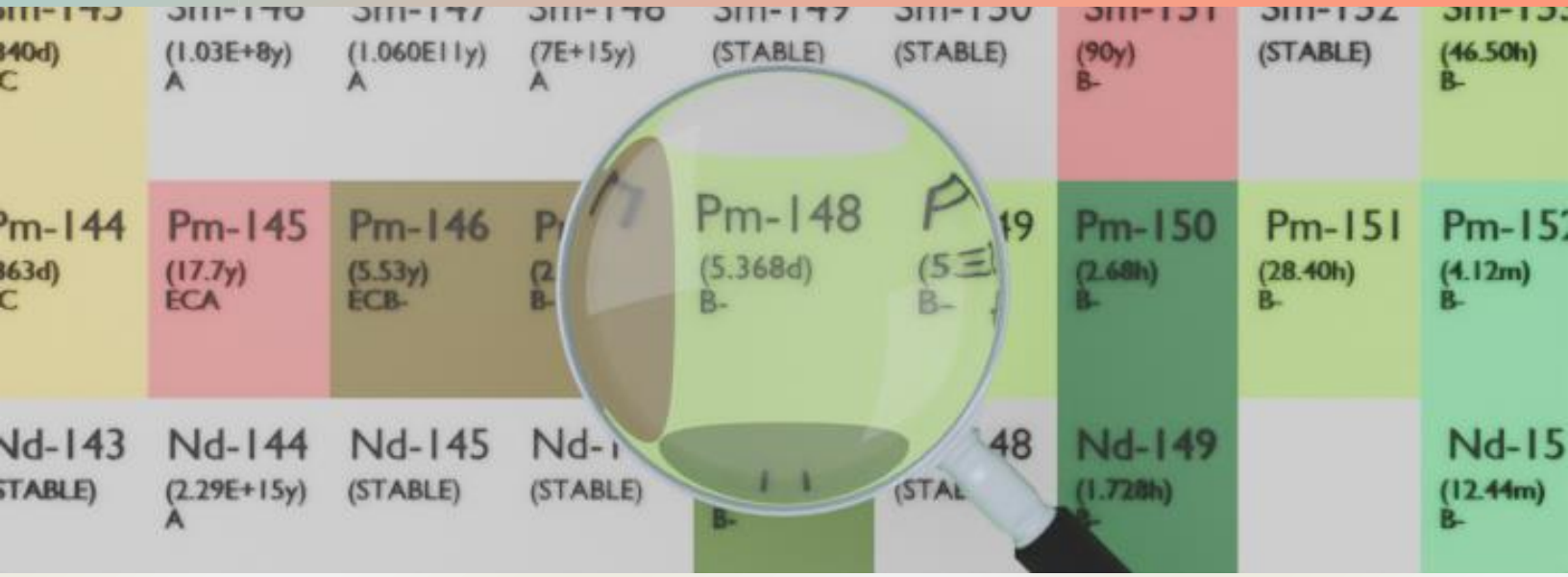


PROMETHIUM-148

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Pm-148
Atomic number (Z): 61
Mass number (A): 148
Neutron number (N): 87

RADIOACTIVE DECAY

Decay modes: β-
Half-life: 5.368 [d]
Decay constant: 1.4945e-06 [1/s]
Daughters: Sm-148 (100.0%)
Radioactive daughters: Sm-148

DOSIMETRIC CONSTANTS

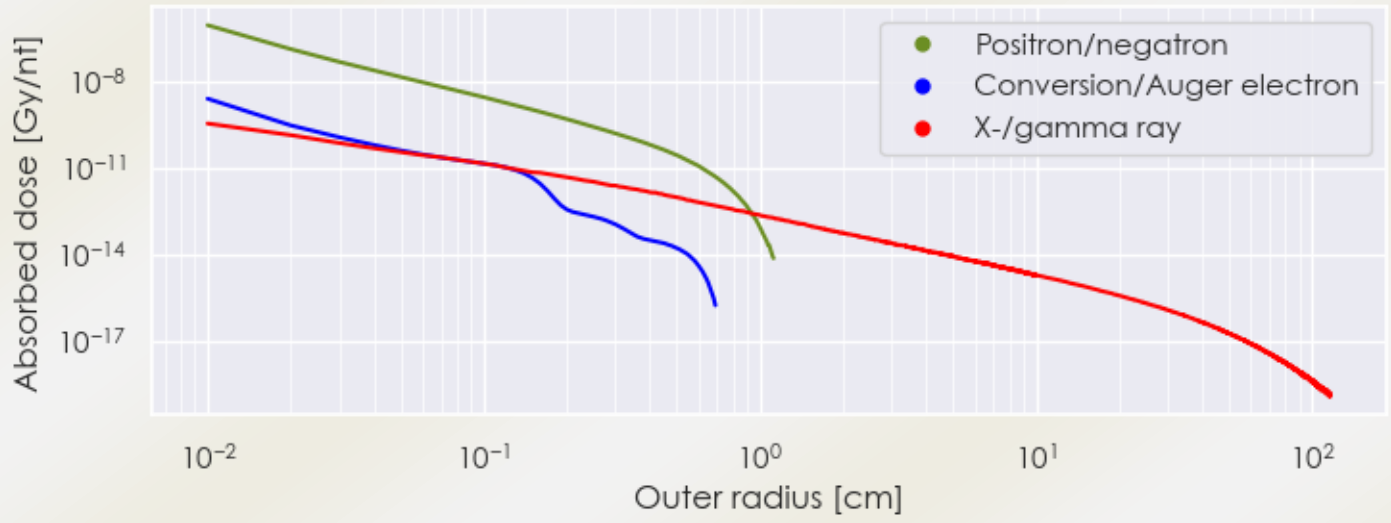
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.7284 [MeV]
Mean photon energy: 0.57434 [MeV]
Air kerma rate constant, Γ_{10}: 1.988e-17 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 1.988e-17 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 1.167e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 1.167e-13 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 9.202e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

