



EINSTEINIUM-250

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Es-250
Atomic number (Z): 99
Mass number (A): 250
Neutron number (N): 151

RADIOACTIVE DECAY

Decay modes: Electron capture
Half-life: 8.6 [h]
Decay constant: 2.2388×10^{-5} [1/s]
Daughters: Cf-250 (98.5%)
Radioactive daughters: Cf-250

DOSIMETRIC CONSTANTS

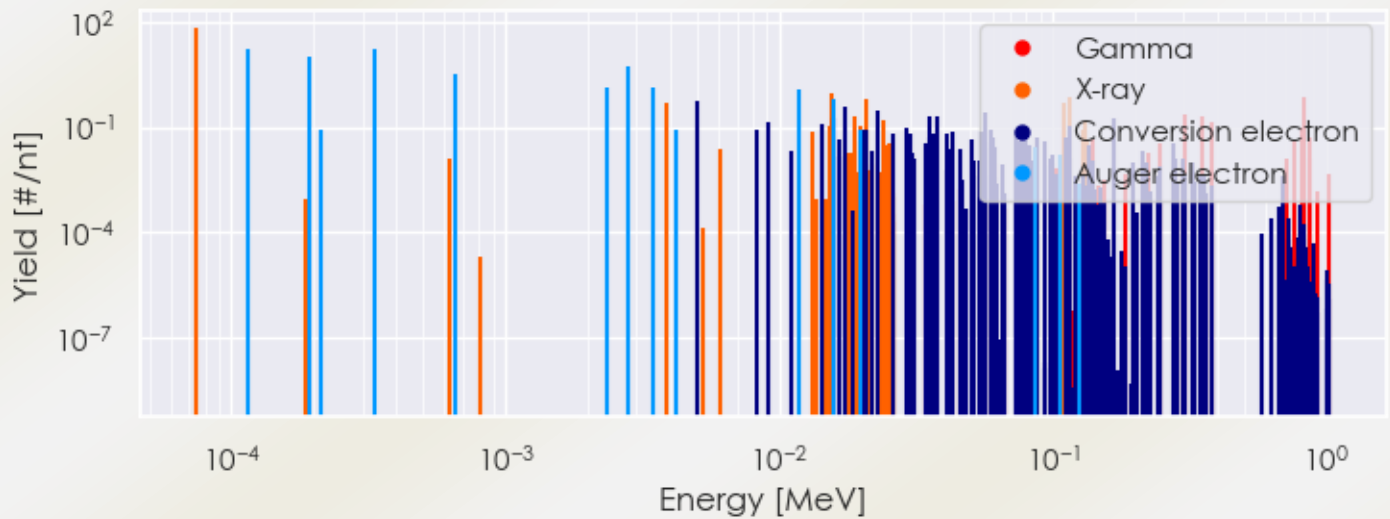
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.3281 [MeV]
Mean photon energy: 1.2235 [MeV]
Air kerma rate constant, Γ_{10} : 8.623×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 8.623×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 5.257×10^{-14} [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, $\Delta_{\beta-, \beta+, e-}$: 5.257e-14 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.960e-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/Es-250 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/Es-250 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
7.45581e-05	6.367e+01	X-ray
6.22658e-04	1.298e-02	X-ray
3.86272e-03	4.753e-01	X-ray
6.11799e-03	2.353e-02	X-ray
1.31965e-02	7.011e-02	X-ray
1.54368e-02	1.045e-01	X-ray

1.56809e-02	9.166e-01	X-ray
1.81403e-02	1.807e-02	X-ray
1.85095e-02	1.916e-02	X-ray
1.89423e-02	2.167e-02	X-ray
1.90028e-02	2.002e-01	X-ray
1.96961e-02	1.077e-01	X-ray
1.97994e-02	4.117e-02	X-ray
2.07498e-02	6.602e-01	X-ray
2.09431e-02	7.810e-02	X-ray
2.42552e-02	1.578e-01	X-ray
2.44371e-02	2.972e-02	X-ray
2.47741e-02	2.565e-02	X-ray
2.50995e-02	3.345e-02	X-ray
8.22820e-02	2.532e-02	Gamma
8.50860e-02	1.051e-02	Gamma
1.10388e-01	4.602e-01	X-ray
1.15701e-01	7.119e-01	X-ray
1.29279e-01	8.335e-02	X-ray
1.30526e-01	1.647e-01	X-ray
1.34020e-01	2.125e-02	X-ray
1.34357e-01	4.411e-02	X-ray
1.35378e-01	1.115e-02	X-ray
1.40694e-01	4.530e-02	Gamma
2.22993e-01	1.771e-02	Gamma
2.46920e-01	3.650e-02	Gamma
3.03410e-01	2.177e-01	Gamma
3.49400e-01	2.015e-01	Gamma
3.83700e-01	1.391e-01	Gamma
7.12300e-01	1.309e-02	Gamma
7.64200e-01	3.910e-02	Gamma
8.10200e-01	8.902e-02	Gamma
8.29000e-01	7.241e-01	Gamma
8.63200e-01	4.992e-02	Gamma
8.66700e-01	1.273e-02	Gamma
1.14399e-04	1.727e+01	Auger electron
1.92699e-04	1.028e+01	Auger electron
2.11830e-04	7.942e-02	Auger electron
3.35080e-04	1.686e+01	Auger electron

