



IRIDIUM-195

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ir-195
Atomic number (Z): 77
Mass number (A): 195
Neutron number (N): 118

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 2.5 [h]
Decay constant: 7.7016×10^{-5} [1/s]
Daughters: Pt-195 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.38034 [MeV]
Mean photon energy: 0.05932 [MeV]
Air kerma rate constant, Γ_{10} : 9.450×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 9.450×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 6.094×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

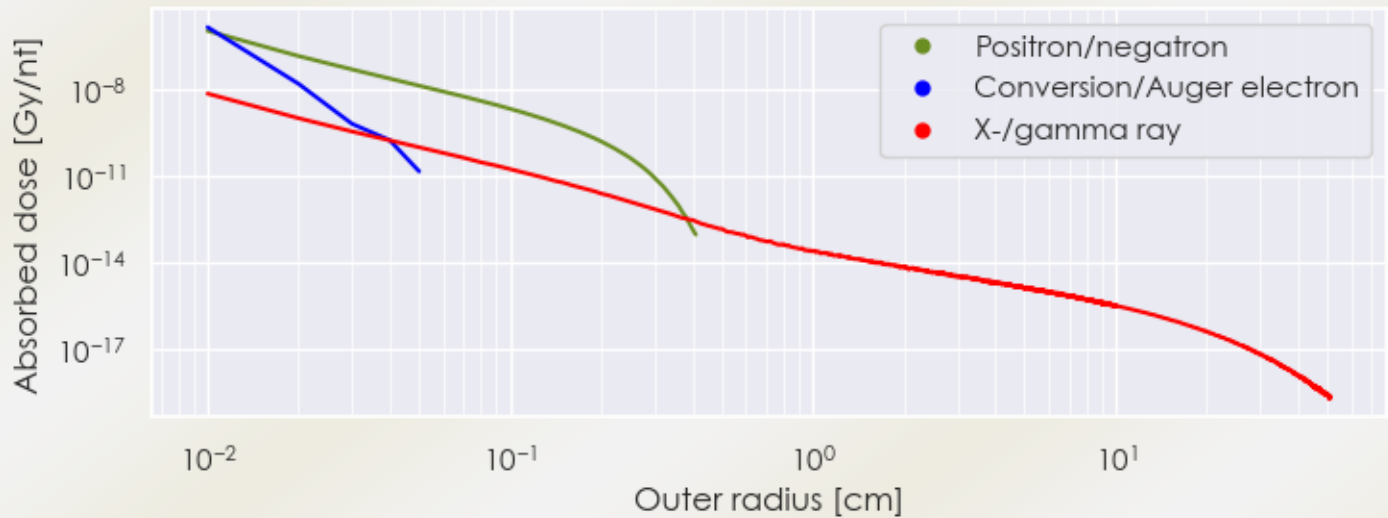
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 6.094×10^{-14} [Gy · kg/Bq · s]

Equilibrium dose constant for photons, Δ_p : 9.504×10^{-15} [Gy · kg/Bq · s]

DOSE POINT KERNELS (PLOT)

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

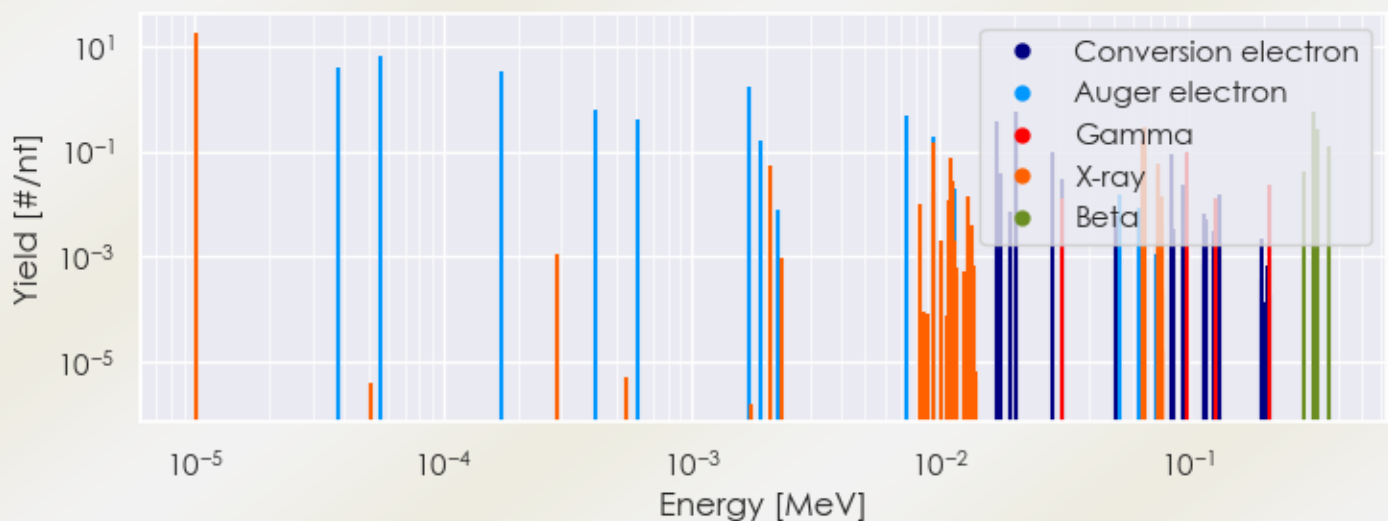
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Ir-195 DPK.csv

