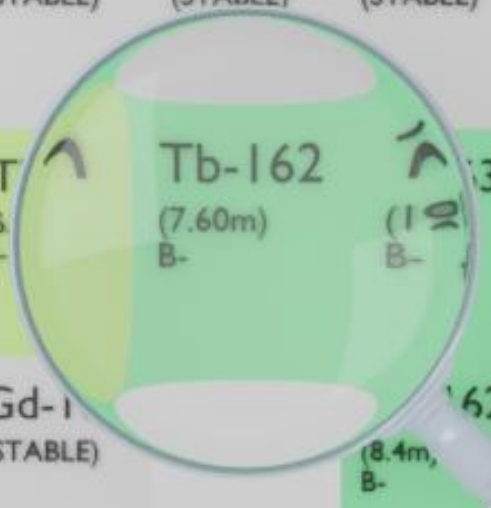




Dy-157 (44.4d) C	Dy-160 (STABLE)	Dy-161 (STABLE)	Dy-162 (STABLE)	Dy-163 (STABLE)	Dy-164 (STABLE)	Dy-165 (2.334h) B-	Dy-166 (81.6h) B-	Dy-167 (6.20m) B-
Tb-158 (180y) B-	Tb-159 (STABLE)	Tb-160 (72.3d) B-	Tb-161 (6.4h) B-	Tb-162 (7.60m) B-	Tb-163 (1.92h) B-	Tb-164 (3.0m) B-	Tb-165 (2.11m) B-	
Gd-157 (STABLE)	Gd-158 (STABLE)	Gd-159 (18.479h) B-	Gd-160 (STABLE)	Gd-161 (STABLE)	Gd-162 (8.4m) B-			

TERBIUM-162

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Tb-162
Atomic number (Z): 65
Mass number (A): 162
Neutron number (N): 97

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 7.6 [m]
Decay constant: 1.5201×10^{-3} [1/s]
Daughters: Dy-162 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.5327 [MeV]
Mean photon energy: 1.10658 [MeV]
Air kerma rate constant, Γ_{10} : 4.028×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 4.028×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 8.535×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000×10^0 [Gy $\cdot$ kg/Bq $\cdot$ s]

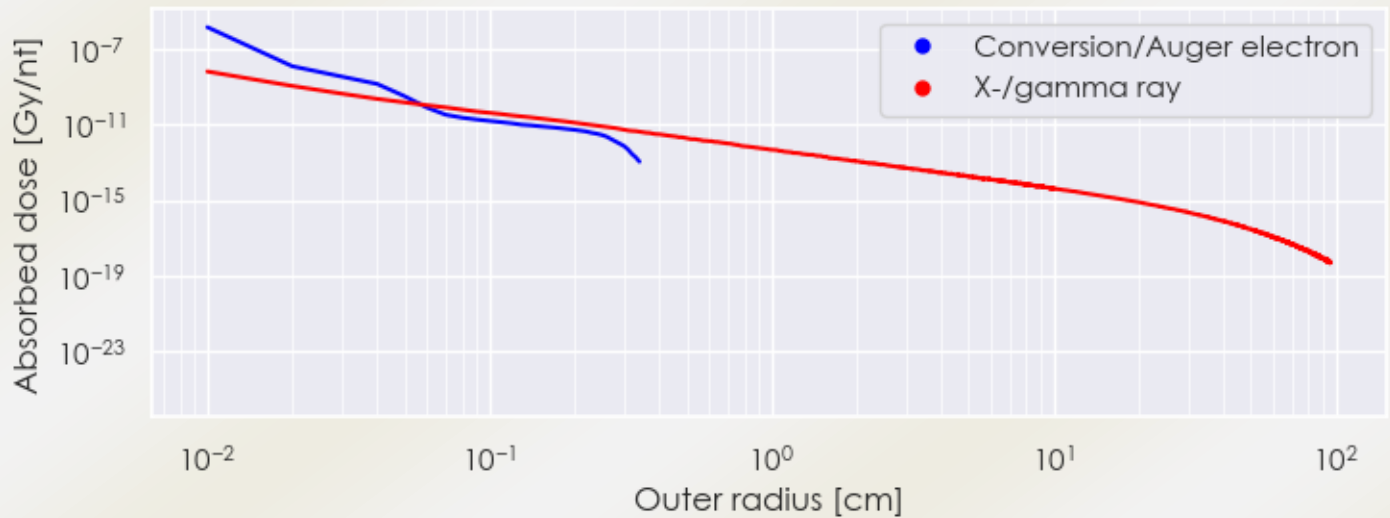
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 8.535×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.773×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

