PLATINUM-188

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Pt-188
Atomic number (Z): 78
Mass number (A): 188
Neutron number (N): 110

RADIOACTIVE DECAY

Decay modes: a, Electron capture
Half-life: 10.2 [d]
Decay constant: 7.8652e-07 [1/s]
Daughters: Ir-188 (100.0%), Os-184 (2.9e-05%)
Radioactive daughters: Ir-188

DOSIMETRIC CONSTANTS

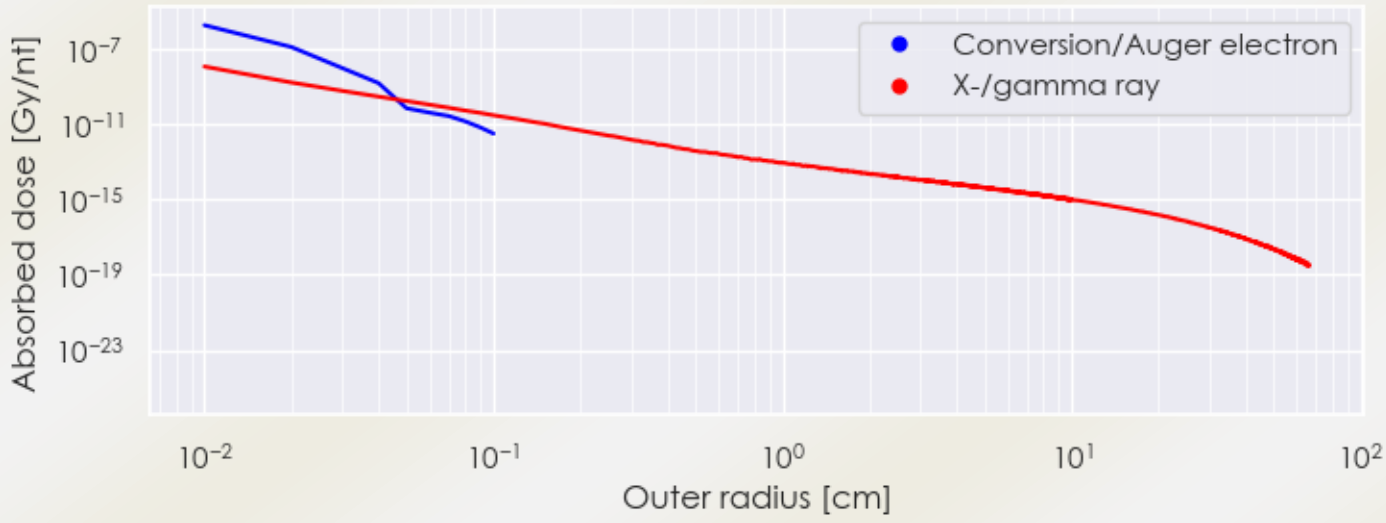
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.08234 [MeV]
Mean photon energy: 0.20548 [MeV]
Air kerma rate constant, Γ_{10}: 1.763e-17 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 1.763e-17 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 1.319e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_a: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 1.319e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 3.292e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