SUMMARY SPECTRA (PLOT)

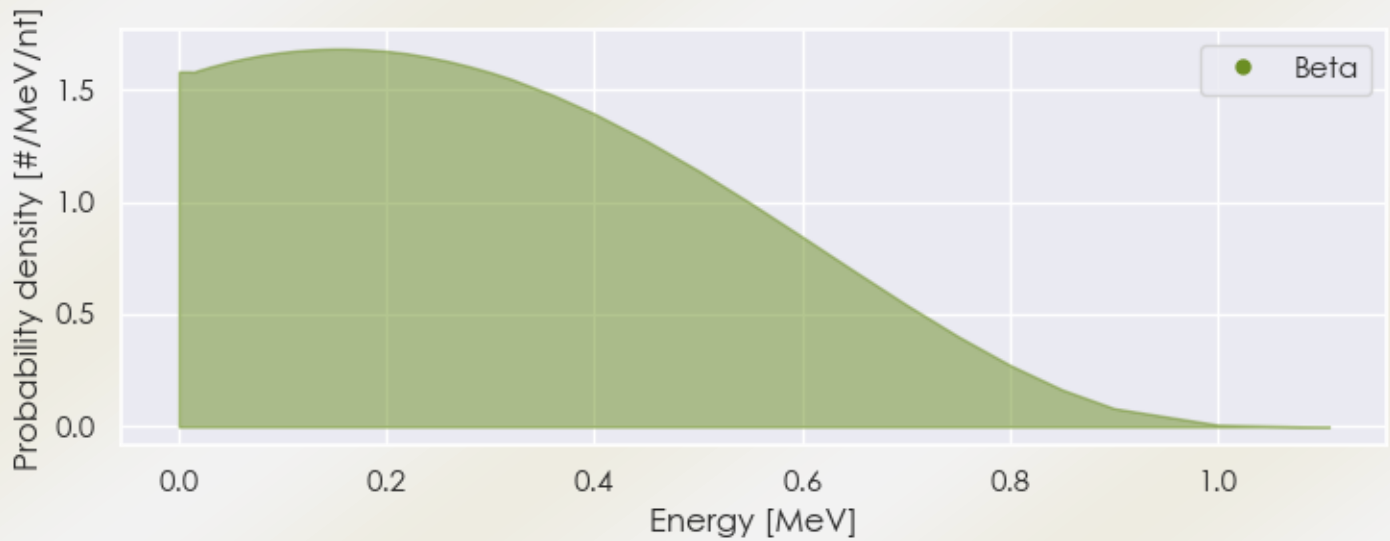
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Ir-195 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-195 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-195 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.01423e-05	1.860e+01	X-ray
2.06878e-03	5.237e-02	X-ray
9.35458e-03	1.654e-02	X-ray
9.43804e-03	1.458e-01	X-ray
1.08400e-02	1.225e-02	X-ray
1.11006e-02	7.388e-02	X-ray
1.12251e-02	1.438e-02	X-ray
1.12510e-02	2.696e-02	X-ray
1.29799e-02	1.442e-02	X-ray
3.08500e-02	1.326e-02	Gamma

6.53020e-02	1.654e-01	X-ray
6.70480e-02	2.826e-01	X-ray
7.55931e-02	3.095e-02	X-ray
7.59780e-02	5.986e-02	X-ray
7.81028e-02	1.407e-02	X-ray
9.88500e-02	9.729e-02	Gamma
1.29700e-01	1.246e-02	Gamma
2.11300e-01	2.396e-02	Gamma
2.90998e-01	4.000e-02	Beta
3.22058e-01	5.700e-01	Beta
3.33926e-01	2.600e-01	Beta
3.72379e-01	1.300e-01	Beta
3.74751e-05	3.973e+00	Auger electron
5.61969e-05	6.387e+00	Auger electron
1.71278e-04	3.354e+00	Auger electron
4.08559e-04	6.282e-01	Auger electron
6.05469e-04	3.935e-01	Auger electron
1.69485e-03	1.648e+00	Auger electron
1.90486e-03	1.565e-01	Auger electron
7.28191e-03	4.622e-01	Auger electron
9.33792e-03	1.908e-01	Auger electron
1.14278e-02	1.923e-02	Auger electron
1.69880e-02	3.605e-01	Conversion electron
1.75370e-02	3.765e-02	Conversion electron
2.02350e-02	5.712e-01	Conversion electron
2.82131e-02	9.407e-02	Conversion electron
3.08500e-02	2.897e-02	Conversion electron
5.27836e-02	1.545e-02	Auger electron
8.49880e-02	8.593e-02	Conversion electron
8.55370e-02	1.098e-02	Conversion electron
9.62131e-02	2.338e-02	Conversion electron
1.32685e-01	1.493e-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