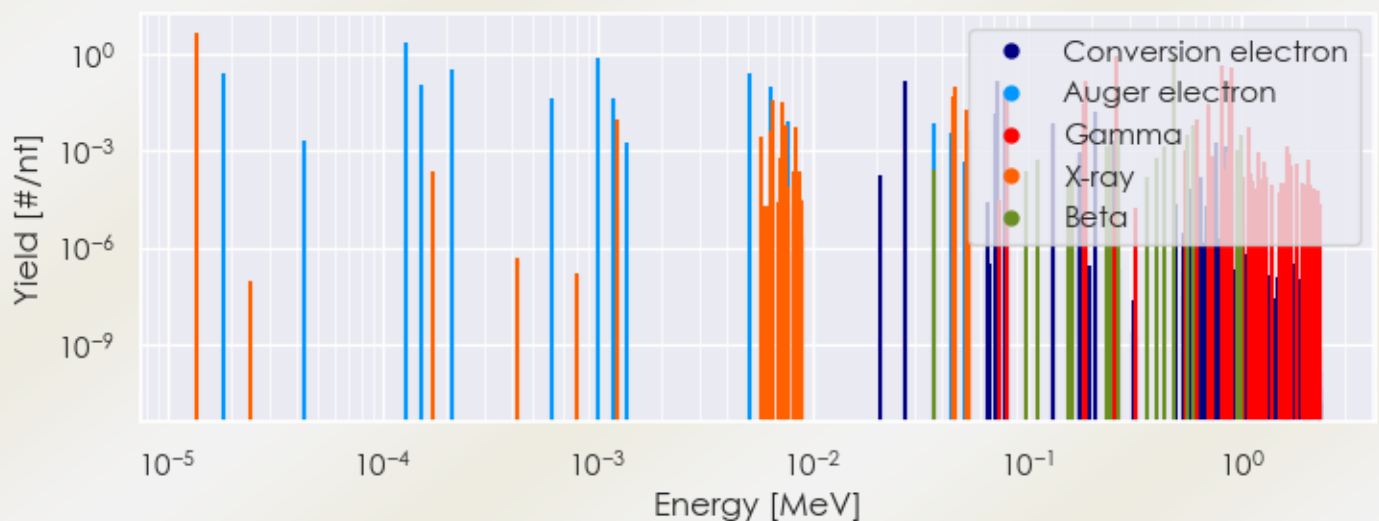
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Tb-162 DPK.csv

SUMMARY SPECTRA (PLOT)

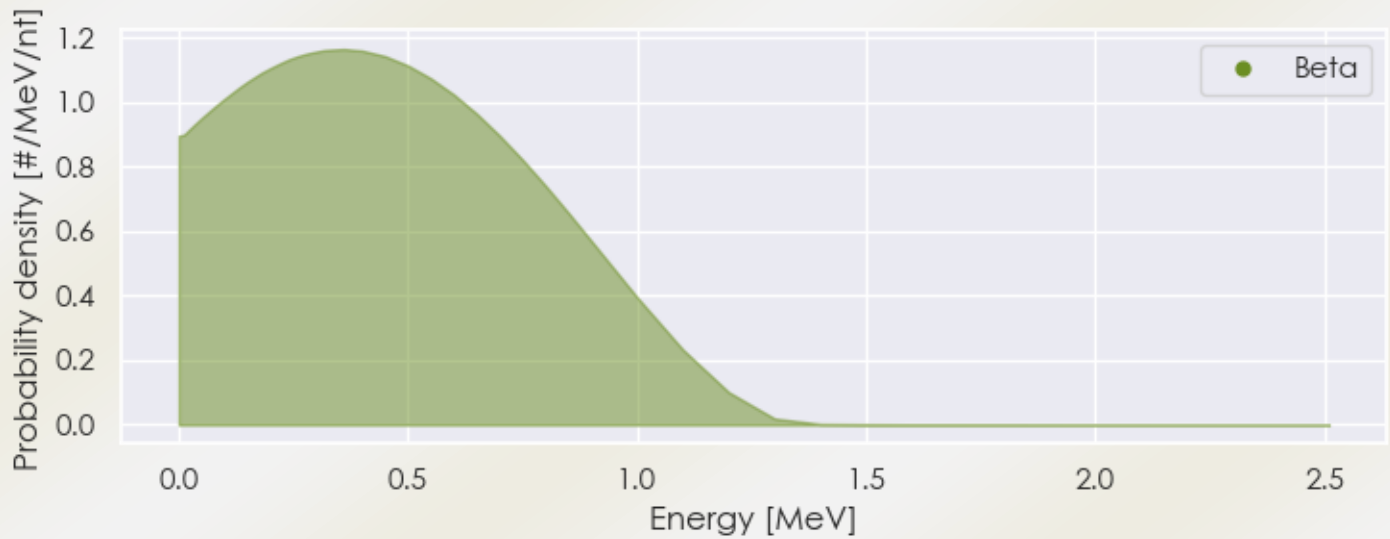
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Tb-162 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-162 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-162 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.36909e-05	4.633e+00	X-ray
6.48150e-03	3.662e-02	X-ray
7.25410e-03	3.170e-02	X-ray
4.52703e-02	5.036e-02	X-ray
4.60801e-02	9.001e-02	X-ray
5.21989e-02	1.791e-02	X-ray
8.06600e-02	8.646e-02	Gamma
1.84980e-01	2.696e-02	Gamma
1.85270e-01	1.442e-01	Gamma
2.60050e-01	8.004e-01	Gamma

6.97350e-01	2.581e-02	Gamma
8.07530e-01	4.280e-01	Gamma
8.82320e-01	1.344e-01	Gamma
8.88200e-01	3.869e-01	Gamma
4.85741e-01	9.773e-01	Beta
1.81686e-05	2.530e-01	Auger electron
1.28598e-04	2.114e+00	Auger electron
1.52653e-04	1.042e-01	Auger electron
2.11470e-04	3.361e-01	Auger electron
6.17482e-04	4.445e-02	Auger electron
1.01686e-03	7.507e-01	Auger electron
1.19130e-03	4.073e-02	Auger electron
5.12190e-03	2.642e-01	Auger electron
6.38155e-03	9.293e-02	Auger electron
2.67990e-02	1.531e-01	Conversion electron
7.16475e-02	1.431e-02	Conversion electron
7.20693e-02	1.352e-01	Conversion electron
7.28790e-02	1.428e-01	Conversion electron
7.89979e-02	7.045e-02	Conversion electron
8.06600e-02	1.842e-02	Conversion electron
2.06189e-01	1.679e-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