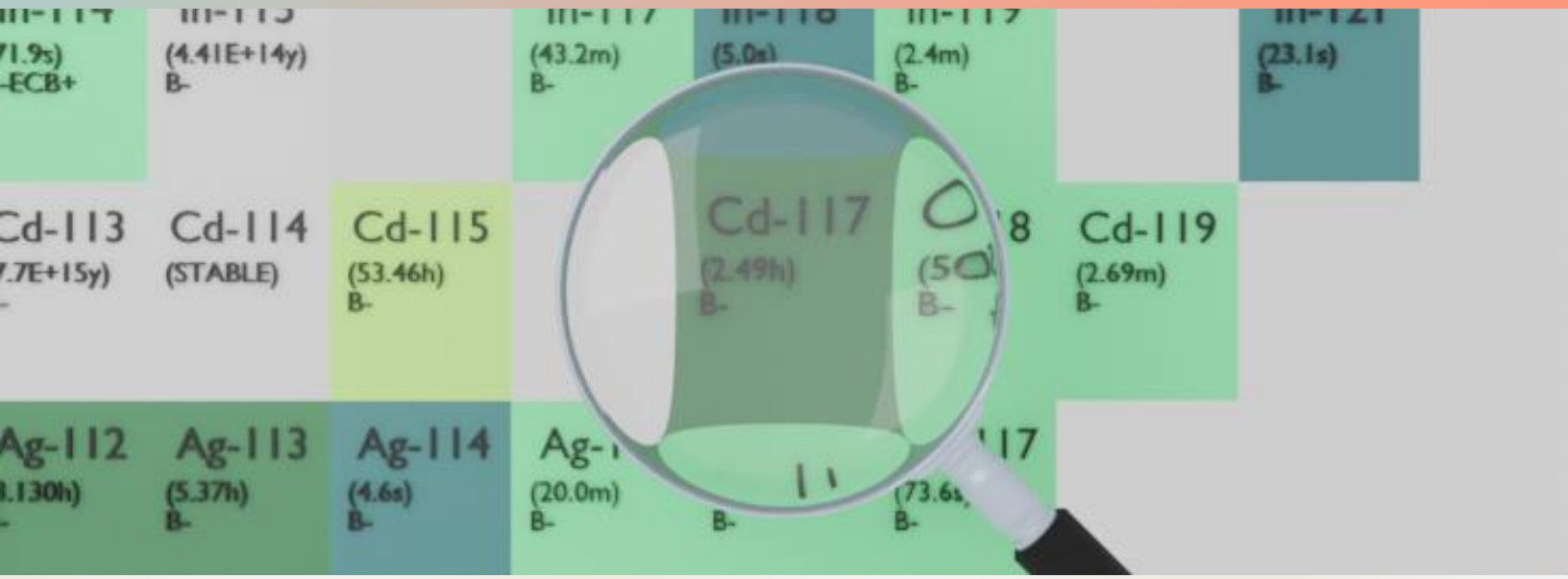


CADMIUM-117

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Cd-117
Atomic number (Z): 48
Mass number (A): 117
Neutron number (N): 69

RADIOACTIVE DECAY

Decay modes: β-
Half-life: 2.49 [h]
Decay constant: 7.7326e-05 [1/s]
Daughters: In-117m (91.5%), In-117 (8.49%)
Radioactive daughters: In-117m, In-117

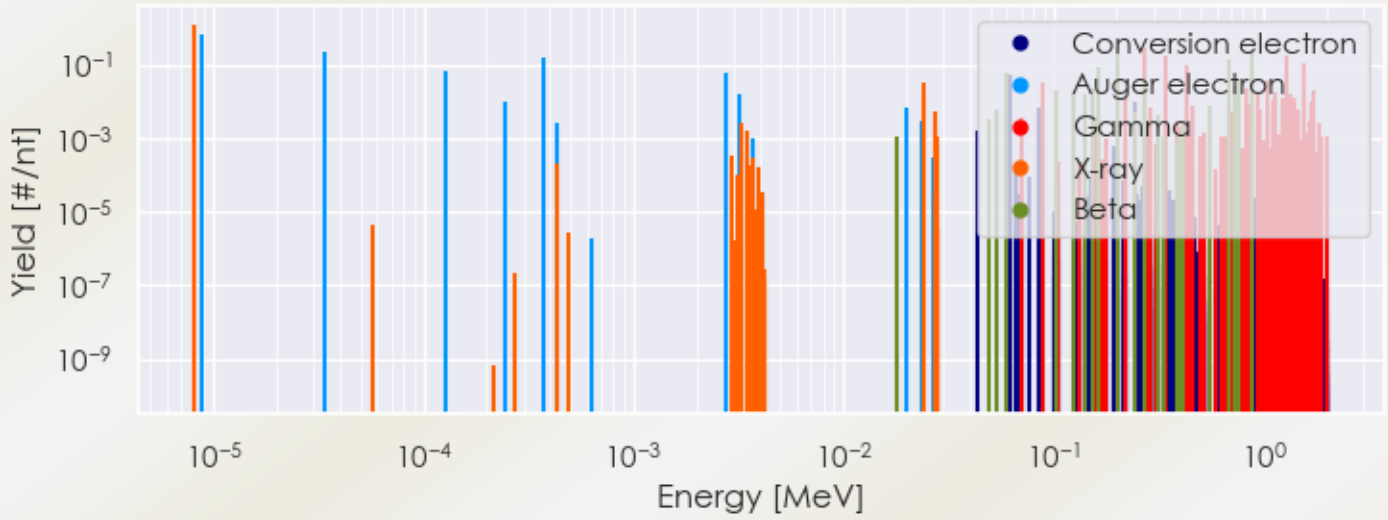
DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.43789 [MeV]
Mean photon energy: 1.07963 [MeV]
Air kerma rate constant, Γ_{10}: 3.739e-17 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 3.739e-17 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 7.016e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta^-,\beta^+,e^-}$: 7.016e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_p: 1.730e-13 [Gy·kg/Bq·s]

