

Cm-240 (27d) A SF	Cm-241 (32.8d) ECA	Cm-242 (162.8d) A SF	Cm-244 (18.10y) A SF	Cm-245 (4.76E+3y) A SF	Cm-246 (1.56E+7y) A	Cm-247 (3.48E+5y) A SF	
Am-239 (1.9h) CA	Am-240 (50.8h) ECA	Am-241 (432.2y) A	Am-242 (16.02h) B-EC	Am-244 (10.1h) B-	Am-245 (2.05h) B-	Am-246 (39m) B-	Am-247 (23.0m) B-

CURIUM-244

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Cm-244
Atomic number (Z): 96
Mass number (A): 244
Neutron number (N): 148

RADIOACTIVE DECAY

Decay modes: α , Spontaneous fission
Half-life: 18.1 [y]
Decay constant: $1.2135\text{e-}09$ [1/s]
Daughters: Pu-240 (100.0%), SF (0.000137%)
Radioactive daughters: Pu-240

DOSIMETRIC CONSTANTS

Mean alpha energy: 5.8915 [MeV]
Mean electron energy: 0.00793 [MeV]
Mean photon energy: 0.00171 [MeV]
Air kerma rate constant, Γ_{10} : $1.865\text{e-}18$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : $1.867\text{e-}18$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $9.452\text{e-}13$ [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : $9.439\text{e-}13$ [Gy $\cdot$ kg/Bq $\cdot$ s]

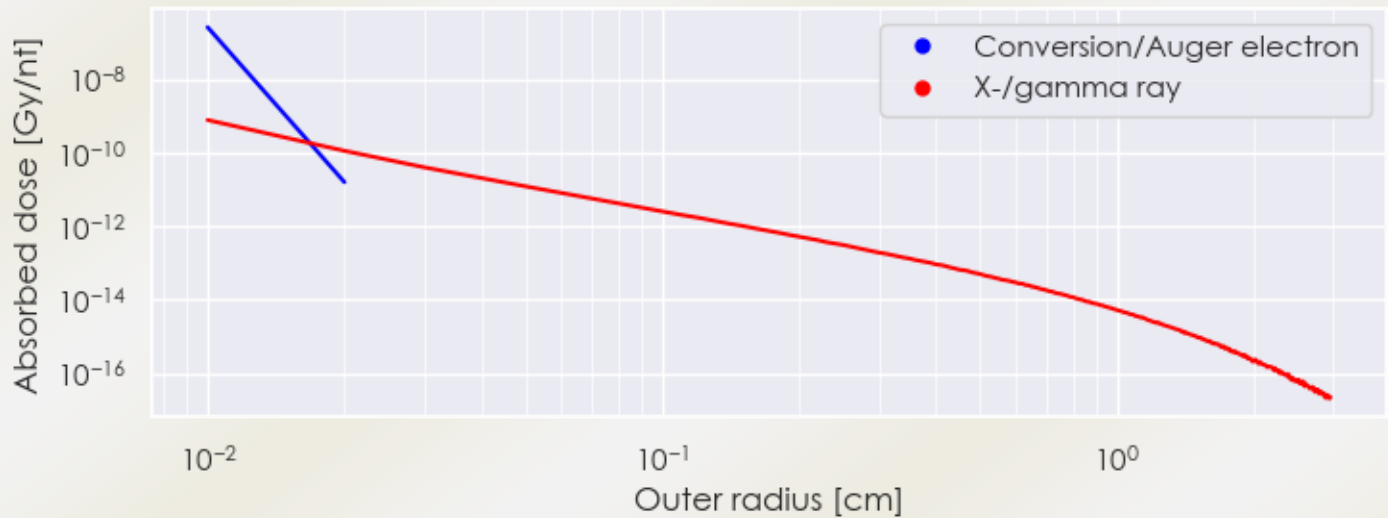
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 1.271×10^{-15} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 2.740×10^{-16} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

