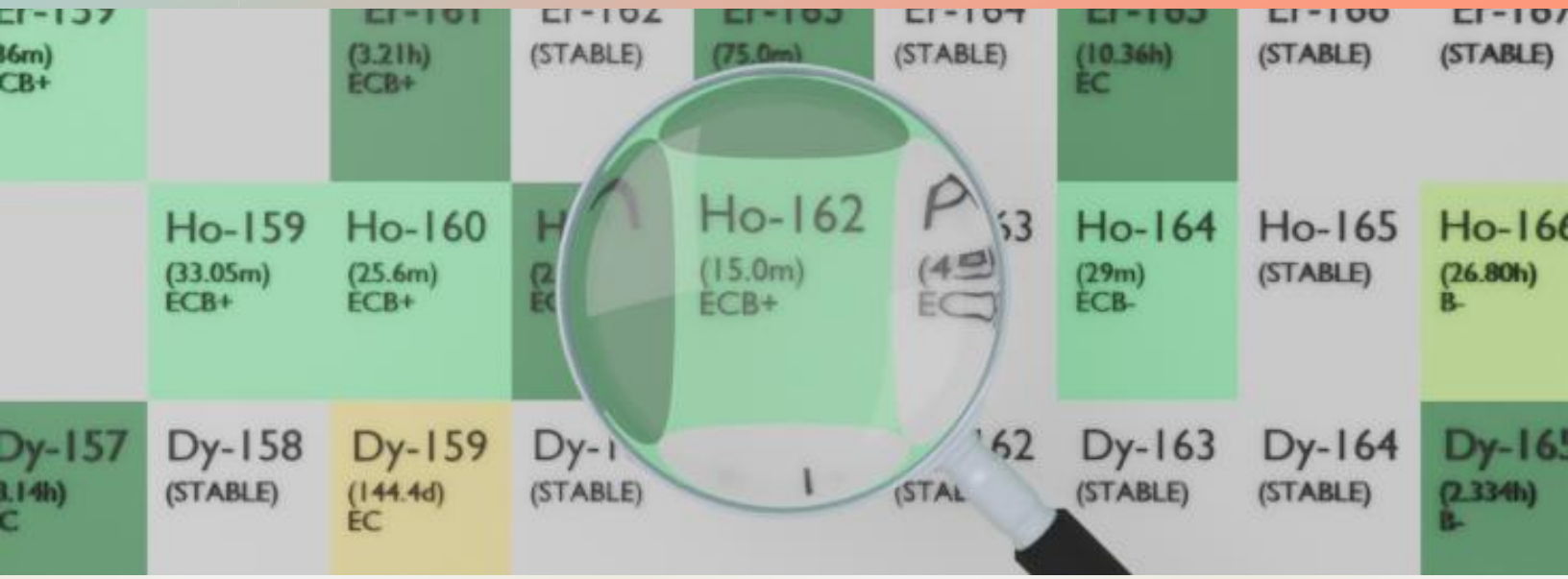


HOLMIUM-162

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ho-162
Atomic number (Z): 67
Mass number (A): 162
Neutron number (N): 95

RADIOACTIVE DECAY

Decay modes: β+, Electron capture
Half-life: 15.0 [m]
Decay constant: 7.7016e-04 [1/s]
Daughters: Dy-162 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

