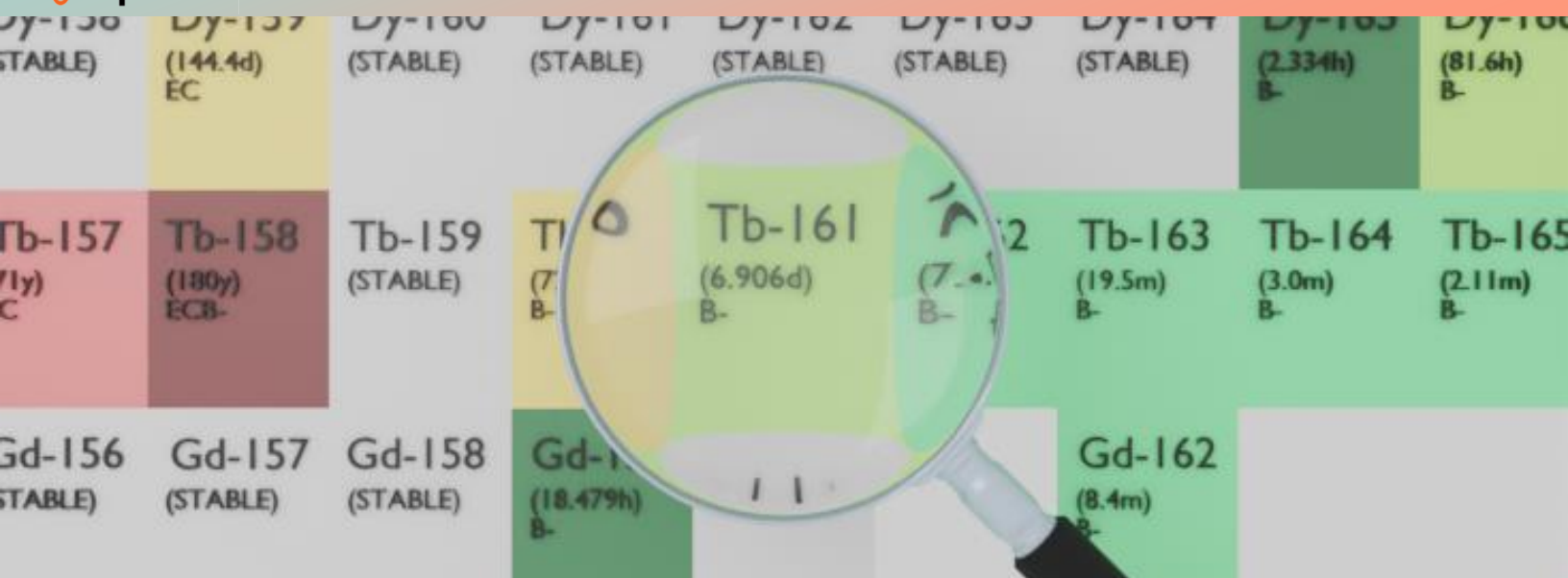




TERBIUM-161

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Tb-161
Atomic number (Z): 65
Mass number (A): 161
Neutron number (N): 96

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 6.906 [d]
Decay constant: 1.1617×10^{-6} [1/s]
Daughters: Dy-161 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.20248 [MeV]
Mean photon energy: 0.03652 [MeV]
Air kerma rate constant, Γ_{10} : 3.298×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 3.298×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 3.244×10^{-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, $\Delta_{\beta,\beta^+,e^-}$: 3.244e-14 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 5.851e-15 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

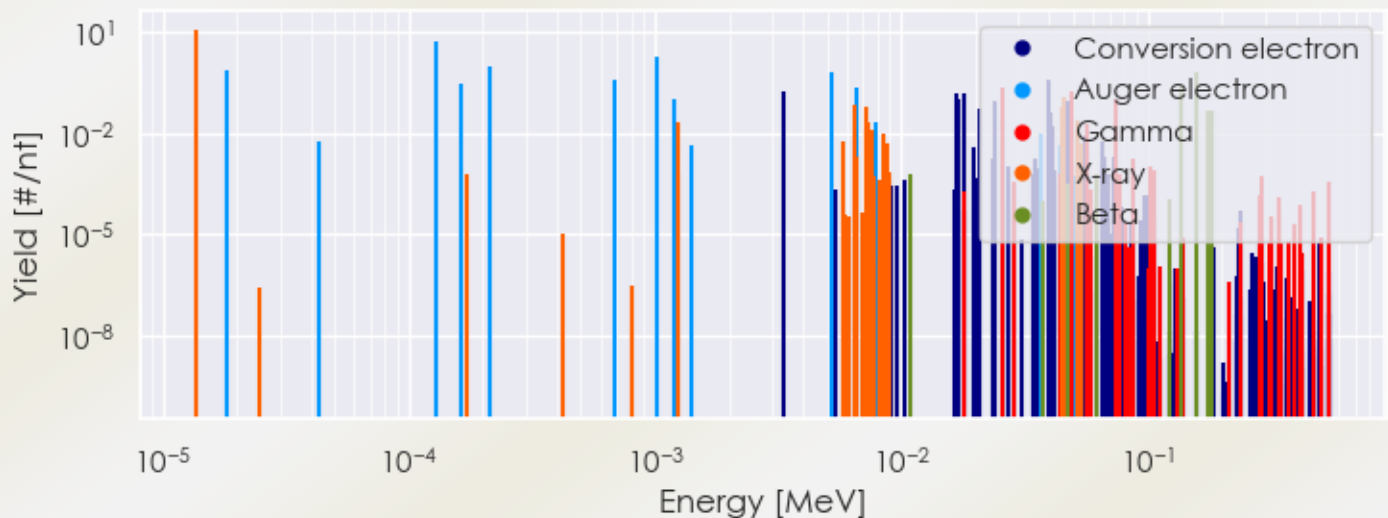
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Tb-161 DPK.csv

