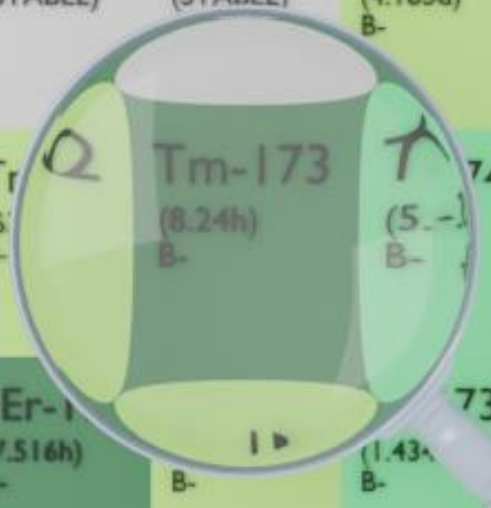




TD-170 (STABLE)	TD-171 (STABLE)	TD-172 (STABLE)	TD-173 (STABLE)	TD-174 (STABLE)	TD-175 (4.185d) B-	TD-176 (STABLE)	TD-177 (1.911h) B-	TD-178 (74m) B-
Tm-169 (STABLE)	Tm-170 (128.6d) B-EC	Tm-171 (1.92y) B-	Tm-172 (6.33d) B-	Tm-173 (8.24h) B-	Tm-174 (5.31d) B-	Tm-175 (15.2m) B-	Tm-176 (1.85m) B-	
Er-168 (STABLE)	Er-169 (9.40d) B-	Er-170 (STABLE)	Er-171 (7.516h) B-	Er-172 (1.43h) B-				

THULIUM-173

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Tm-173
Atomic number (Z): 69
Mass number (A): 173
Neutron number (N): 104

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 8.24 [h]
Decay constant: 2.3367×10^{-5} [1/s]
Daughters: Yb-173 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.31026 [MeV]
Mean photon energy: 0.38848 [MeV]
Air kerma rate constant, Γ_{10} : 1.468×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 1.468×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 4.971×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : $0.000 \times 10^{+00}$ [Gy $\cdot$ kg/Bq $\cdot$ s]

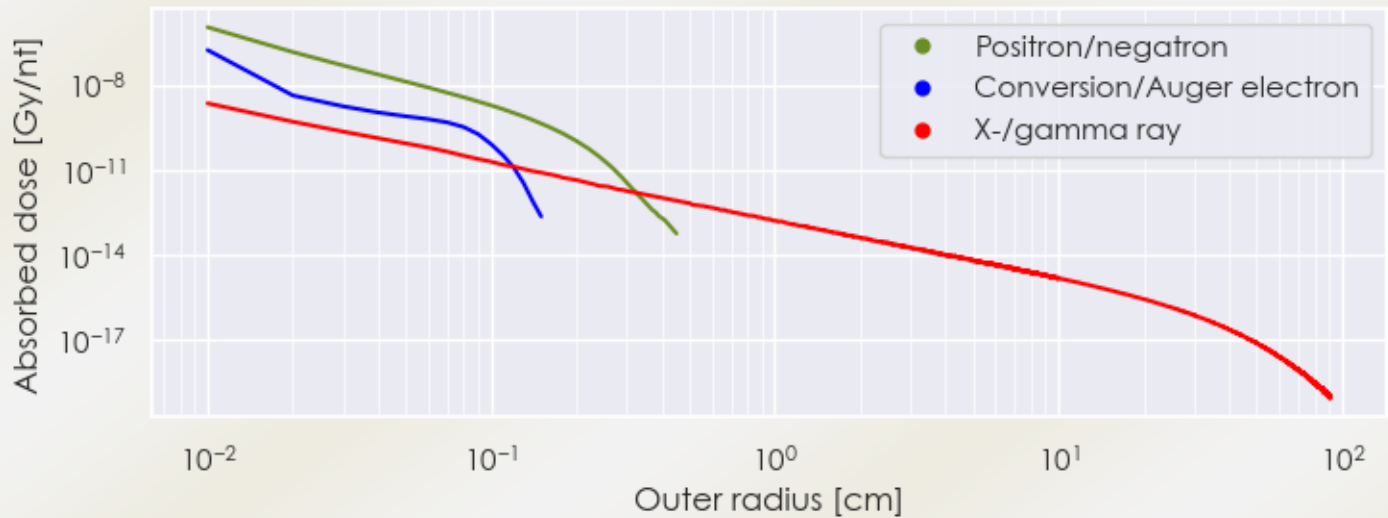
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 4.971×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 6.224×10^{-14} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

