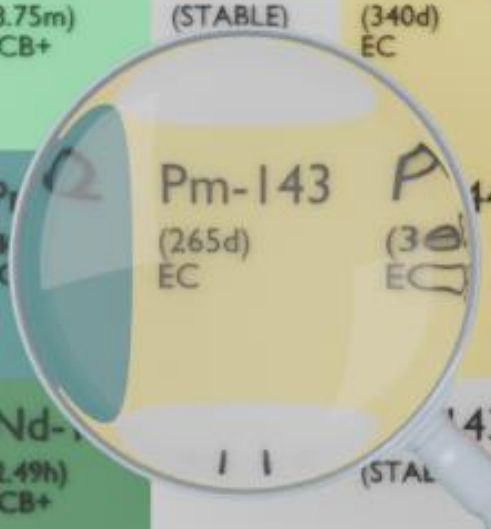




Sm-140 (4.82m) EC+	Sm-141 (10.2m) ECB+	Sm-142 (72.49m) ECB+	Sm-143 (8.75m) ECB+	Sm-144 (STABLE)	Sm-145 (340d) EC	Sm-146 (1.03E+8y) A	Sm-147 (1.060E+11y) A	Sm-148 (7E+15y) A
Pm-139 (1.15m) CB+	Pm-140 (9.2s) ECB+	Pm-141 (20.90m) ECB+	Pm-142 (4h) EC	Pm-143 (265d) EC	Pm-144 (3e) EC	Pm-145 (17.7y) ECA	Pm-146 (5.53y) ECB-	Pm-147 (2.6234y) B-
Nd-138 (5.04h) C	Nd-139 (29.7m) ECB+	Nd-140 (3.37d) EC	Nd-141 (2.49h) ECB+	Nd-142 (STAL)	Nd-143 (2.29E+15y) A	Nd-144 (STABLE)	Nd-145 (STABLE)	Nd-146 (STABLE)

PROMETHIUM-143

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Pm-143
Atomic number (Z): 61
Mass number (A): 143
Neutron number (N): 82

RADIOACTIVE DECAY

Decay modes: Electron capture
Half-life: 265.0 [d]
Decay constant: 3.0274×10^{-8} [1/s]
Daughters: Nd-143 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.00827 [MeV]
Mean photon energy: 0.31572 [MeV]
Air kerma rate constant, Γ_{10} : 1.350×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 1.350×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.325×10^{-15} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

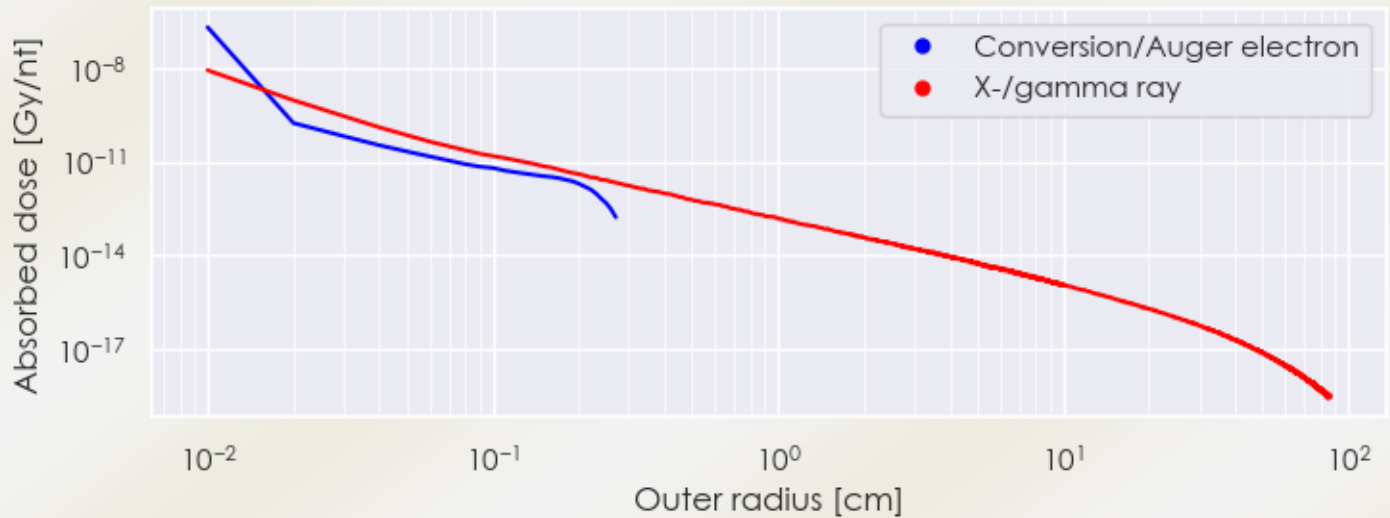
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta+, e^-}$: 1.325×10^{-15} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 5.058×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

