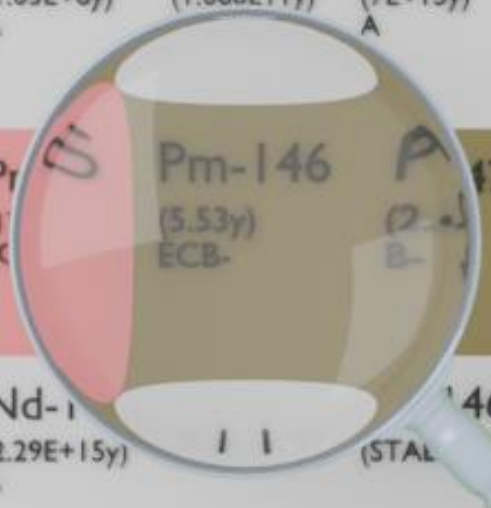




Sm-145 (3.75m) CB+	Sm-144 (STABLE)	Sm-143 (340d) EC	Sm-142 (1.03E+8y) A	Sm-147 (1.060E11y) A	Sm-148 (7E+15y) A	Sm-149 (STABLE)	Sm-150 (STABLE)	Sm-151 (90y) B-
Pm-142 (10.5s) CB+	Pm-143 (265d) EC	Pm-144 (363d) EC	Pm-145 (1.78E+11y) EC	Pm-146 (5.53y) ECB-	Pm-147 (2.62E+6y) B-	Pm-148 (5.368d) B-	Pm-149 (53.08h) B-	Pm-150 (2.68h) B-
Nd-141 (2.49h) CB+	Nd-142 (STABLE)	Nd-143 (STABLE)	Nd-144 (2.29E+15y) A	Nd-146 (1.1E+15y) A	Nd-147 (10.98d) B-	Nd-148 (STABLE)	Nd-149 (1.728h) B-	Nd-150 (14.7m) B-

PROMETHIUM-146

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Pm-146
Atomic number (Z): 61
Mass number (A): 146
Neutron number (N): 85

RADIOACTIVE DECAY

Decay modes: β^- , Electron capture
Half-life: 5.53 [y]
Decay constant: 3.9720e-09 [1/s]
Daughters: Sm-146 (34.0%), Nd-146 (66.0%)
Radioactive daughters: Sm-146

DOSIMETRIC CONSTANTS

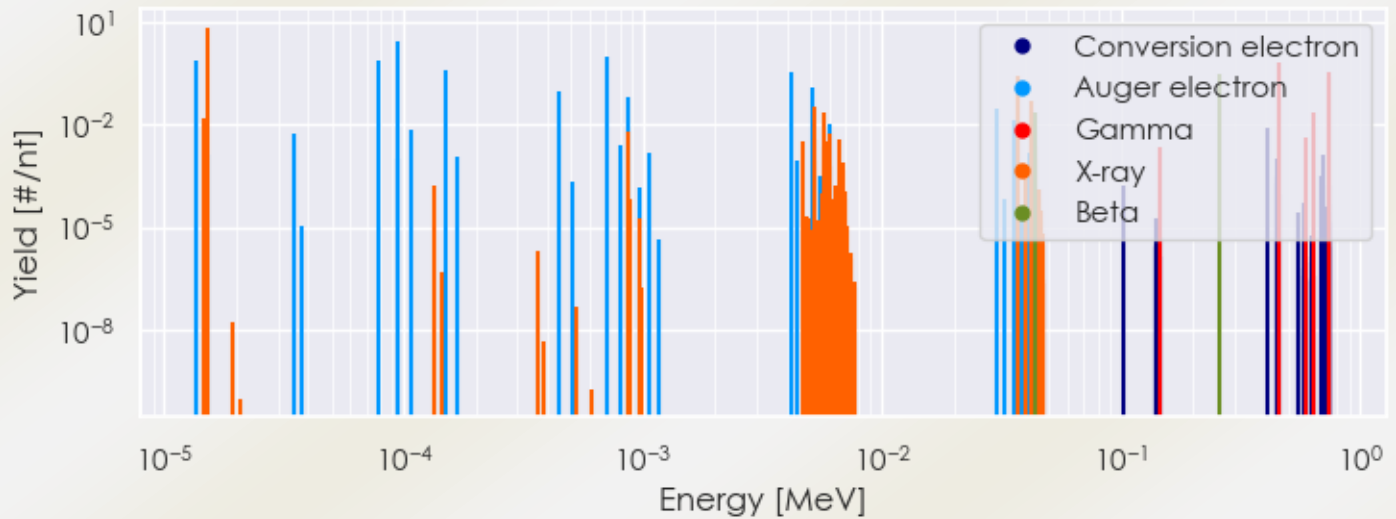
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.0941 [MeV]
Mean photon energy: 0.75123 [MeV]
Air kerma rate constant, Γ_{10} : 2.930e-17 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : 2.930e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.508e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta+, e-}$: 1.508e-14 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.204e-13 [Gy·kg/Bq·s]

