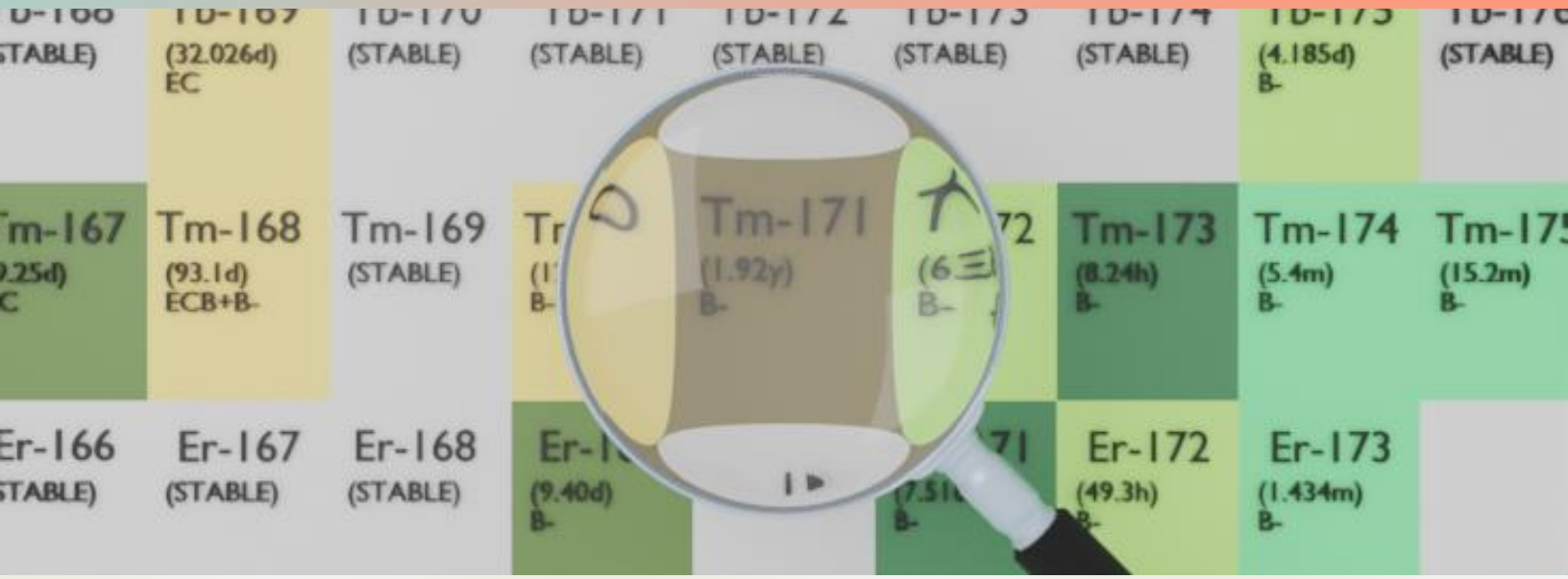


THULIUM-171

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Tm-171
Atomic number (Z): 69
Mass number (A): 171
Neutron number (N): 102

RADIOACTIVE DECAY

Decay modes: β-
Half-life: 1.92 [y]
Decay constant: 1.1440e-08 [1/s]
Daughters: Yb-171 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

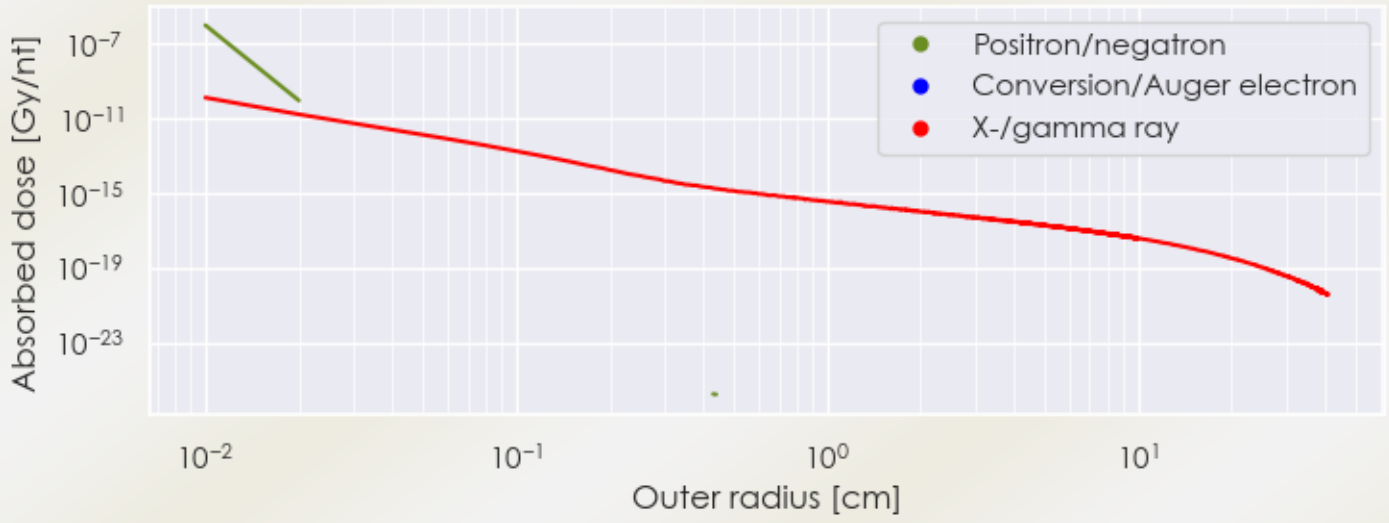
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.02547 [MeV]
Mean photon energy: 0.00062 [MeV]
Air kerma rate constant, Γ_{10}: 2.782e-20 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 2.782e-20 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 4.081e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 4.081e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 9.934e-17 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