SUMMARY SPECTRA (PLOT)

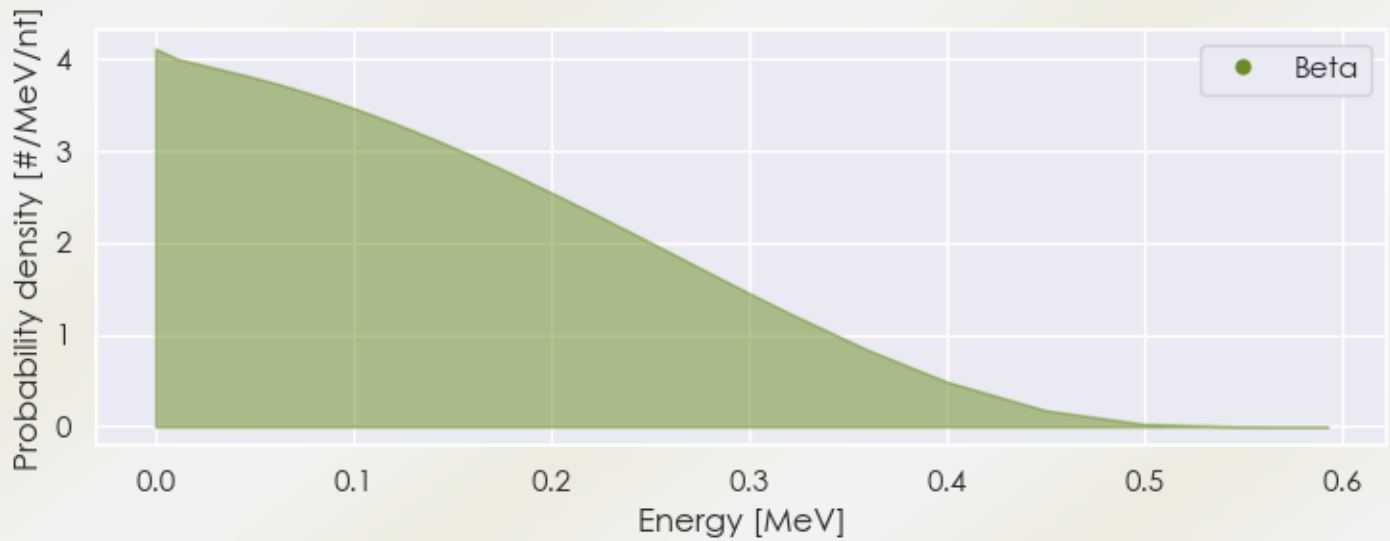
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Tb-161 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/Tb-161 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/Tb-161 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.37706e-05	1.247e+01	X-ray
1.23425e-03	2.219e-02	X-ray
6.48150e-03	7.377e-02	X-ray
7.18161e-03	1.512e-02	X-ray
7.25410e-03	5.826e-02	X-ray
7.35039e-03	2.107e-02	X-ray
7.62076e-03	1.249e-02	X-ray
8.42364e-03	1.022e-02	X-ray
2.56514e-02	2.315e-01	Gamma
4.52703e-02	6.578e-02	X-ray

4.60801e-02	1.175e-01	X-ray
4.89153e-02	1.703e-01	Gamma
5.20302e-02	1.210e-02	X-ray
5.21989e-02	2.339e-02	X-ray
5.71917e-02	1.785e-02	Gamma
7.45667e-02	1.020e-01	Gamma
1.37651e-01	2.547e-01	Beta
1.57324e-01	6.443e-01	Beta
1.74509e-01	4.956e-02	Beta
1.83646e-01	4.956e-02	Beta
1.81686e-05	7.158e-01	Auger electron
1.28230e-04	5.716e+00	Auger electron
1.61806e-04	2.889e-01	Auger electron
2.12183e-04	9.995e-01	Auger electron
6.84692e-04	3.788e-01	Auger electron
1.02155e-03	1.836e+00	Auger electron
1.20494e-03	1.013e-01	Auger electron
3.33070e-03	1.825e-01	Conversion electron
5.25045e-03	6.516e-01	Auger electron
6.52770e-03	2.309e-01	Auger electron
7.84506e-03	2.061e-02	Auger electron
1.66389e-02	1.513e-01	Conversion electron
1.70607e-02	1.093e-01	Conversion electron
1.78704e-02	1.594e-01	Conversion electron
2.07057e-02	5.679e-02	Conversion electron
2.39893e-02	9.400e-02	Conversion electron
2.56514e-02	2.431e-02	Conversion electron
3.99028e-02	3.805e-01	Conversion electron
4.03246e-02	4.234e-02	Conversion electron
4.11343e-02	1.623e-02	Conversion electron
4.72532e-02	9.695e-02	Conversion electron
4.81792e-02	2.467e-02	Conversion electron
4.89153e-02	2.719e-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