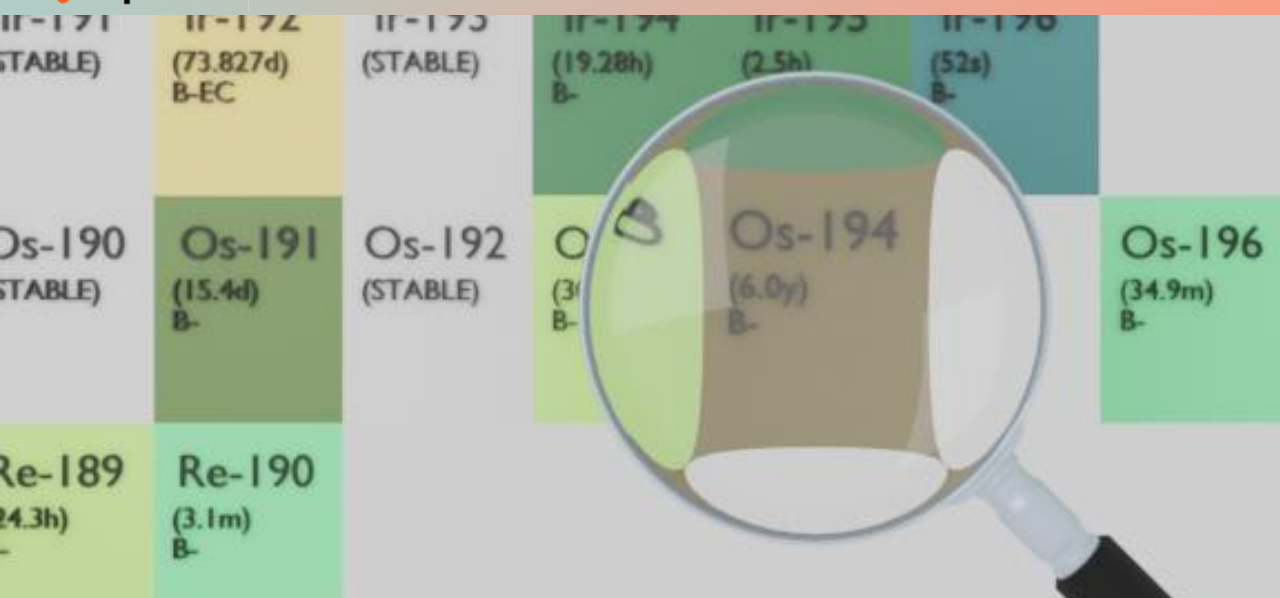




OSMIUM-194

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Os-194
Atomic number (Z): 76
Mass number (A): 194
Neutron number (N): 118

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 6.0 [y]
Decay constant: 3.6608×10^{-9} [1/s]
Daughters: Ir-194 (100.0%)
Radioactive daughters: Ir-194

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.04533 [MeV]
Mean photon energy: 0.00451 [MeV]
Air kerma rate constant, Γ_{10} : 4.203×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 4.203×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 7.263×10^{-15} [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, $\Delta_{\beta-\beta+,e-}$: $7.263\text{e-}15$ [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : $7.226\text{e-}16$ [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

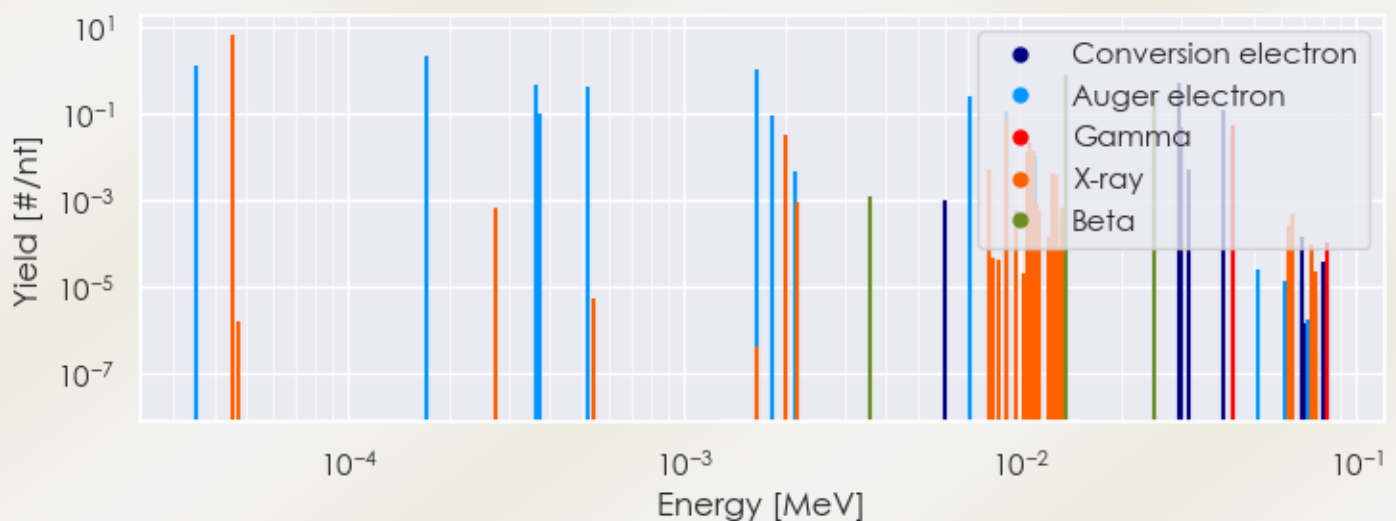
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Os-194 DPK.csv

