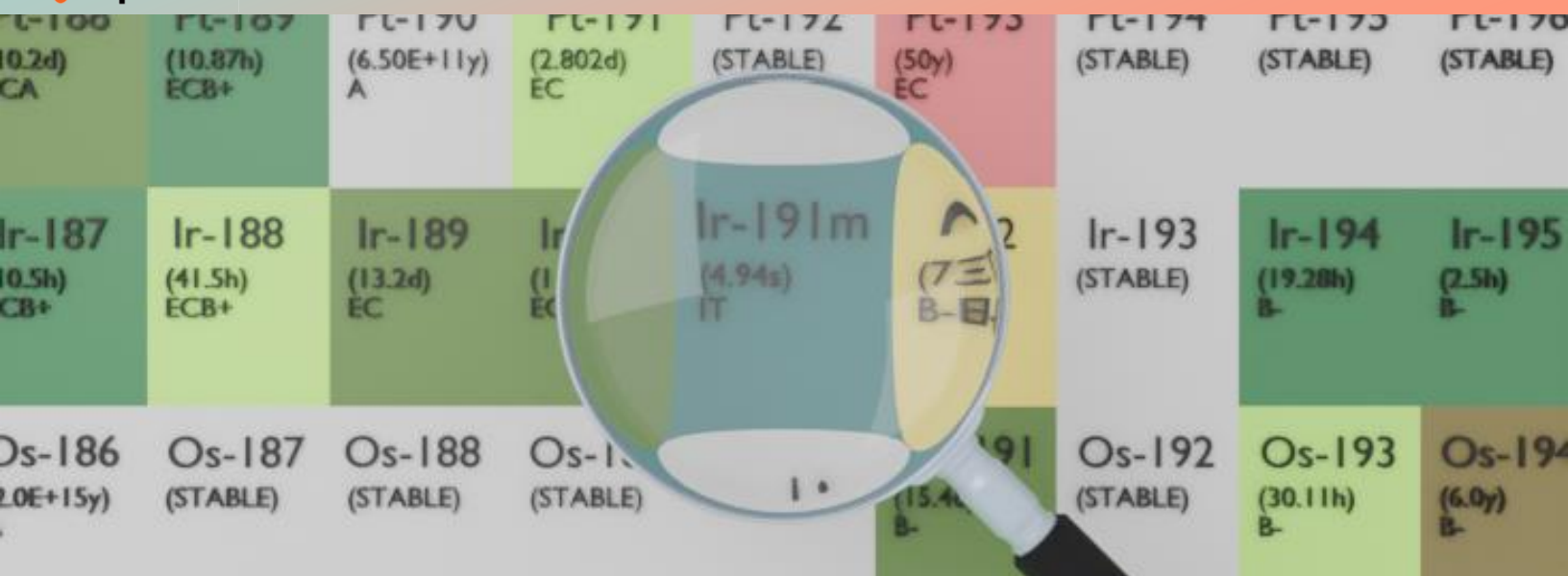




IRIDIUM-191M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ir-191m
Atomic number (Z): 77
Mass number (A): 191
Neutron number (N): 114

RADIOACTIVE DECAY

Decay modes: Internal transition
Half-life: 4.94 [s]
Decay constant: 1.4031×10^{-1} [1/s]
Daughters: Ir-191 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.09707 [MeV]
Mean photon energy: 0.07643 [MeV]
Air kerma rate constant, Γ_{10} : 1.385×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 1.385×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.555×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : $0.000 \times 10^{+00}$ [Gy $\cdot$ kg/Bq $\cdot$ s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 1.555×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.225×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

