

III-108 (58.0m) CB+	III-109 (4.2h) ECB+	III-110 (4.9h) ECB+	III-111 (2.8047d) EC	III-112 (14.97m)	III-113 (STABLE)	III-114 (71.9s) B-ECB+	III-115 (4.41E+14y) B-	
Cd-107 (5.50h) CB+	Cd-108 (STABLE)	Cd-109 (461.4d) EC	Cd-110 (5.27h) CB+	Cd-111m (48.50m) IT	Cd-112 (STABLE)	Cd-113 (7.7E+15y) B-	Cd-114 (STABLE)	Cd-115 (53.46h) B-
Ag-106 (23.96m) CB+B-	Ag-107 (STABLE)	Ag-108 (2.37m) B-ECB+	Ag-109 (2.47h) CB+	Ag-110 (STABLE)	Ag-111 (7.45s) B-	Ag-112 (3.130h) B-	Ag-113 (5.37h) B-	Ag-114 (4.6s) B-

CADMIUM-111M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Cd-111m
Atomic number (Z): 48
Mass number (A): 111
Neutron number (N): 63

RADIOACTIVE DECAY

Decay modes: Internal transition
Half-life: 48.5 [m]
Decay constant: 2.3819×10^{-4} [1/s]
Daughters: Cd-111 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.10655 [MeV]
Mean photon energy: 0.28425 [MeV]
Air kerma rate constant, Γ_{10} : 1.346×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 1.346×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.707×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

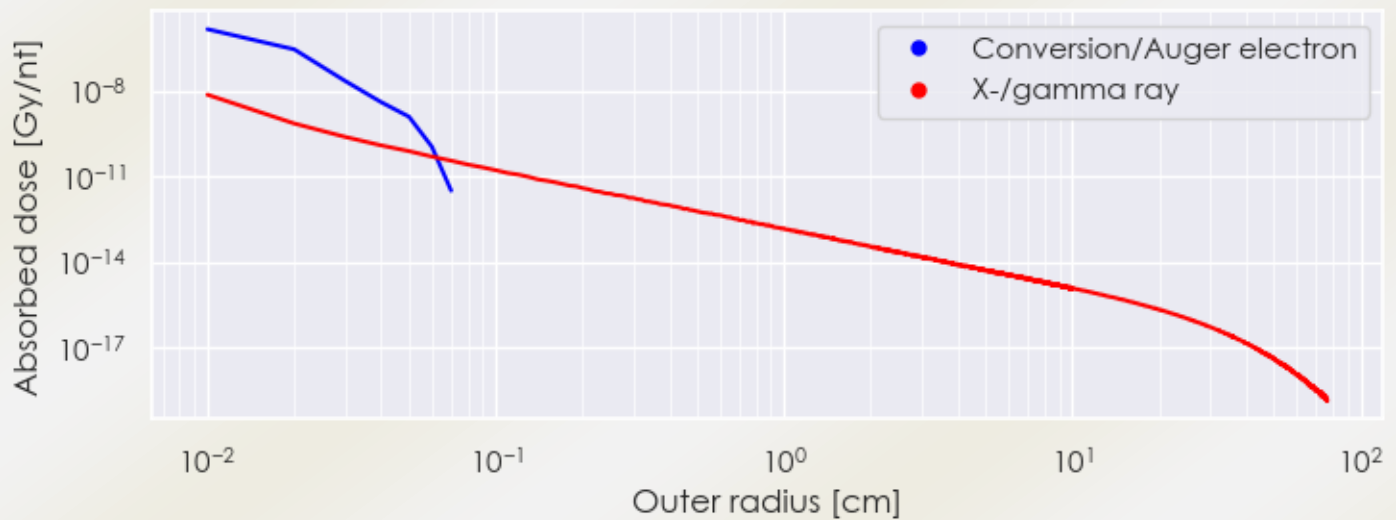
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 1.707×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 4.554×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

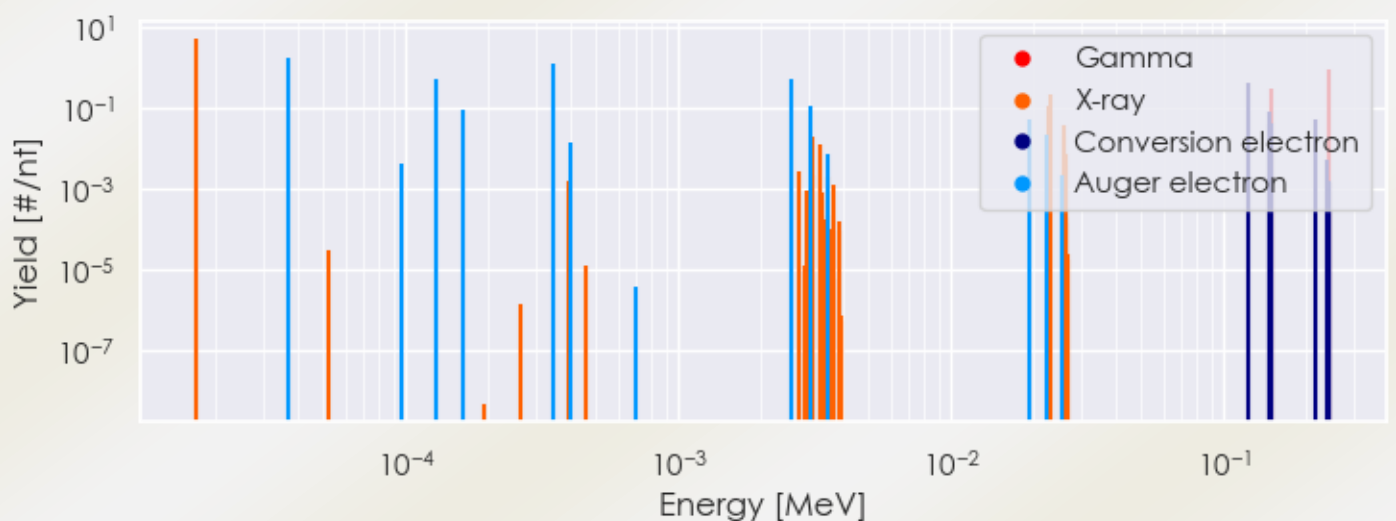
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Cd-111m 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/Cd-111m 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/Cd-111m Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Cd-111m%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [# / n _t] if > 0.01	Radiation type
1.71516e-05	5.179e+00	X-ray
3.12254e-03	1.954e-02	X-ray
3.31084e-03	1.208e-02	X-ray
2.29571e-02	1.148e-01	X-ray
2.31527e-02	2.158e-01	X-ray
2.60401e-02	1.904e-02	X-ray
2.60753e-02	3.699e-02	X-ray
1.50825e-01	2.914e-01	Gamma
2.45395e-01	9.400e-01	Gamma
3.68364e-05	1.823e+00	Auger electron
1.29114e-04	5.350e-01	Auger electron
1.61777e-04	9.099e-02	Auger electron
3.45140e-04	1.282e+00	Auger electron
4.01105e-04	1.451e-02	Auger electron
2.61108e-03	4.986e-01	Auger electron
3.05329e-03	1.147e-01	Auger electron
1.92752e-02	5.095e-02	Auger electron
2.24238e-02	2.096e-02	Auger electron
1.24137e-01	4.221e-01	Conversion electron
1.46831e-01	3.855e-02	Conversion electron
1.47094e-01	8.310e-02	Conversion electron
1.47290e-01	7.982e-02	Conversion electron
1.50212e-01	4.137e-02	Conversion electron
2.18707e-01	5.033e-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