SUMMARY SPECTRA (PLOT)

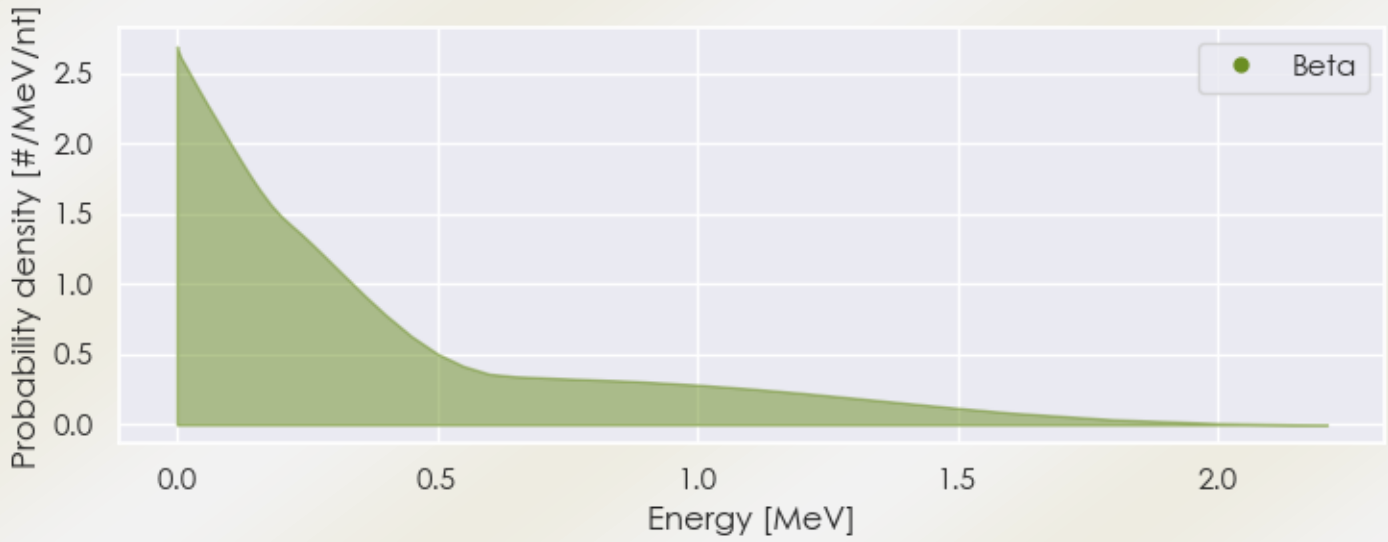
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Cd-117 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/Cd-117 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/Cd-117 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
8.12606e-06	1.235e+00	X-ray
2.39785e-02	1.632e-02	X-ray
2.41926e-02	3.061e-02	X-ray
8.97300e-02	3.264e-02	Gamma
2.20920e-01	1.172e-02	Gamma
2.73349e-01	2.790e-01	Gamma
3.44459e-01	1.788e-01	Gamma
4.34190e-01	9.793e-02	Gamma
8.31800e-01	2.260e-02	Gamma
8.80710e-01	3.962e-02	Gamma
9.45670e-01	1.534e-02	Gamma
1.05170e+00	3.794e-02	Gamma
1.11660e+00	1.032e-02	Gamma
1.14243e+00	1.674e-02	Gamma
1.24789e+00	1.200e-02	Gamma
1.26000e+00	1.144e-02	Gamma
1.30327e+00	1.836e-01	Gamma
1.33757e+00	1.618e-02	Gamma
1.40872e+00	1.283e-02	Gamma
1.56224e+00	1.423e-02	Gamma
1.57662e+00	1.119e-01	Gamma
1.70693e+00	1.004e-02	Gamma
1.72306e+00	2.009e-02	Gamma
5.90153e-02	6.117e-02	Beta
1.03549e-01	1.875e-02	Beta
1.24479e-01	1.579e-02	Beta
1.40351e-01	1.480e-02	Beta
1.55217e-01	2.171e-02	Beta

1.64156e-01	8.091e-02	Beta
2.03048e-01	3.157e-01	Beta
2.72315e-01	3.355e-02	Beta
6.83769e-01	1.302e-01	Beta
7.24107e-01	2.565e-02	Beta
7.56225e-01	3.651e-02	Beta
8.80744e-01	2.072e-01	Beta
8.85518e-06	6.123e-01	Auger electron
3.35706e-05	2.140e-01	Auger electron
1.26435e-04	6.645e-02	Auger electron
2.46605e-04	1.012e-02	Auger electron
3.70450e-04	1.532e-01	Auger electron
2.72907e-03	6.061e-02	Auger electron
3.20815e-03	1.480e-02	Auger electron
6.18090e-02	5.226e-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/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6