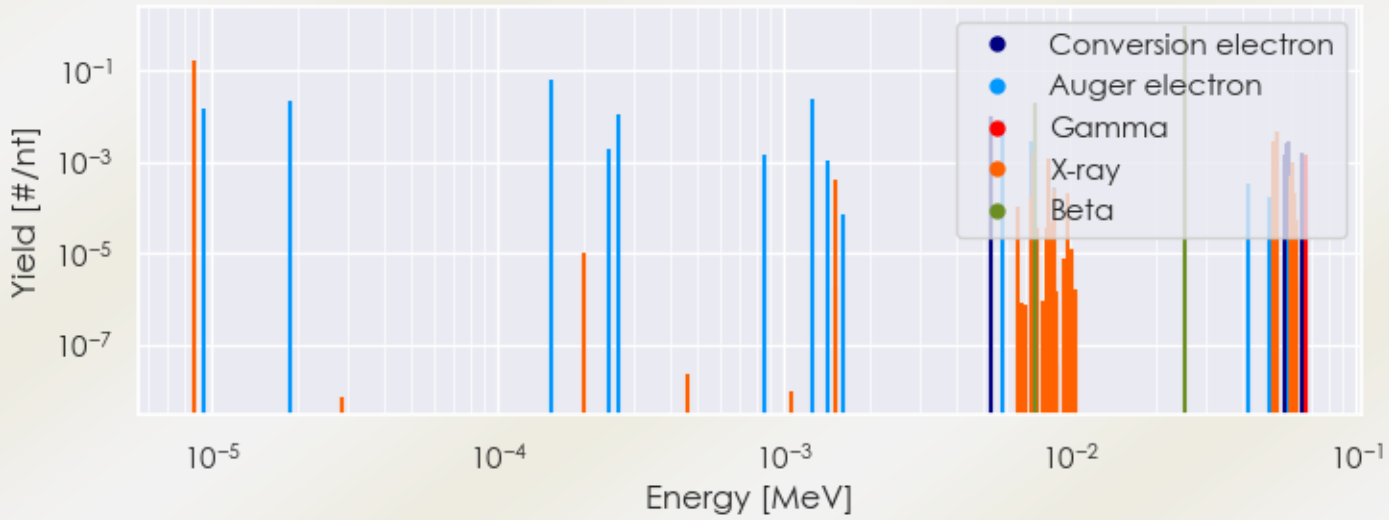
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Tm-171 DPK.csv

SUMMARY SPECTRA (PLOT)

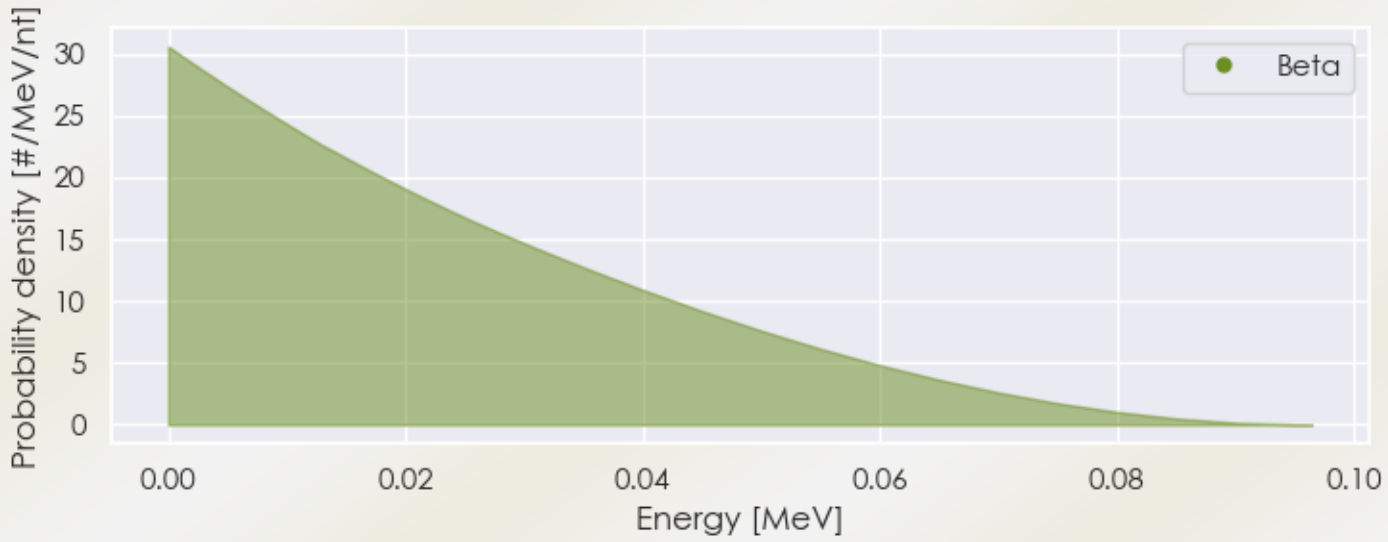
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Tm-171 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-171 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-171 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
8.66379e-06	1.664e-01	X-ray
7.49891e-03	2.000e-02	Beta
2.51209e-02	9.800e-01	Beta
9.37625e-06	1.449e-02	Auger electron
1.88612e-05	2.055e-02	Auger electron
1.54801e-04	6.023e-02	Auger electron
2.62341e-04	1.051e-02	Auger electron
1.25746e-03	2.446e-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/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6