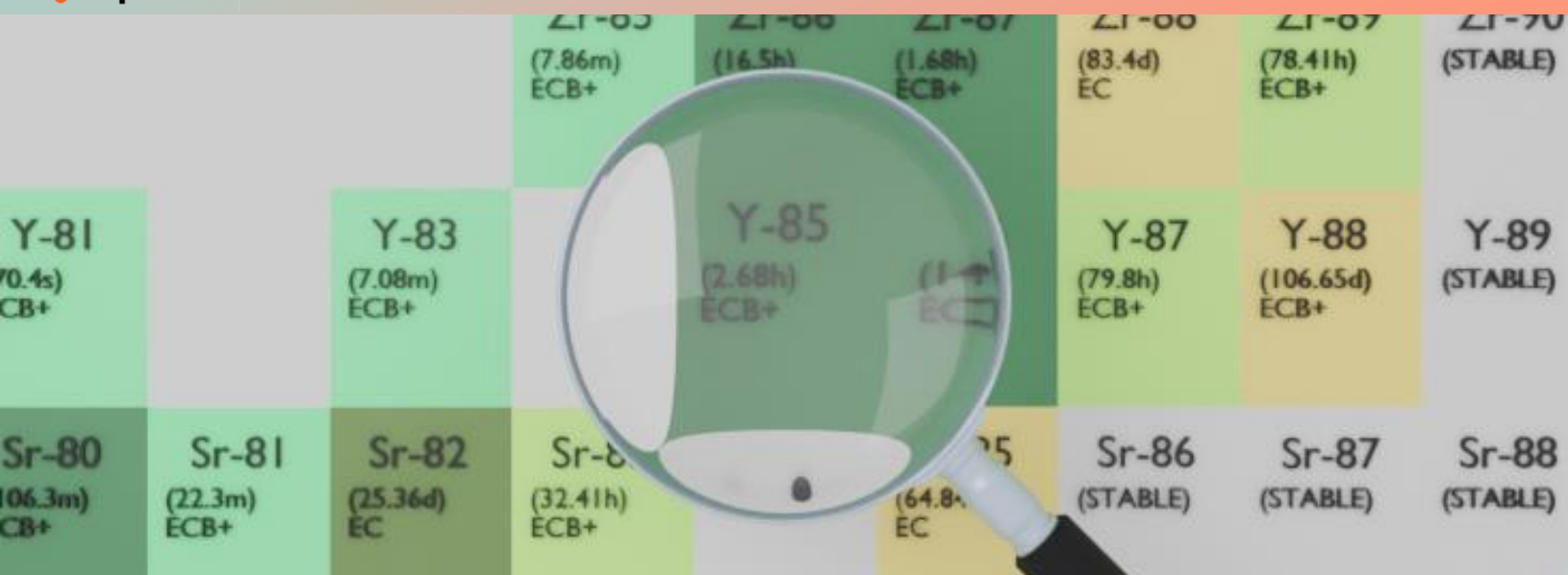




			Zr-85 (7.86m) ECB+	Zr-86 (16.5h) ECB+	Zr-87 (1.68h) ECB+	Zr-88 (83.4d) EC	Zr-89 (78.41h) ECB+	Zr-90 (STABLE)
Y-81 (70.4s) CB+		Y-83 (7.08m) ECB+		Y-85 (2.68h) ECB+	Y-87 (79.8h) ECB+	Y-88 (106.65d) ECB+	Y-89 (STABLE)	
Sr-80 (106.3m) CB+	Sr-81 (22.3m) ECB+	Sr-82 (25.36d) EC	Sr-83 (32.41h) ECB+	Sr-84 (64.8h) EC	Sr-85 (STABLE)	Sr-86 (STABLE)	Sr-87 (STABLE)	Sr-88 (STABLE)

YTTRIUM-85

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Y-85

Atomic number (Z): 39

Mass number (A): 85

Neutron number (N): 46

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture

Half-life: 2.68 [h]

Decay constant: 7.1844×10^{-5} [1/s]

Daughters: Sr-85m (100.0%)

Radioactive daughters: Sr-85m

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]

Mean electron energy: 0.48814 [MeV]

Mean photon energy: 1.07946 [MeV]

Air kerma rate constant, Γ_{10} : 2.061×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]

Air kerma coefficient, K_{air} : 4.631×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]

Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 7.821×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]

Equilibrium dose constant for alphas, Δ_{α} : 0.000×10^0 [Gy $\cdot$ kg/Bq $\cdot$ s]

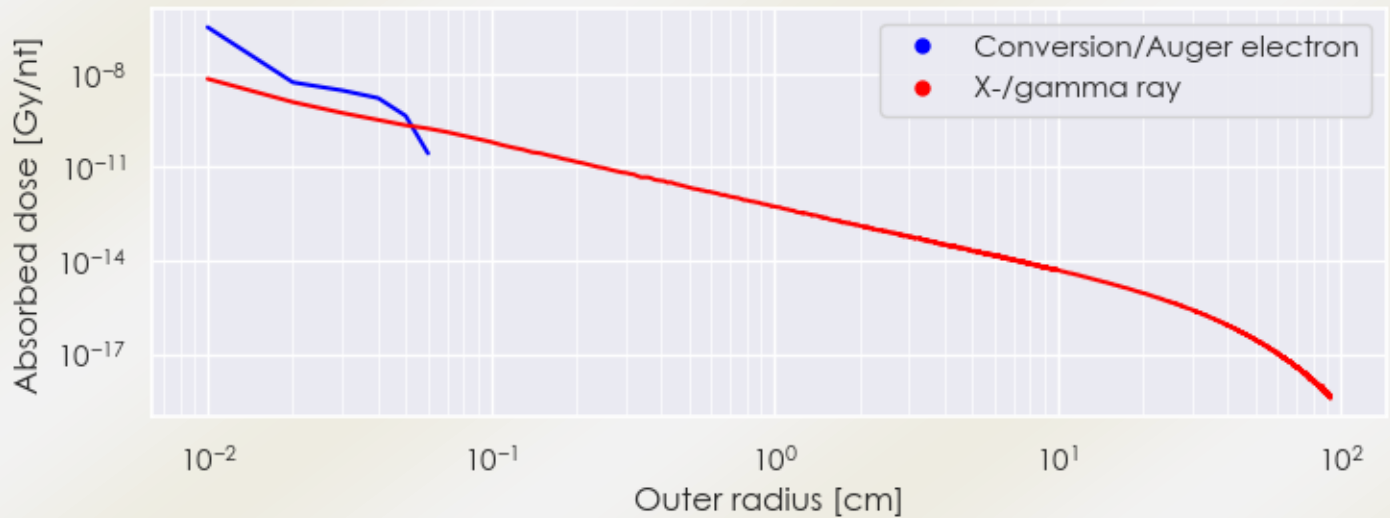
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 7.821×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.729×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

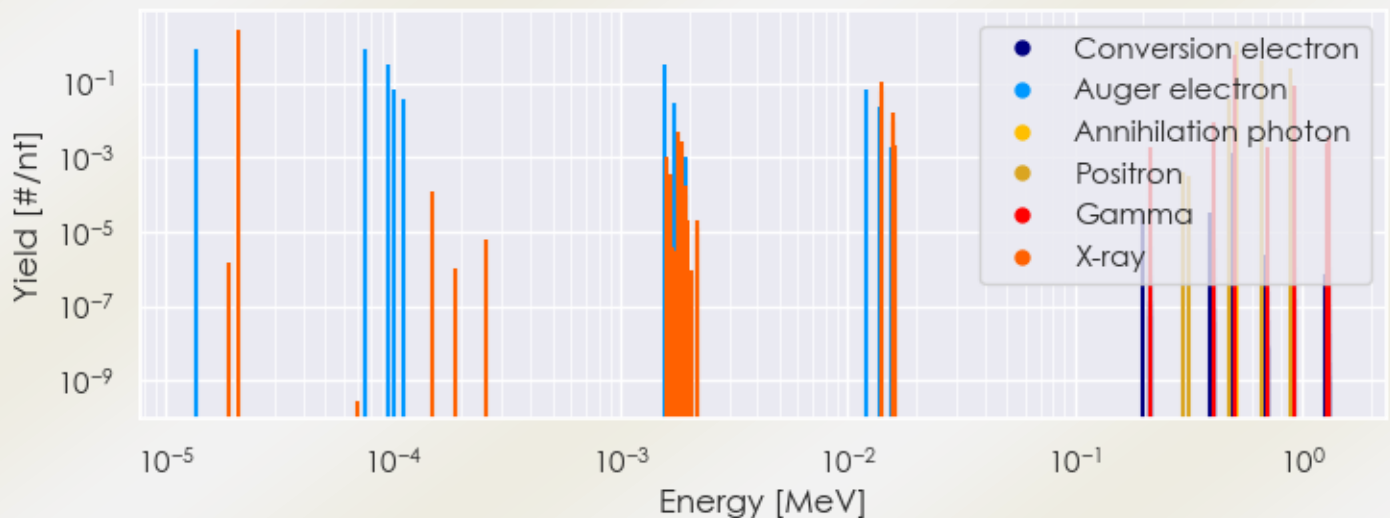
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Y-85 DPK.csv

