



CADMIUM-103

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Cd-103
Atomic number (Z): 48
Mass number (A): 103
Neutron number (N): 55

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 7.3 [m]
Decay constant: 1.5825×10^{-3} [1/s]
Daughters: Ag-103 (100.0%)
Radioactive daughters: Ag-103

DOSIMETRIC CONSTANTS

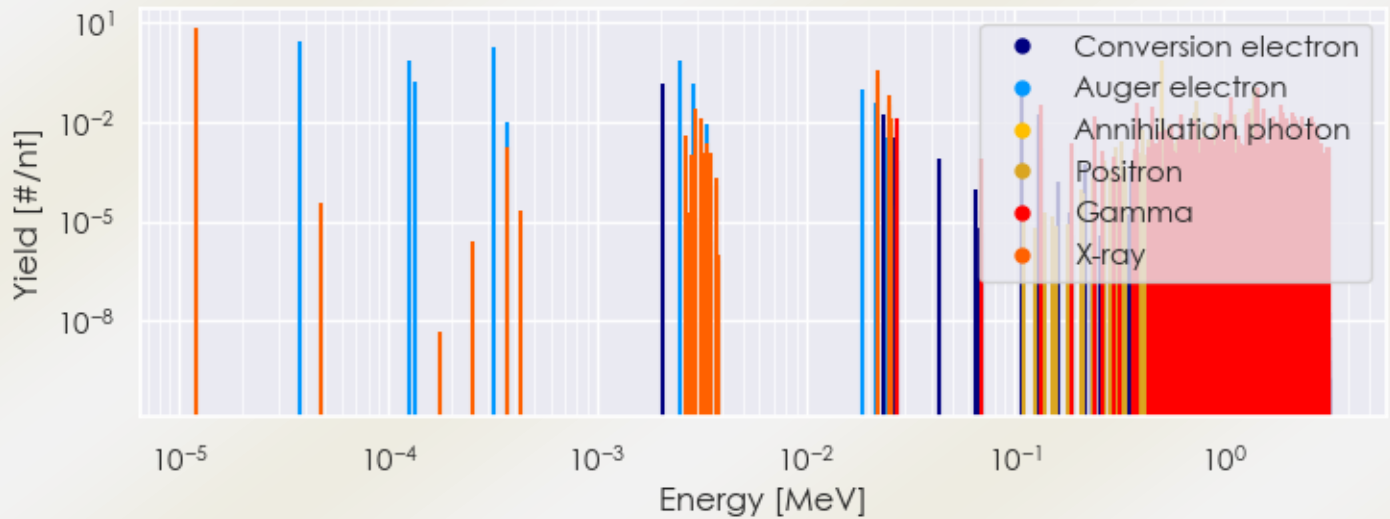
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.36356 [MeV]
Mean photon energy: 2.08914 [MeV]
Air kerma rate constant, Γ_{10} : 6.171×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 7.508×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 5.825×10^{-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, $\Delta_{\beta,\beta^+,e^-}$: 5.825e-14 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 3.347e-13 [Gy·kg/Bq·s]

SUMMARY SPECTRA (PLOT)