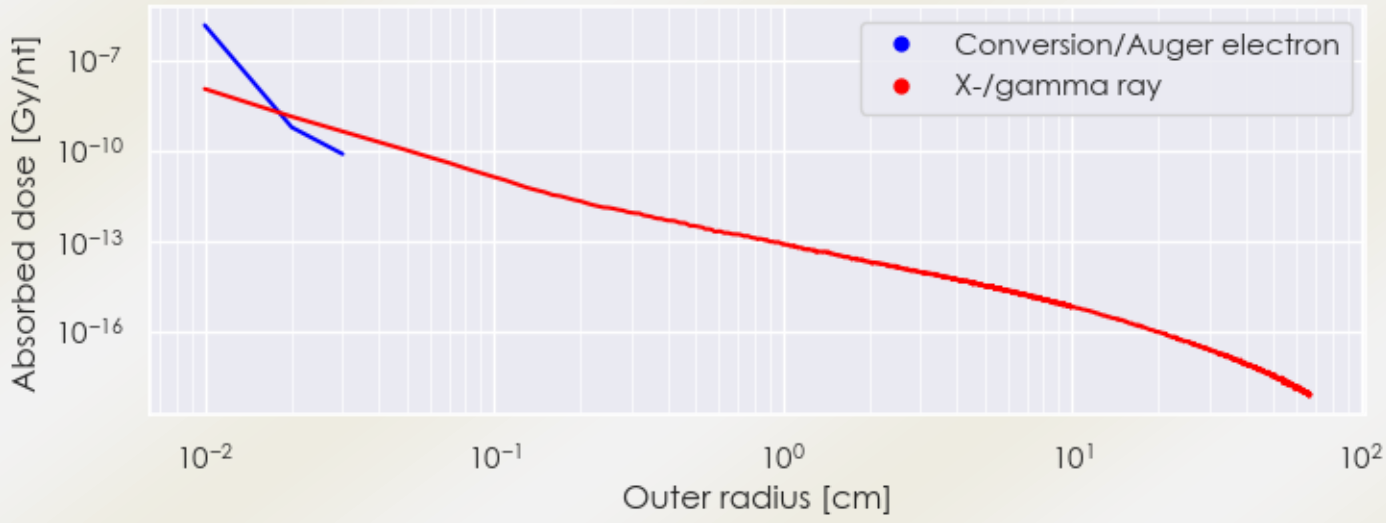
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.05984 [MeV]
Mean photon energy: 0.16404 [MeV]
Air kerma rate constant, Γ_{10}: 5.218e-18 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air}: 6.694e-18 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 9.587e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 9.587e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 2.628e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

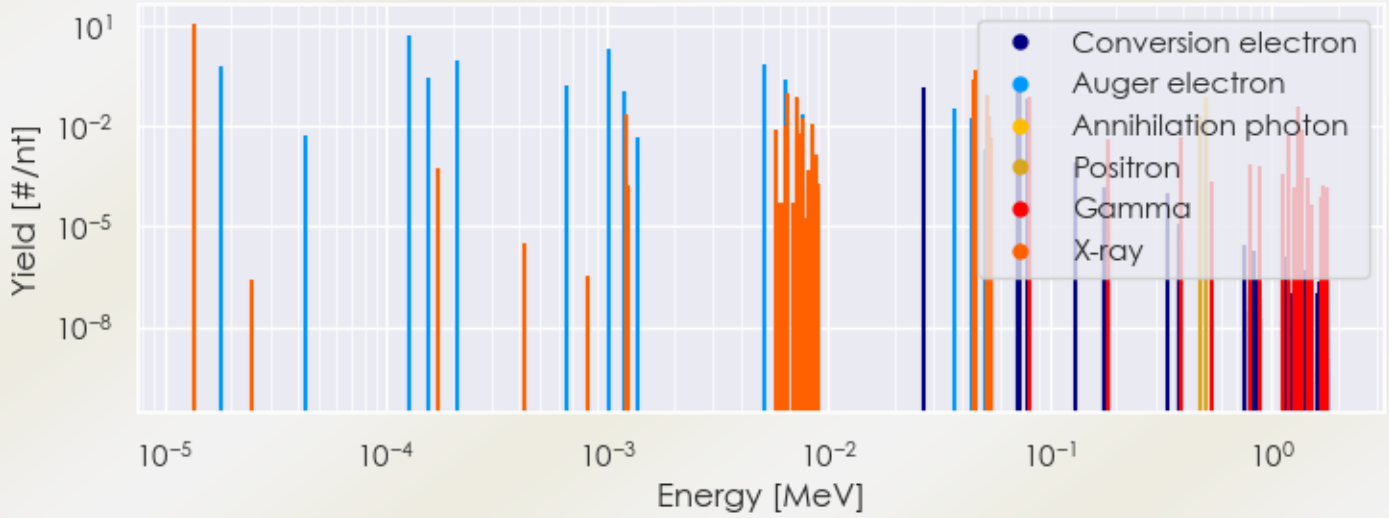
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



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

SUMMARY SPECTRA (PLOT)