SUMMARY SPECTRA (PLOT)

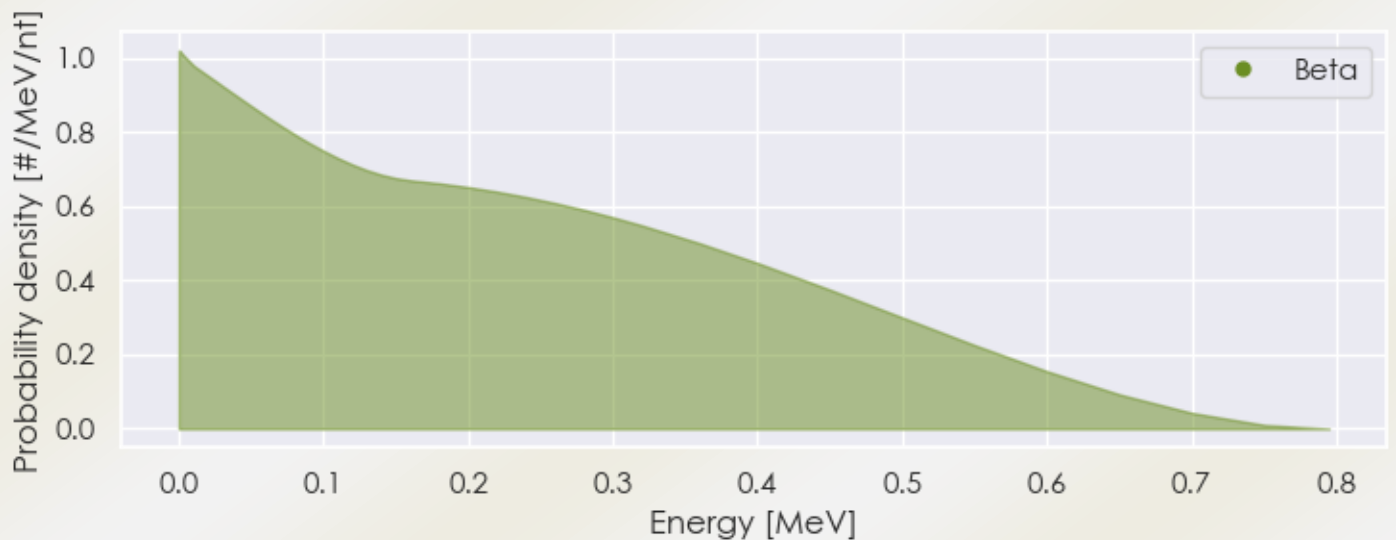
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Pm-146 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Pm-146%20Summary%20Spectrum.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-146 Beta Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Pm-146%20Beta%20Spectrum.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-146 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Pm-146%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [#/(n)] if > 0.01	Radiation type
1.45256e-05	1.629e-02	X-ray
1.51996e-05	7.117e+00	X-ray
5.21638e-03	3.448e-02	X-ray
5.72010e-03	2.129e-02	X-ray
3.68696e-02	1.466e-01	X-ray
3.73962e-02	2.670e-01	X-ray
4.22041e-02	2.637e-02	X-ray
4.23100e-02	5.103e-02	X-ray
4.33673e-02	1.101e-02	X-ray
4.53880e-01	6.501e-01	Gamma
6.33250e-01	2.153e-02	Gamma
7.35930e-01	2.249e-01	Gamma
7.47240e-01	3.399e-01	Gamma
4.33969e-02	2.141e-02	Beta
2.59739e-01	3.186e-01	Beta
1.36628e-05	7.127e-01	Auger electron
7.82390e-05	7.242e-01	Auger electron
9.39591e-05	2.700e+00	Auger electron
1.51212e-04	4.177e-01	Auger electron
4.48060e-04	9.130e-02	Auger electron
7.10979e-04	9.513e-01	Auger electron
8.74171e-04	6.540e-02	Auger electron
4.15094e-03	3.608e-01	Auger electron
5.10239e-03	1.213e-01	Auger electron
6.08782e-03	1.009e-02	Auger electron
3.03768e-02	2.821e-02	Auger electron
3.58432e-02	1.353e-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/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6