



IRIDIUM-185

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ir-185
Atomic number (Z): 77
Mass number (A): 185
Neutron number (N): 108

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 14.4 [h]
Decay constant: 1.3371×10^{-5} [1/s]
Daughters: Os-185 (100.0%)
Radioactive daughters: Os-185

DOSIMETRIC CONSTANTS

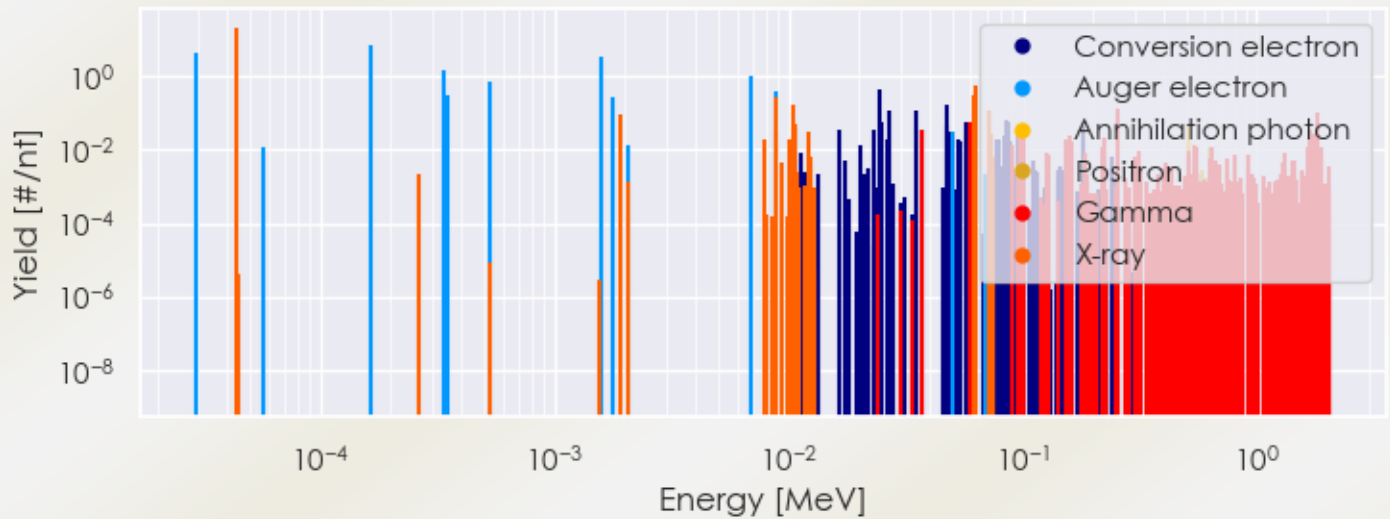
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.12278 [MeV]
Mean photon energy: 0.8581 [MeV]
Air kerma rate constant, Γ_{10} : 4.409×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 4.500×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.967×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000×10^0 [Gy $\cdot$ kg/Bq $\cdot$ s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 1.967×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.375×10^{-13} [Gy·kg/Bq·s]

SUMMARY SPECTRA (PLOT)

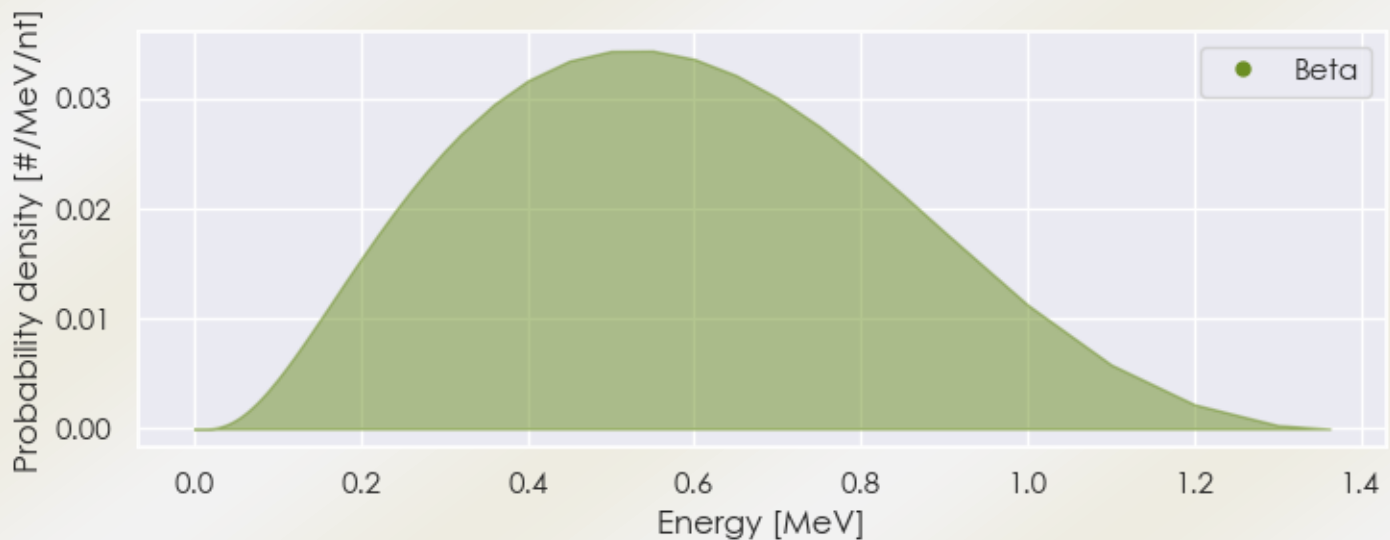
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Ir-185 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/Ir-185 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/Ir-185 Summary Spectrum.csv