SUMMARY SPECTRA (PLOT)

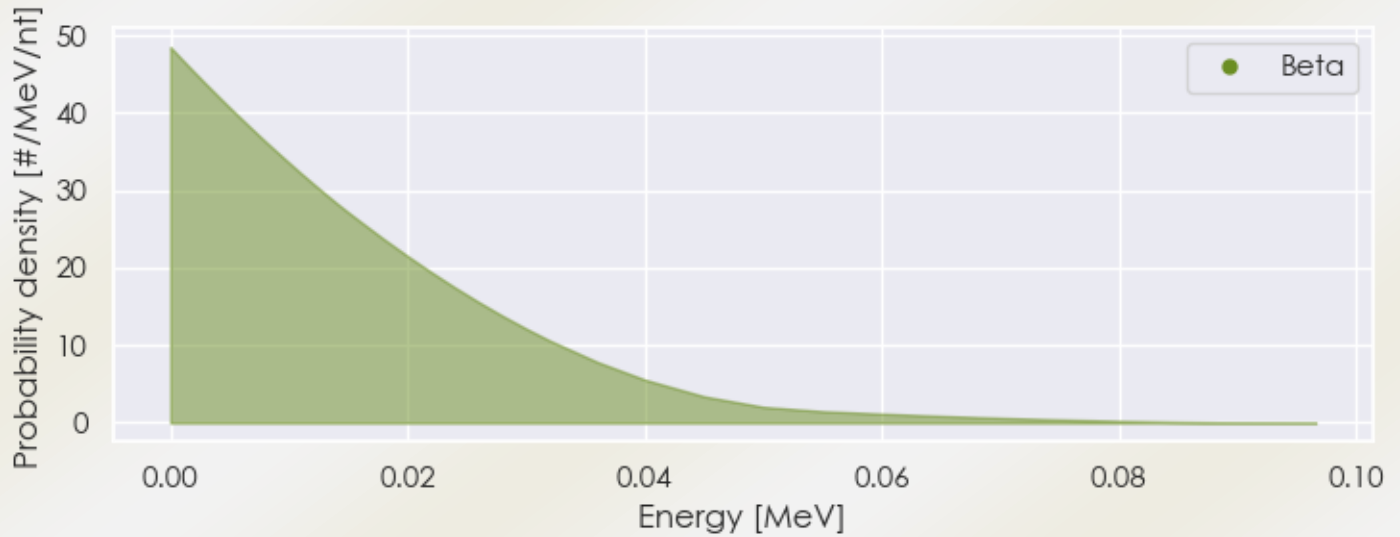
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Os-194 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/Os-194 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/Os-194 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
4.51849e-05	6.662e+00	X-ray
1.99395e-03	3.095e-02	X-ray
9.16924e-03	7.746e-02	X-ray
1.04958e-02	1.253e-02	X-ray
1.07358e-02	2.228e-02	X-ray
1.08570e-02	1.495e-02	X-ray
1.09194e-02	1.418e-02	X-ray
4.31000e-02	5.400e-02	Gamma
1.36559e-02	7.591e-01	Beta
2.51324e-02	2.397e-01	Beta

3.54411e-05	1.291e+00	Auger electron
1.70972e-04	2.171e+00	Auger electron
3.60906e-04	4.646e-01	Auger electron
3.70390e-04	1.005e-01	Auger electron
5.16253e-04	3.979e-01	Auger electron
1.63953e-03	1.045e+00	Auger electron
1.83820e-03	9.144e-02	Auger electron
7.12259e-03	2.614e-01	Auger electron
9.11161e-03	1.062e-01	Auger electron
1.11425e-02	1.061e-02	Auger electron
2.97040e-02	4.983e-01	Conversion electron
3.02410e-02	4.762e-02	Conversion electron
4.05610e-02	1.272e-01	Conversion electron
4.31000e-02	3.883e-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/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6