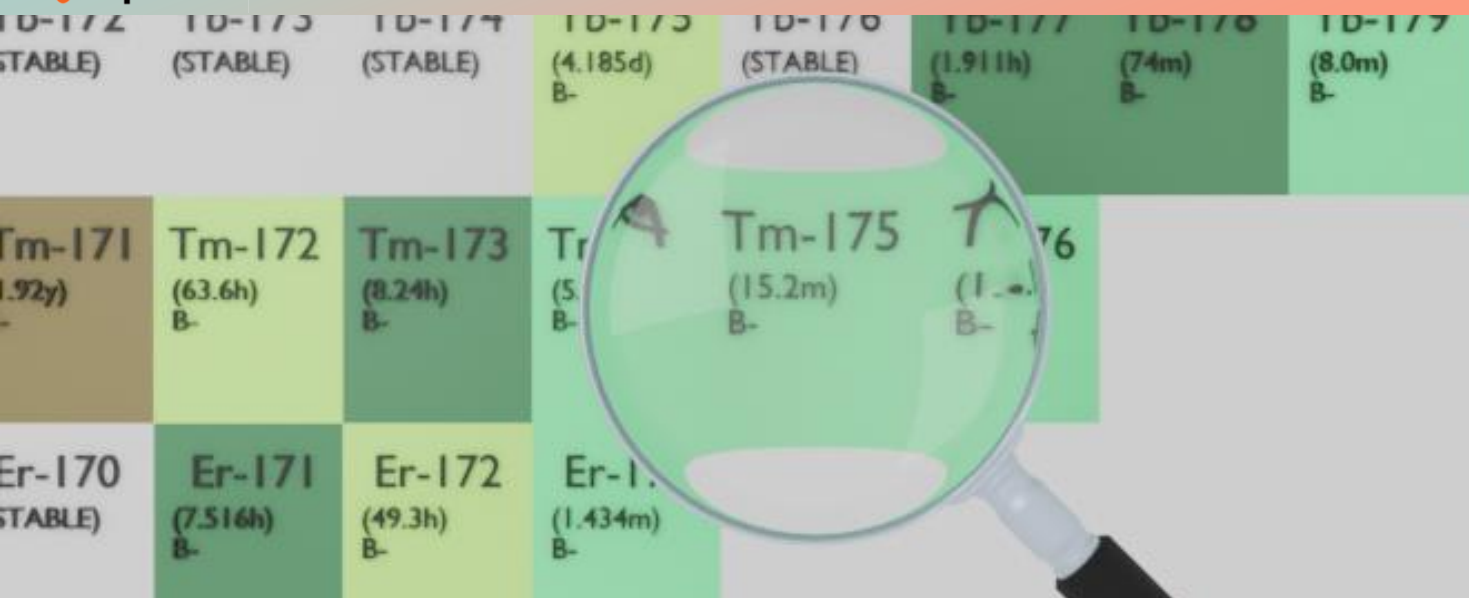




THULIUM-175

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Tm-175
Atomic number (Z): 69
Mass number (A): 175
Neutron number (N): 106

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 15.2 [m]
Decay constant: $7.6003\text{e-}04$ [1/s]
Daughters: Yb-175 (100.0%)
Radioactive daughters: Yb-175

DOSIMETRIC CONSTANTS

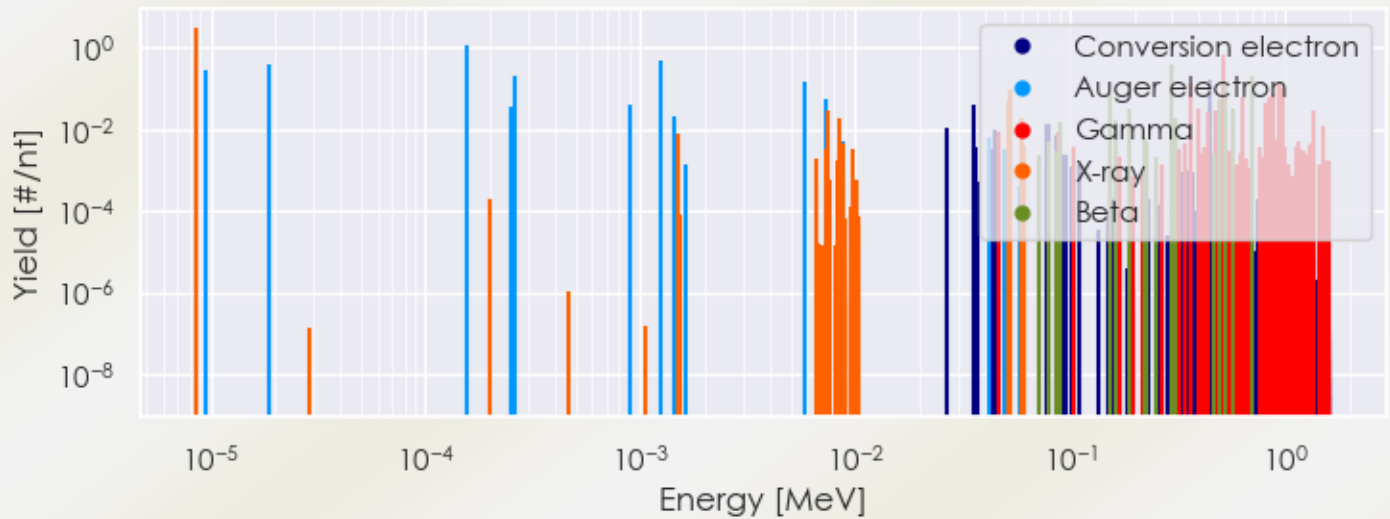
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.51957 [MeV]
Mean photon energy: 1.08477 [MeV]
Air kerma rate constant, Γ_{10} : $3.980\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : $3.980\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $8.324\text{e-}14$ [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [Gy $\cdot$ kg/Bq $\cdot$ s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 8.324×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.738×10^{-13} [Gy·kg/Bq·s]

