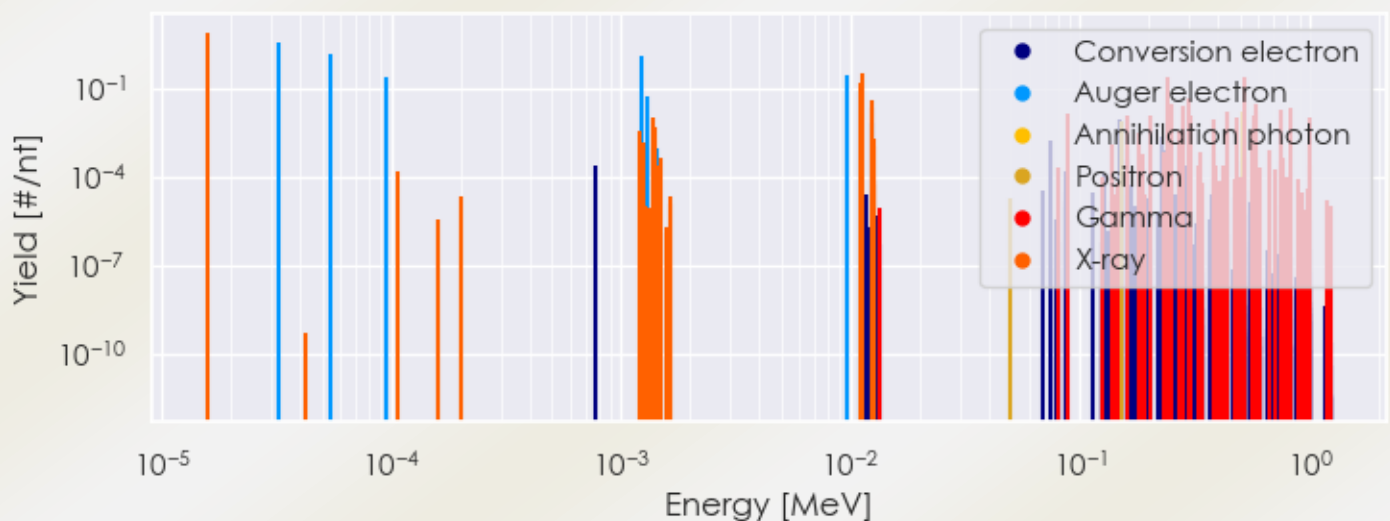
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Br-77 DPK.csv

SUMMARY SPECTRA (PLOT)

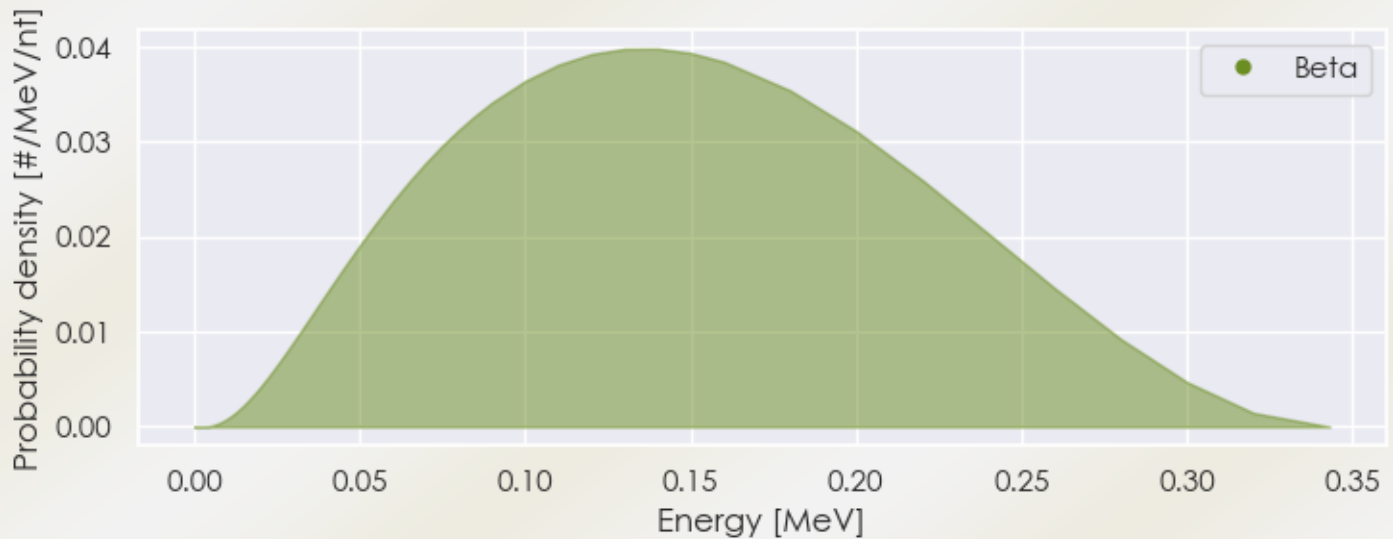
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Br-77 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-77 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-77 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.58643e-05	7.623e+00	X-ray
1.11378e-02	1.546e-01	X-ray
1.11804e-02	2.990e-01	X-ray
1.24492e-02	2.088e-02	X-ray
1.24553e-02	4.075e-02	X-ray
8.75900e-02	1.400e-02	Gamma
1.61830e-01	1.102e-02	Gamma
2.00400e-01	1.213e-02	Gamma
2.38980e-01	2.310e-01	Gamma
2.49770e-01	2.980e-02	Gamma

2.81650e-01	2.287e-02	Gamma
2.97230e-01	4.158e-02	Gamma
3.03760e-01	1.178e-02	Gamma
4.39470e-01	1.564e-02	Gamma
4.84570e-01	1.000e-02	Gamma
5.11000e-01	1.482e-02	Annihilation photon
5.20690e-01	2.241e-01	Gamma
5.74640e-01	1.187e-02	Gamma
5.78910e-01	2.957e-02	Gamma
5.85480e-01	1.568e-02	Gamma
7.55350e-01	1.668e-02	Gamma
8.17790e-01	2.079e-02	Gamma
3.25138e-05	3.520e+00	Auger electron
5.45963e-05	1.302e+00	Auger electron
9.46913e-05	2.292e-01	Auger electron
1.23738e-03	1.122e+00	Auger electron
1.31569e-03	5.278e-02	Auger electron
9.62662e-03	2.784e-01	Auger electron
1.09573e-02	8.206e-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