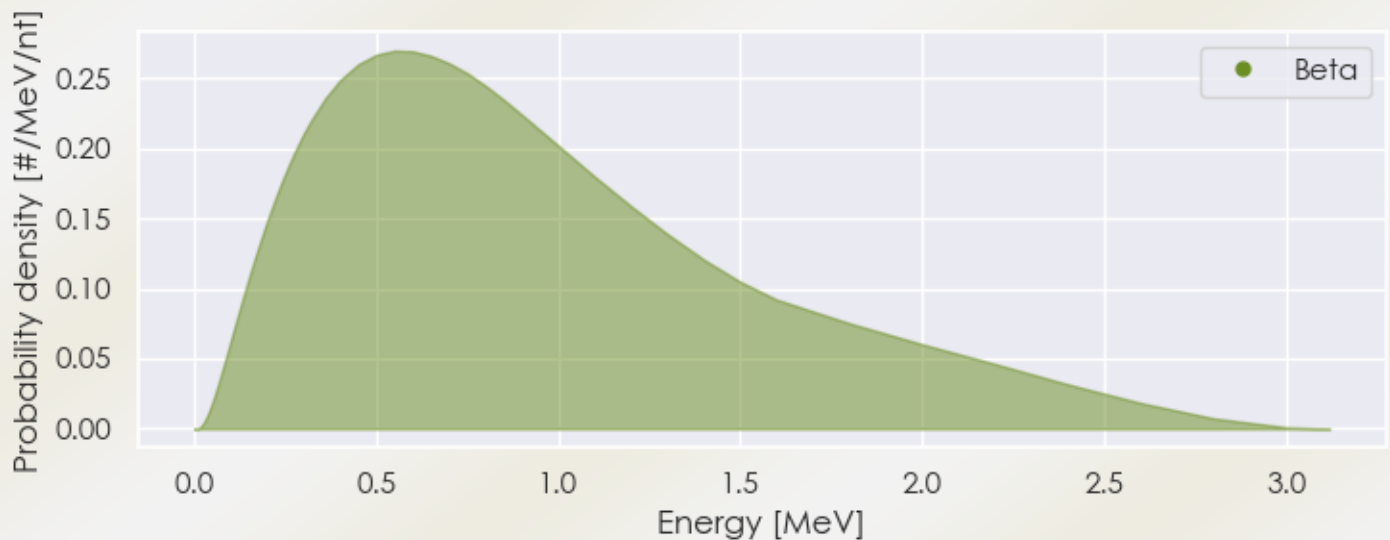
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Cd-103 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Cd-103%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/Cd-103 Beta Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Cd-103%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/Cd-103 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Cd-103%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [#/(nt)] if > 0.01	Radiation type
1.20777e-05	7.310e+00	X-ray
2.97344e-03	2.619e-02	X-ray
3.14510e-03	1.317e-02	X-ray
2.19609e-02	1.901e-01	X-ray
2.21389e-02	3.582e-01	X-ray
2.48888e-02	3.123e-02	X-ray
2.49204e-02	6.068e-02	X-ray
2.54258e-02	1.228e-02	X-ray
2.75600e-02	1.287e-02	Gamma
1.34440e-01	3.522e-02	Gamma
2.43100e-01	1.474e-02	Gamma
3.86970e-01	3.604e-02	Gamma
4.56340e-01	2.925e-02	Gamma
5.11000e-01	6.912e-01	Annihilation photon
6.25200e-01	1.053e-02	Gamma
6.26210e-01	1.743e-02	Gamma
6.27000e-01	1.275e-02	Gamma
7.23100e-01	1.193e-02	Gamma
9.63100e-01	1.661e-02	Gamma
1.05251e+00	1.147e-02	Gamma
1.07990e+00	5.441e-02	Gamma
1.09932e+00	1.673e-02	Gamma
1.28761e+00	1.720e-02	Gamma
1.31166e+00	1.825e-02	Gamma
1.44870e+00	5.546e-02	Gamma
1.46181e+00	1.170e-01	Gamma
1.47627e+00	1.966e-02	Gamma
1.55200e+00	2.469e-02	Gamma

1.55694e+00	2.281e-02	Gamma
1.57060e+00	1.310e-02	Gamma
1.74845e+00	1.451e-02	Gamma
1.82202e+00	1.053e-02	Gamma
1.87996e+00	3.323e-02	Gamma
1.93023e+00	1.907e-02	Gamma
2.01195e+00	1.275e-02	Gamma
2.02253e+00	1.018e-02	Gamma
2.13303e+00	1.954e-02	Gamma
2.19945e+00	1.463e-02	Gamma
2.24512e+00	1.111e-02	Gamma
2.37367e+00	1.521e-02	Gamma
2.40106e+00	1.193e-02	Gamma
2.68135e+00	1.463e-02	Gamma
6.29592e-01	1.692e-02	Positron
7.32602e-01	1.904e-02	Positron
7.39125e-01	4.231e-02	Positron
9.12939e-01	2.010e-02	Positron
1.13845e+00	1.692e-02	Positron
1.36063e+00	2.539e-02	Positron
1.41429e+00	1.100e-01	Positron
3.78234e-05	2.662e+00	Auger electron
1.27100e-04	7.398e-01	Auger electron
1.34865e-04	1.603e-01	Auger electron
3.19009e-04	1.802e+00	Auger electron
2.07100e-03	1.448e-01	Conversion electron
2.49441e-03	6.897e-01	Auger electron
2.90237e-03	1.495e-01	Auger electron
1.84717e-02	9.186e-02	Auger electron
2.14605e-02	3.712e-02	Auger electron
2.37766e-02	1.661e-02	Conversion electron
1.08951e-01	7.929e-02	Conversion electron
1.30912e-01	1.695e-02	Conversion electron
1.31090e-01	1.725e-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