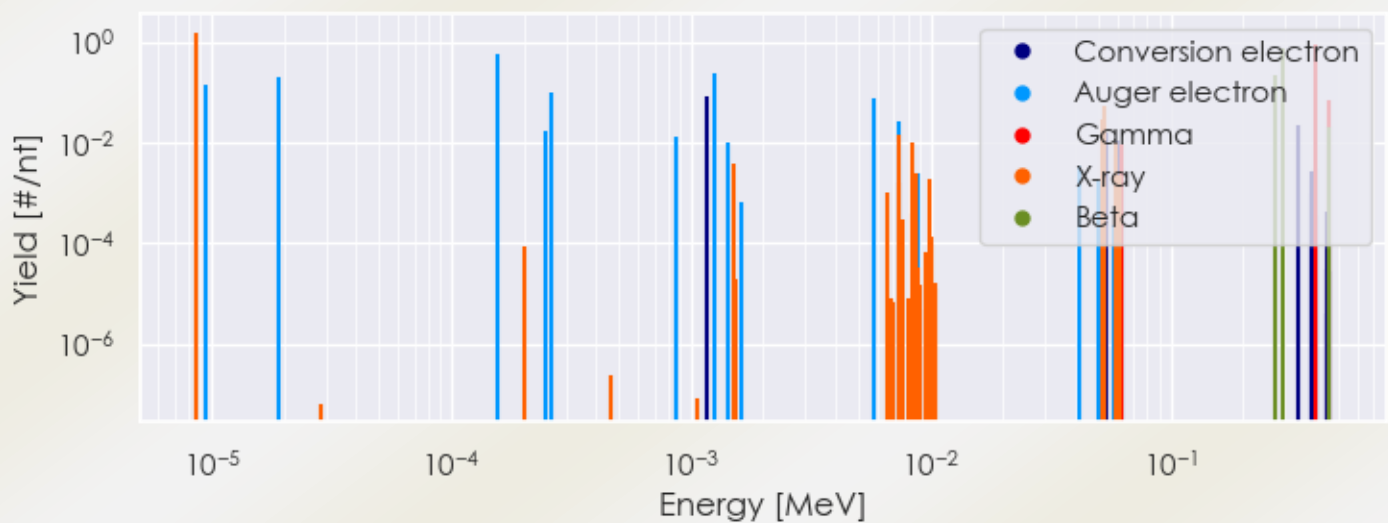
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Tm-173 DPK.csv

SUMMARY SPECTRA (PLOT)

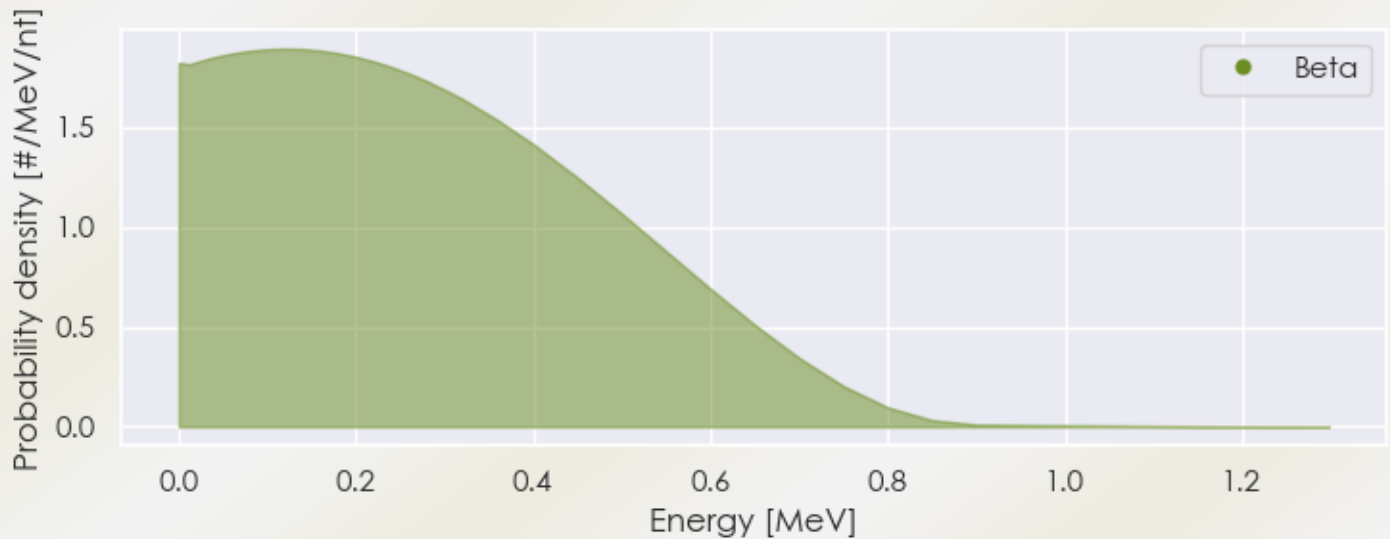
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Tm-173 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/Tm-173 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/Tm-173 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
8.65777e-06	1.535e+00	X-ray
7.40529e-03	1.406e-02	X-ray
8.41451e-03	1.026e-02	X-ray
5.14483e-02	2.891e-02	X-ray
5.25072e-02	5.095e-02	X-ray
5.95058e-02	1.038e-02	X-ray
3.98900e-01	8.790e-01	Gamma
4.61400e-01	6.856e-02	Gamma
2.72324e-01	2.200e-01	Beta
2.96296e-01	7.600e-01	Beta

4.55208e-01	2.000e-02	Beta
9.38839e-06	1.337e-01	Auger electron
1.88613e-05	1.897e-01	Auger electron
1.54803e-04	5.553e-01	Auger electron
2.45009e-04	1.673e-02	Auger electron
2.61870e-04	9.673e-02	Auger electron
8.64851e-04	1.353e-02	Auger electron
1.15900e-03	8.089e-02	Conversion electron
1.25712e-03	2.255e-01	Auger electron
1.42958e-03	1.018e-02	Auger electron
5.81693e-03	7.485e-02	Auger electron
7.30829e-03	2.699e-02	Auger electron
5.21460e-02	1.129e-02	Conversion electron
5.26074e-02	1.577e-02	Conversion electron
5.36662e-02	1.605e-02	Conversion electron
6.06648e-02	1.040e-02	Conversion electron
3.37459e-01	2.181e-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