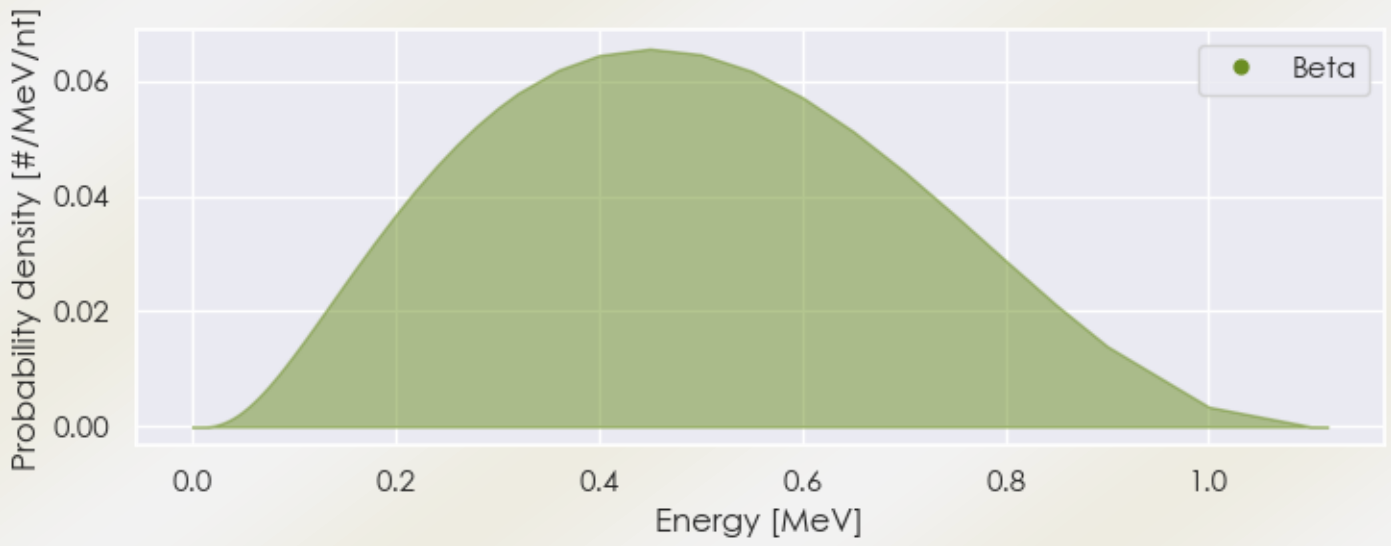
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



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

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
1.37051e-05	1.220e+01	X-ray
1.22911e-03	2.346e-02	X-ray
6.44440e-03	1.107e-02	X-ray
6.48150e-03	9.789e-02	X-ray
7.25411e-03	7.173e-02	X-ray
7.62077e-03	1.657e-02	X-ray
8.42364e-03	1.258e-02	X-ray
4.52703e-02	2.551e-01	X-ray
4.60801e-02	4.559e-01	X-ray
5.20302e-02	4.692e-02	X-ray

5.21989e-02	9.070e-02	X-ray
5.35316e-02	1.033e-02	X-ray
5.35696e-02	2.001e-02	X-ray
8.07000e-02	8.022e-02	Gamma
5.11000e-01	7.627e-02	Annihilation photon
1.31960e+00	3.820e-02	Gamma
4.75015e-01	1.907e-02	Positron
5.10441e-01	1.907e-02	Positron
1.81686e-05	6.725e-01	Auger electron
1.28570e-04	5.567e+00	Auger electron
1.54502e-04	2.739e-01	Auger electron
2.10267e-04	8.937e-01	Auger electron
6.49340e-04	1.601e-01	Auger electron
1.01696e-03	1.950e+00	Auger electron
1.19234e-03	1.060e-01	Auger electron
5.12241e-03	6.935e-01	Auger electron
6.38419e-03	2.440e-01	Auger electron
7.67949e-03	2.161e-02	Auger electron
2.68390e-02	1.420e-01	Conversion electron
3.70640e-02	3.629e-02	Auger electron
4.39727e-02	1.815e-02	Auger electron
7.16875e-02	1.327e-02	Conversion electron
7.21093e-02	1.252e-01	Conversion electron
7.29190e-02	1.321e-01	Conversion electron
7.90379e-02	6.521e-02	Conversion electron
8.07000e-02	1.705e-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