

			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-85m (4.86h) ECB+	Y-86 (1.47h) 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-85M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Y-85m
Atomic number (Z): 39
Mass number (A): 85
Neutron number (N): 46

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 4.86 [h]
Decay constant: 3.9617×10^{-5} [1/s]
Daughters: Sr-85 (96.0%), Sr-85m (4.0%)
Radioactive daughters: Sr-85, Sr-85m

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.57651 [MeV]
Mean photon energy: 1.32421 [MeV]
Air kerma rate constant, Γ_{10} : 3.094×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 5.341×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 9.237×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

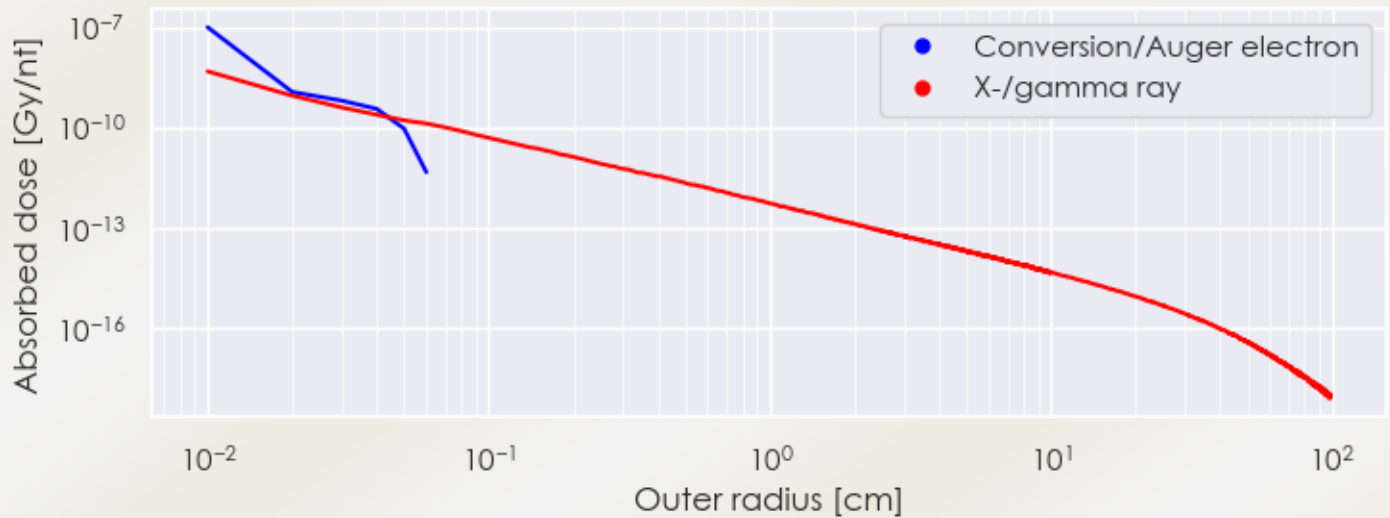
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-\beta^+,e^-}$: 9.237×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 2.122×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

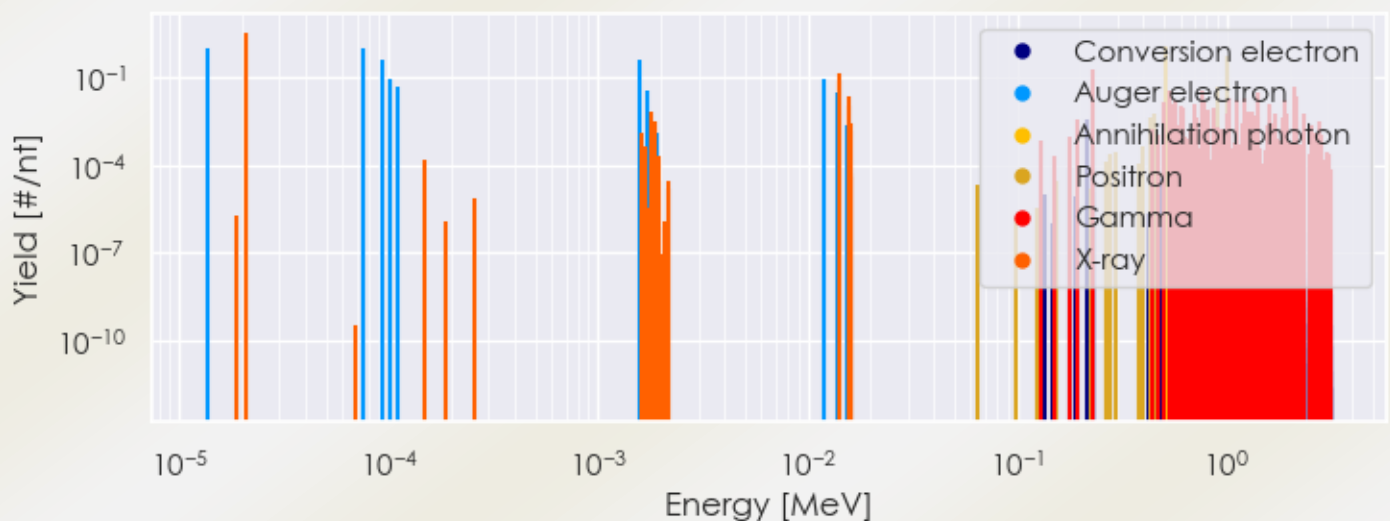
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