SUMMARY SPECTRA (PLOT)

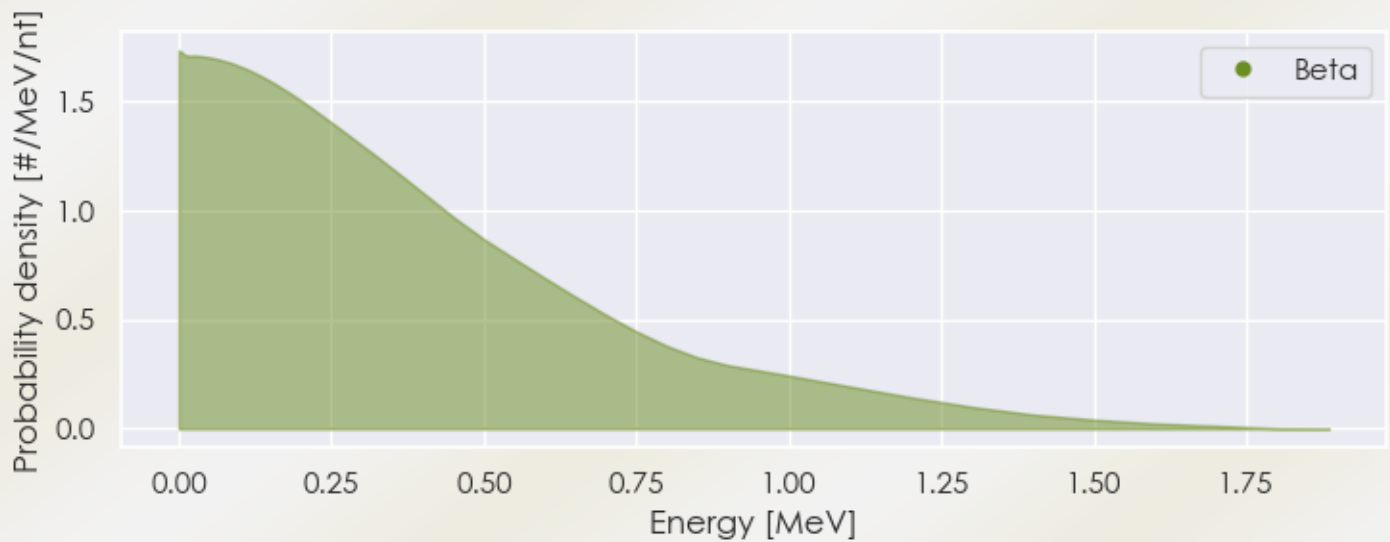
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Tm-175 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Tm-175%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/Tm-175 Beta Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Tm-175%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/Tm-175 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Tm-175%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [#/(nt)] if > 0.01	Radiation type
8.60682e-06	3.231e+00	X-ray
7.40530e-03	2.775e-02	X-ray
8.41451e-03	1.857e-02	X-ray
5.14483e-02	5.263e-02	X-ray
5.25072e-02	9.275e-02	X-ray
5.95058e-02	1.889e-02	X-ray
3.63800e-01	1.270e-01	Gamma
3.94000e-01	3.358e-02	Gamma
4.36200e-01	2.482e-02	Gamma
4.77200e-01	2.964e-02	Gamma
5.14700e-01	6.497e-01	Gamma
5.34400e-01	1.898e-02	Gamma
5.76900e-01	1.197e-02	Gamma
6.39000e-01	6.424e-02	Gamma
8.11200e-01	4.307e-02	Gamma
8.57800e-01	6.030e-02	Gamma
8.94300e-01	7.738e-02	Gamma
9.41000e-01	1.460e-01	Gamma
9.53900e-01	1.971e-02	Gamma
9.82100e-01	1.022e-01	Gamma
1.37690e+00	3.066e-02	Gamma
1.52510e+00	1.226e-02	Gamma
9.02906e-02	1.457e-02	Beta
1.53103e-01	8.070e-02	Beta
1.62508e-01	1.782e-02	Beta
1.87612e-01	3.354e-02	Beta
2.97873e-01	3.888e-01	Beta
3.08864e-01	1.886e-02	Beta

5.01165e-01	5.764e-02	Beta
5.31298e-01	1.300e-01	Beta
5.77159e-01	3.249e-02	Beta
7.04086e-01	1.991e-01	Beta
9.44954e-06	2.842e-01	Auger electron
1.88620e-05	4.017e-01	Auger electron
1.54728e-04	1.168e+00	Auger electron
2.48617e-04	3.582e-02	Auger electron
2.63102e-04	2.069e-01	Auger electron
9.00243e-04	3.995e-02	Auger electron
1.25706e-03	4.668e-01	Auger electron
1.43111e-03	2.108e-02	Auger electron
5.84018e-03	1.508e-01	Auger electron
7.33603e-03	5.444e-02	Auger electron
2.65590e-02	1.133e-02	Conversion electron
3.60460e-02	3.942e-02	Conversion electron
7.80074e-02	1.315e-02	Conversion electron
7.90662e-02	1.294e-02	Conversion electron
4.53259e-01	1.608e-01	Conversion electron
5.04246e-01	2.814e-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