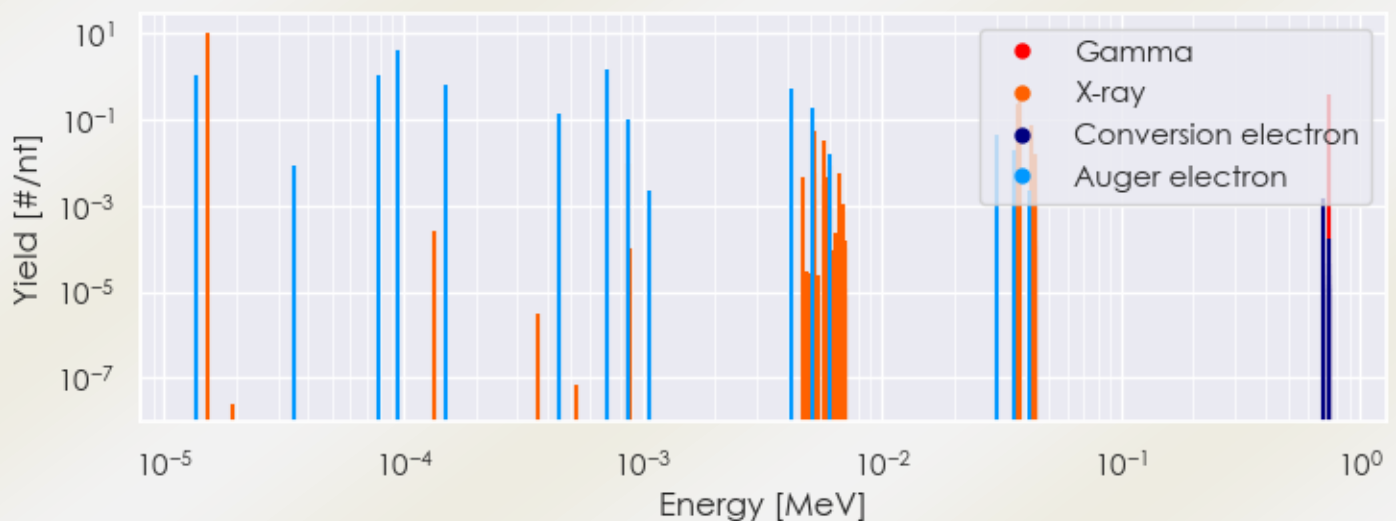
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Pm-143 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-143 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/Pm-143 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Pm-143%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [#/(nt)] if > 0.01	Radiation type
1.51996e-05	1.063e+01	X-ray
5.21638e-03	5.150e-02	X-ray
5.72010e-03	3.178e-02	X-ray
3.68696e-02	2.190e-01	X-ray
3.73962e-02	3.988e-01	X-ray
4.22041e-02	3.939e-02	X-ray
4.23100e-02	7.623e-02	X-ray
4.33673e-02	1.644e-02	X-ray
7.41980e-01	3.850e-01	Gamma
1.36628e-05	1.065e+00	Auger electron
7.82421e-05	1.082e+00	Auger electron
9.39584e-05	4.034e+00	Auger electron
1.51206e-04	6.240e-01	Auger electron
4.48206e-04	1.366e-01	Auger electron
7.10986e-04	1.421e+00	Auger electron
8.74189e-04	9.769e-02	Auger electron
4.15104e-03	5.389e-01	Auger electron
5.10252e-03	1.812e-01	Auger electron
6.08798e-03	1.506e-02	Auger electron
3.03768e-02	4.214e-02	Auger electron
3.58432e-02	2.021e-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