6.60553e-04	3.075e+00	Auger electron
2.33820e-03	1.302e+00	Auger electron
2.79551e-03	5.326e+00	Auger electron
3.45746e-03	1.282e+00	Auger electron
4.21251e-03	8.320e-02	Auger electron
5.06401e-03	5.556e-01	Conversion electron
8.27800e-03	8.202e-02	Conversion electron
9.08300e-03	1.456e-01	Conversion electron
1.11700e-02	2.084e-02	Conversion electron
1.17705e-02	1.240e+00	Auger electron
1.43960e-02	1.189e-01	Conversion electron
1.57280e-02	1.859e-01	Conversion electron
1.57818e-02	6.668e-01	Auger electron
1.65330e-02	4.614e-02	Conversion electron
1.66740e-02	1.477e-02	Conversion electron
1.74790e-02	3.808e-01	Conversion electron
1.98491e-02	8.410e-02	Auger electron
2.00460e-02	8.528e-02	Conversion electron
2.08510e-02	8.672e-02	Conversion electron
2.18460e-02	2.181e-02	Conversion electron
2.27920e-02	3.123e-01	Conversion electron
2.61640e-02	6.257e-02	Conversion electron
2.92212e-02	9.532e-02	Conversion electron
2.95550e-02	4.593e-02	Conversion electron
3.03600e-02	6.839e-02	Conversion electron
3.04800e-02	1.891e-02	Conversion electron
3.12850e-02	1.244e-02	Conversion electron
3.43250e-02	3.526e-02	Conversion electron
3.56200e-02	2.051e-01	Conversion electron
3.56730e-02	4.846e-02	Conversion electron
3.64250e-02	5.168e-02	Conversion electron
3.66712e-02	6.449e-02	Conversion electron
3.76172e-02	2.019e-01	Conversion electron
4.09892e-02	6.341e-02	Conversion electron
4.17380e-02	2.200e-02	Conversion electron
4.17750e-02	2.405e-02	Conversion electron
4.27210e-02	7.446e-02	Conversion electron
4.60930e-02	2.351e-02	Conversion electron

5.04982e-02	4.457e-02	Conversion electron
5.14232e-02	1.040e-02	Conversion electron
5.39510e-02	1.094e-02	Conversion electron
5.51700e-02	7.514e-02	Conversion electron
5.56020e-02	1.653e-02	Conversion electron
5.62350e-02	2.758e-01	Conversion electron
5.65632e-02	7.064e-02	Conversion electron
5.70400e-02	3.357e-02	Conversion electron
5.90390e-02	8.809e-02	Conversion electron
5.98440e-02	2.300e-02	Conversion electron
6.04830e-02	5.058e-02	Conversion electron
6.16670e-02	2.641e-02	Conversion electron
7.39180e-02	8.501e-02	Conversion electron
7.53082e-02	3.708e-02	Conversion electron
7.71782e-02	7.712e-02	Conversion electron
7.73810e-02	1.615e-02	Conversion electron
7.73930e-02	3.747e-02	Conversion electron
7.92310e-02	5.256e-02	Conversion electron
7.99822e-02	3.047e-02	Conversion electron
8.04120e-02	1.373e-02	Conversion electron
8.22820e-02	2.889e-02	Conversion electron
8.50860e-02	1.139e-02	Conversion electron
8.68283e-02	2.758e-02	Auger electron
8.73630e-02	5.123e-02	Conversion electron
9.40562e-02	4.081e-02	Conversion electron
9.83362e-02	1.194e-02	Conversion electron
9.91600e-02	1.510e-02	Conversion electron
1.06295e-01	1.609e-02	Auger electron
1.11290e-01	4.838e-02	Conversion electron
1.14647e-01	1.036e-01	Conversion electron
1.15452e-01	1.306e-02	Conversion electron
1.35590e-01	2.908e-02	Conversion electron
1.40694e-01	1.090e-02	Conversion electron
1.67780e-01	1.774e-01	Conversion electron
2.13770e-01	2.137e-02	Conversion electron
2.77363e-01	3.318e-02	Conversion electron
2.78168e-01	1.201e-02	Conversion electron
2.98306e-01	1.230e-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/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6