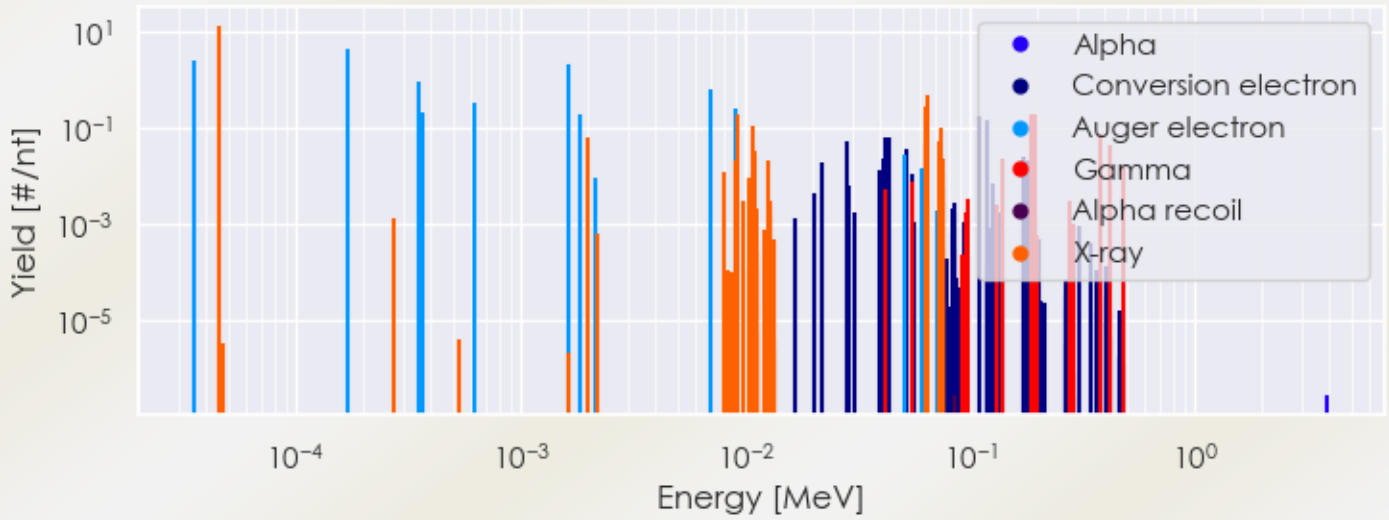
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Pt-188 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/Pt-188 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/Pt-188 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
4.53136e-05	1.385e+01	X-ray
1.99501e-03	6.460e-02	X-ray
8.06830e-03	1.256e-02	X-ray
9.09081e-03	2.169e-02	X-ray
9.16923e-03	1.912e-01	X-ray
1.07358e-02	1.153e-01	X-ray
1.08570e-02	1.145e-02	X-ray
1.09194e-02	3.499e-02	X-ray
1.25485e-02	2.225e-02	X-ray
6.34550e-02	2.877e-01	X-ray
6.50999e-02	4.934e-01	X-ray
7.34138e-02	5.381e-02	X-ray
7.37749e-02	1.041e-01	X-ray
7.57436e-02	1.247e-02	X-ray
7.58295e-02	2.428e-02	X-ray
1.40350e-01	2.328e-02	Gamma
1.87590e-01	1.940e-01	Gamma
1.95050e-01	1.862e-01	Gamma
3.81430e-01	7.469e-02	Gamma
4.23340e-01	4.365e-02	Gamma
4.78300e-01	1.785e-02	Gamma
3.54088e-05	2.660e+00	Auger electron
1.71068e-04	4.557e+00	Auger electron
3.54213e-04	9.531e-01	Auger electron
3.63760e-04	2.049e-01	Auger electron
6.17932e-04	3.531e-01	Auger electron
1.64365e-03	2.186e+00	Auger electron

1.84522e-03	1.931e-01	Auger electron
7.07961e-03	6.411e-01	Auger electron
9.05504e-03	2.600e-01	Auger electron
1.10610e-02	2.584e-02	Auger electron
2.20560e-02	1.871e-02	Conversion electron
2.85840e-02	5.215e-02	Conversion electron
3.94410e-02	1.395e-02	Conversion electron
4.14540e-02	2.453e-02	Conversion electron
4.19910e-02	6.368e-02	Conversion electron
4.36360e-02	6.303e-02	Conversion electron
5.13520e-02	2.761e-02	Auger electron
5.23110e-02	3.817e-02	Conversion electron
5.48500e-02	1.107e-02	Conversion electron
6.15157e-02	1.471e-02	Auger electron
6.40360e-02	4.692e-02	Conversion electron
1.11276e-01	1.712e-01	Conversion electron
1.18736e-01	1.480e-01	Conversion electron
1.74194e-01	2.525e-02	Conversion electron
1.81654e-01	2.185e-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