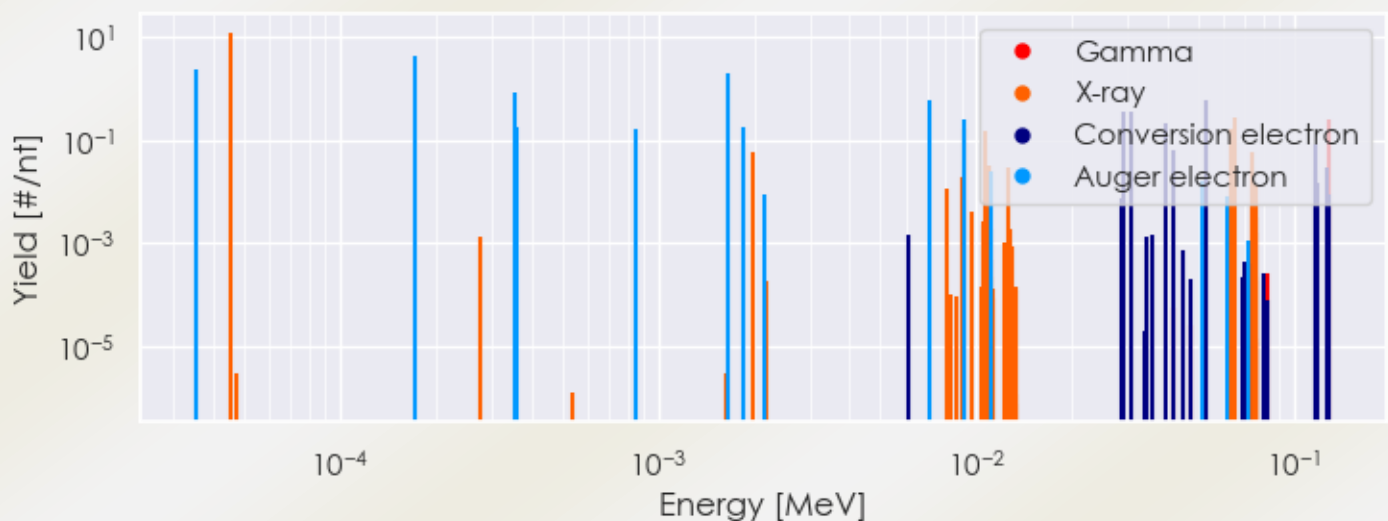
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Ir-191m 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-191m Summary 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-191m Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Ir-191m%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [# / n _t] if > 0.01	Radiation type
4.54779e-05	1.267e+01	X-ray
1.99623e-03	5.942e-02	X-ray
8.06831e-03	1.127e-02	X-ray
9.09081e-03	1.947e-02	X-ray
9.16922e-03	1.716e-01	X-ray
1.07358e-02	1.511e-01	X-ray
1.09194e-02	3.142e-02	X-ray
1.25485e-02	2.914e-02	X-ray
6.34550e-02	1.641e-01	X-ray
6.50999e-02	2.815e-01	X-ray
7.34138e-02	3.070e-02	X-ray
7.37750e-02	5.937e-02	X-ray
7.58295e-02	1.385e-02	X-ray
1.29431e-01	2.610e-01	Gamma
3.53720e-05	2.409e+00	Auger electron
1.71325e-04	4.193e+00	Auger electron
3.53109e-04	8.480e-01	Auger electron
3.59350e-04	1.851e-01	Auger electron
8.52030e-04	1.591e-01	Auger electron
1.64683e-03	2.012e+00	Auger electron
1.84986e-03	1.783e-01	Auger electron
7.13203e-03	6.162e-01	Auger electron
9.10722e-03	2.501e-01	Auger electron
1.11109e-02	2.485e-02	Auger electron
2.89870e-02	3.501e-01	Conversion electron
3.06320e-02	3.568e-01	Conversion electron
3.93070e-02	2.207e-01	Conversion electron

4.18460e-02	6.501e-02	Conversion electron
5.13520e-02	1.575e-02	Auger electron
5.31170e-02	5.875e-01	Conversion electron
1.16035e-01	8.667e-02	Conversion electron
1.16572e-01	2.496e-02	Conversion electron
1.18217e-01	1.428e-02	Conversion electron
1.26892e-01	2.999e-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/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6