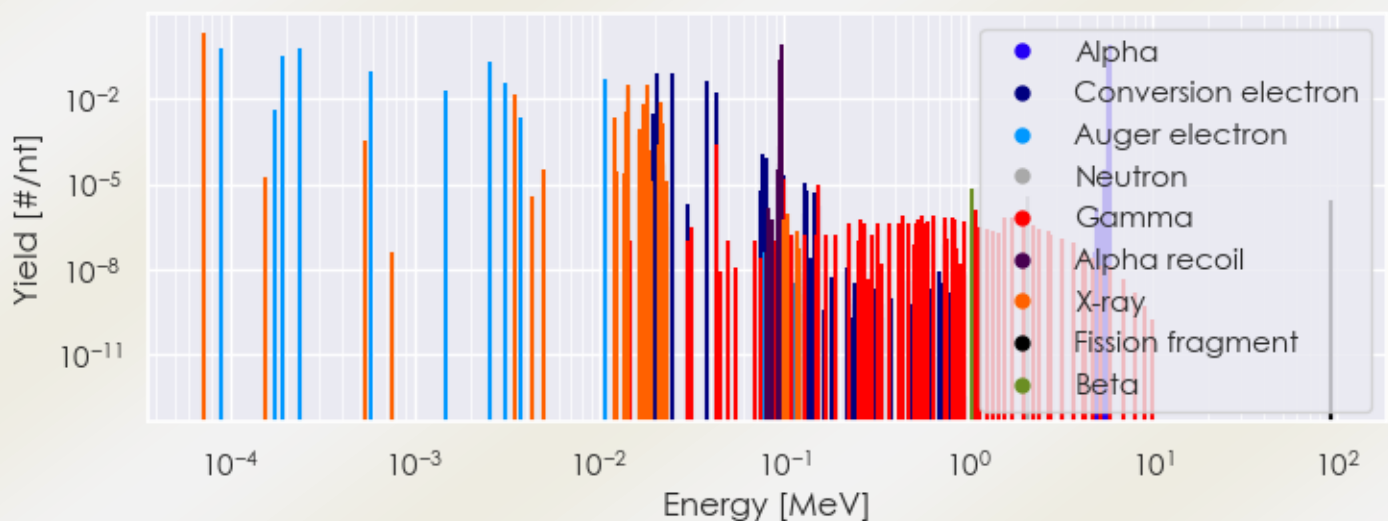
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Cm-244 DPK.csv

SUMMARY SPECTRA (PLOT)

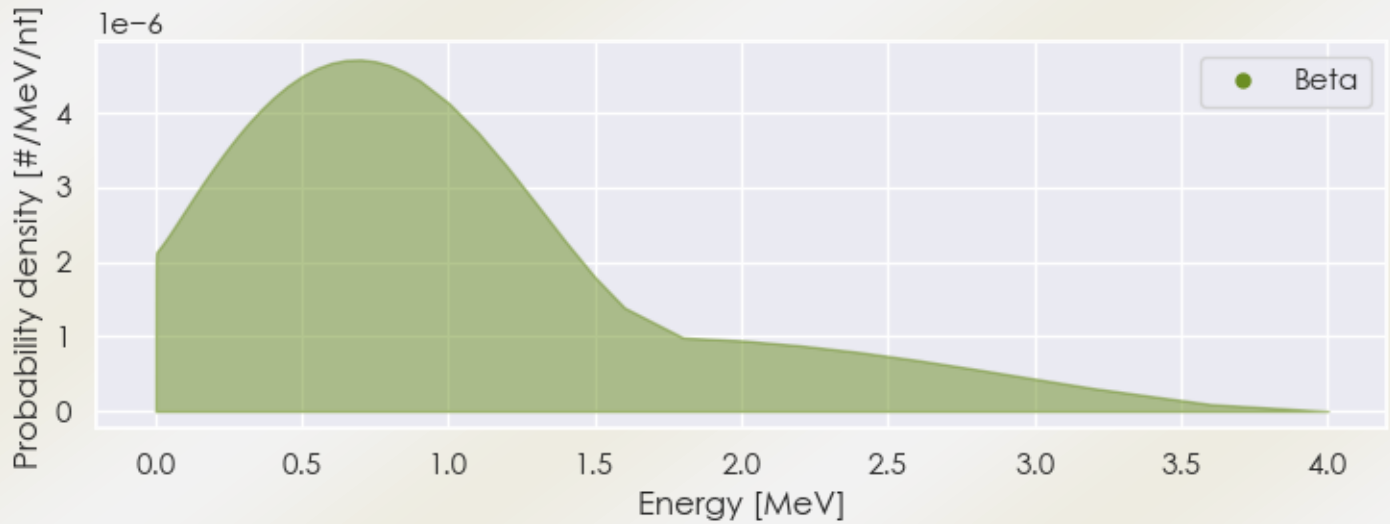
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Cm-244 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/Cm-244 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/Cm-244 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
7.20453e-05	2.212e+00	X-ray
3.45638e-03	1.457e-02	X-ray
1.42941e-02	2.991e-02	X-ray
1.83932e-02	3.189e-02	X-ray
8.91213e-05	6.054e-01	Auger electron
1.91637e-04	3.453e-01	Auger electron
2.36936e-04	5.803e-01	Auger electron
5.73068e-04	8.953e-02	Auger electron
1.47638e-03	2.047e-02	Auger electron

2.56499e-03	1.899e-01	Auger electron
3.09836e-03	3.899e-02	Auger electron
1.07707e-02	4.704e-02	Auger electron
1.43172e-02	2.441e-02	Auger electron
2.04530e-02	8.499e-02	Conversion electron
2.47530e-02	7.348e-02	Conversion electron
3.82741e-02	4.513e-02	Conversion electron
4.28240e-02	1.610e-02	Conversion electron
5.76272e+00	2.359e-01	Alpha
5.80484e+00	7.638e-01	Alpha
9.61077e-02	2.359e-01	Alpha recoil
9.68102e-02	7.638e-01	Alpha recoil

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