Energy [MeV]	Yield [#/(nt)] if > 0.01	Radiation type
4.39631e-05	2.213e+01	X-ray
1.92066e-03	9.566e-02	X-ray
7.84700e-03	1.837e-02	X-ray
8.83249e-03	3.160e-02	X-ray
8.90609e-03	2.787e-01	X-ray
1.01598e-02	1.945e-02	X-ray
1.03795e-02	1.611e-01	X-ray
1.04983e-02	2.360e-02	X-ray
1.05947e-02	5.047e-02	X-ray
1.21269e-02	3.070e-02	X-ray
3.74000e-02	3.430e-02	Gamma
6.00000e-02	5.740e-02	Gamma
6.16420e-02	3.135e-01	X-ray
6.31890e-02	5.401e-01	X-ray
7.12758e-02	5.863e-02	X-ray
7.16144e-02	1.133e-01	X-ray
7.35200e-02	1.350e-02	X-ray
7.35997e-02	2.625e-02	X-ray
9.04500e-02	1.302e-02	Gamma
9.74000e-02	4.200e-02	Gamma
1.00750e-01	2.450e-02	Gamma
1.53500e-01	2.030e-02	Gamma
1.58200e-01	2.380e-02	Gamma
1.60700e-01	1.750e-02	Gamma
2.20400e-01	1.169e-02	Gamma
2.22300e-01	1.673e-02	Gamma
2.23800e-01	2.100e-02	Gamma
2.54200e-01	1.330e-01	Gamma

5.11000e-01	4.738e-02	Annihilation photon
5.39200e-01	1.302e-02	Gamma
5.50400e-01	1.169e-02	Gamma
6.46200e-01	1.239e-02	Gamma
1.64180e+00	1.162e-02	Gamma
1.66830e+00	3.640e-02	Gamma
1.73220e+00	2.758e-02	Gamma
1.73840e+00	2.408e-02	Gamma
1.82880e+00	1.008e-01	Gamma
1.87000e+00	1.204e-02	Gamma
6.23901e-01	1.140e-02	Positron
2.96202e-05	4.335e+00	Auger electron
5.69654e-05	1.237e-02	Auger electron
1.63601e-04	7.326e+00	Auger electron
3.37159e-04	1.487e+00	Auger electron
3.47121e-04	2.996e-01	Auger electron
5.31649e-04	7.284e-01	Auger electron
1.58080e-03	3.493e+00	Auger electron
1.77714e-03	2.725e-01	Auger electron
2.06622e-03	1.412e-02	Auger electron
6.90519e-03	1.006e+00	Auger electron
8.80888e-03	4.000e-01	Auger electron
1.07457e-02	3.927e-02	Auger electron
1.63840e-02	3.399e-02	Conversion electron
2.04340e-02	1.415e-02	Conversion electron
2.33340e-02	3.440e-02	Conversion electron
2.44500e-02	4.376e-01	Conversion electron
2.49760e-02	5.440e-02	Conversion electron
2.65230e-02	1.913e-02	Conversion electron
2.66840e-02	1.124e-01	Conversion electron
3.49483e-02	1.179e-01	Conversion electron
3.74000e-02	3.549e-02	Conversion electron
4.70500e-02	1.769e-01	Conversion electron
4.75760e-02	4.430e-02	Conversion electron
4.91230e-02	2.989e-02	Conversion electron
4.99348e-02	3.096e-02	Auger electron
5.28340e-02	1.842e-02	Conversion electron
5.38340e-02	1.684e-02	Conversion electron

5.75483e-02	5.927e-02	Conversion electron
5.97656e-02	1.641e-02	Auger electron
6.00000e-02	1.763e-02	Conversion electron
7.80260e-02	2.057e-02	Conversion electron
7.94340e-02	2.038e-02	Conversion electron
7.95730e-02	1.824e-02	Conversion electron
8.41340e-02	2.361e-02	Conversion electron
8.49760e-02	6.687e-02	Conversion electron
8.65230e-02	5.883e-02	Conversion electron
8.78000e-02	1.651e-02	Conversion electron
8.79983e-02	1.112e-02	Conversion electron
9.49483e-02	3.338e-02	Conversion electron
1.80134e-01	4.393e-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