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

SUMMARY SPECTRA (PLOT)

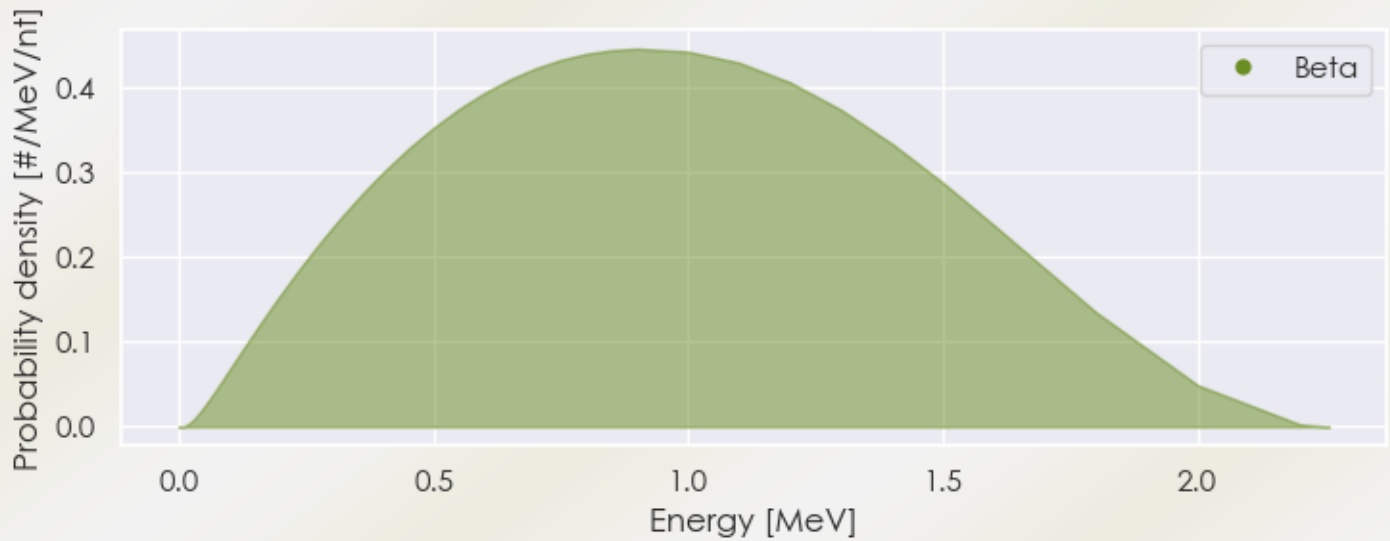
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



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

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
2.09353e-05	3.535e+00	X-ray
1.40549e-02	7.451e-02	X-ray
1.41246e-02	1.431e-01	X-ray
1.57867e-02	1.087e-02	X-ray
1.57975e-02	2.119e-02	X-ray
2.31700e-01	1.879e-01	Gamma
5.04400e-01	1.507e-02	Gamma
5.11000e-01	1.161e+00	Annihilation photon
5.35600e-01	3.456e-02	Gamma
5.46700e-01	1.188e-02	Gamma

5.68400e-01	1.674e-02	Gamma
6.11900e-01	1.080e-02	Gamma
6.98000e-01	1.296e-02	Gamma
7.67300e-01	3.618e-02	Gamma
7.68600e-01	1.296e-02	Gamma
7.87900e-01	1.566e-02	Gamma
1.03010e+00	2.020e-02	Gamma
1.12320e+00	1.782e-02	Gamma
1.22050e+00	1.976e-02	Gamma
1.40460e+00	3.078e-02	Gamma
1.58440e+00	1.188e-02	Gamma
1.89220e+00	1.782e-02	Gamma
2.12380e+00	4.968e-02	Gamma
2.17210e+00	2.268e-02	Gamma
9.00615e-01	4.802e-02	Positron
1.00777e+00	5.202e-01	Positron
1.36397e-05	9.853e-01	Auger electron
7.49580e-05	9.826e-01	Auger electron
9.39210e-05	4.173e-01	Auger electron
1.00567e-04	8.989e-02	Auger electron
1.09928e-04	4.762e-02	Auger electron
1.57337e-03	4.108e-01	Auger electron
1.71378e-03	3.653e-02	Auger electron
1.20238e-02	8.515e-02	Auger electron
1.37890e-02	2.885e-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