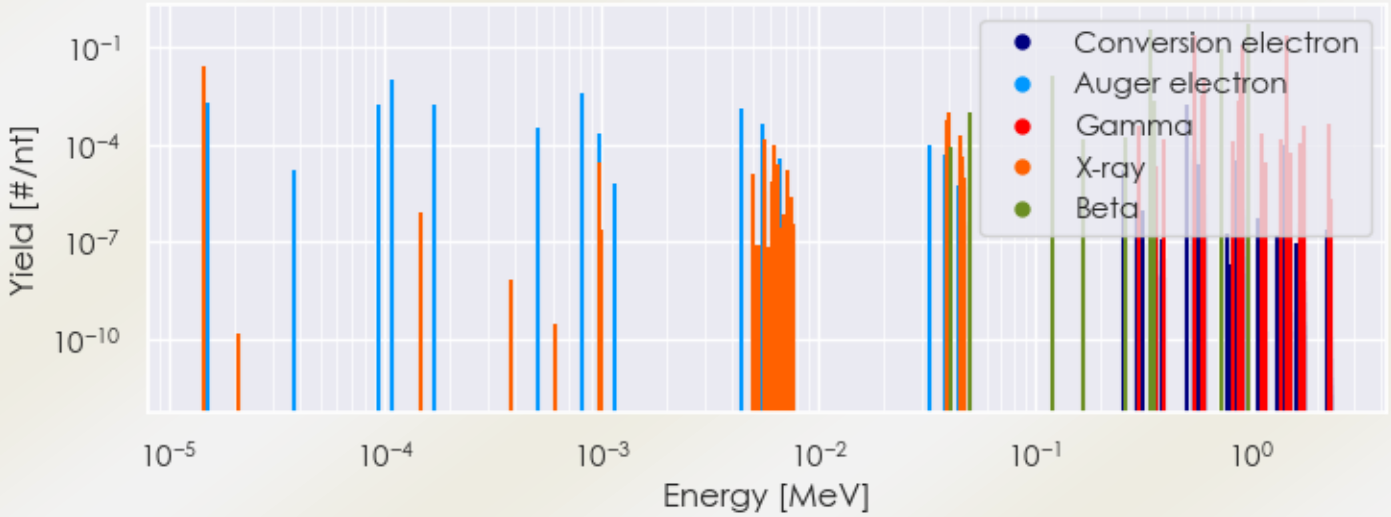
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Pm-148 DPK.csv

SUMMARY SPECTRA (PLOT)

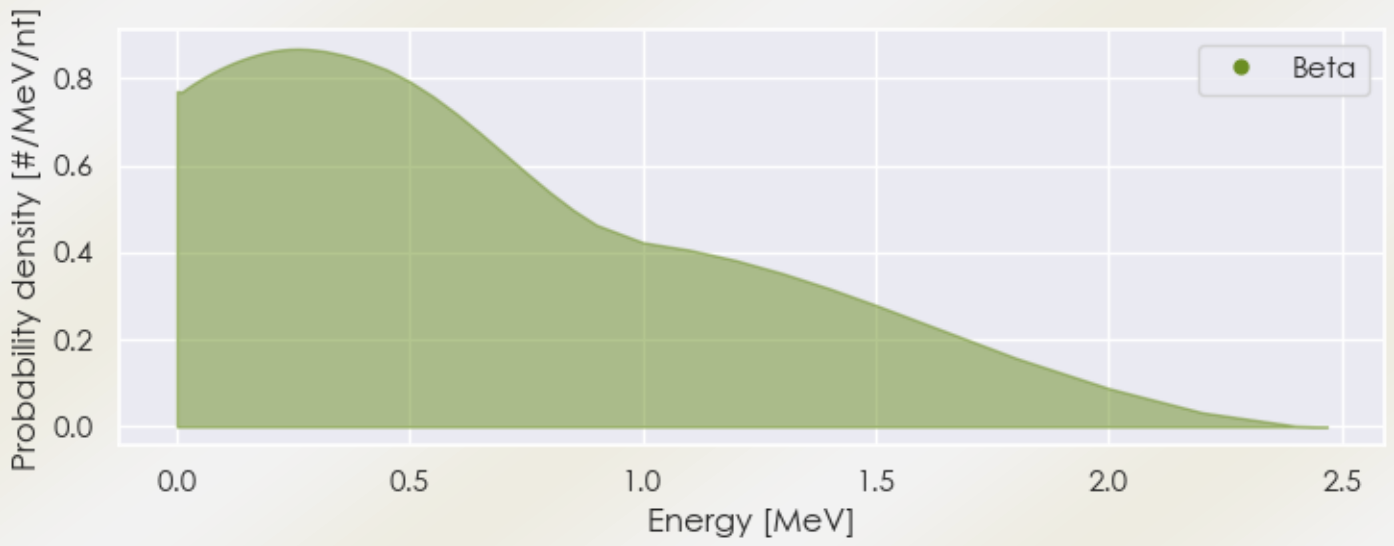
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Pm-148 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/Pm-148 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/Pm-148 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
1.45261e-05	2.538e-02	X-ray
5.50270e-01	2.200e-01	Gamma
6.11260e-01	1.021e-02	Gamma
9.14850e-01	1.146e-01	Gamma
1.46512e+00	2.220e-01	Gamma
1.20889e-01	1.360e-02	Beta
3.41425e-01	3.329e-01	Beta
7.30147e-01	9.398e-02	Beta
9.76220e-01	5.549e-01	Beta
1.06737e-04	1.060e-02	Auger 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