SUMMARY SPECTRA (PLOT)

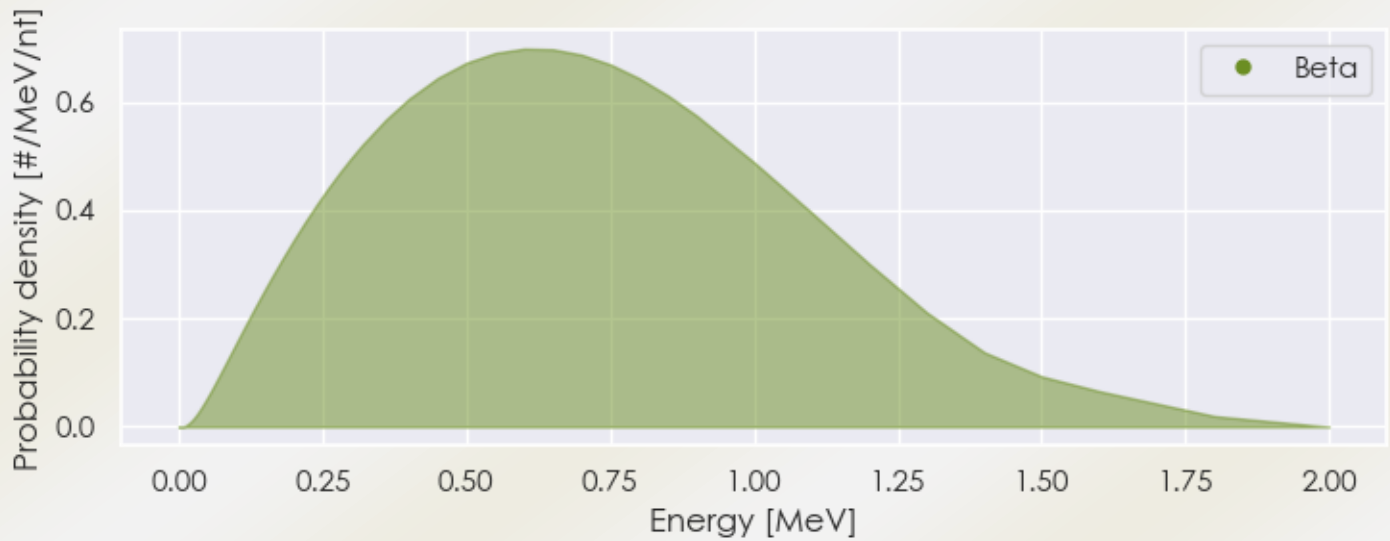
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Y-85 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/Y-85 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/Y-85 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
2.09354e-05	2.814e+00	X-ray
1.40549e-02	5.941e-02	X-ray
1.41246e-02	1.141e-01	X-ray
1.57975e-02	1.690e-02	X-ray
5.04440e-01	6.000e-01	Gamma
5.11000e-01	1.328e+00	Annihilation photon
9.13890e-01	9.000e-02	Gamma
4.75381e-01	3.830e-02	Positron
6.58302e-01	3.830e-01	Positron
8.88290e-01	2.419e-01	Positron

1.36397e-05	7.844e-01	Auger electron
7.49562e-05	7.822e-01	Auger electron
9.39289e-05	3.322e-01	Auger electron
1.00513e-04	7.132e-02	Auger electron
1.09925e-04	3.791e-02	Auger electron
1.57335e-03	3.271e-01	Auger electron
1.71374e-03	2.909e-02	Auger electron
1.20238e-02	6.790e-02	Auger electron
1.37890e-02	2.301e-02	Auger 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