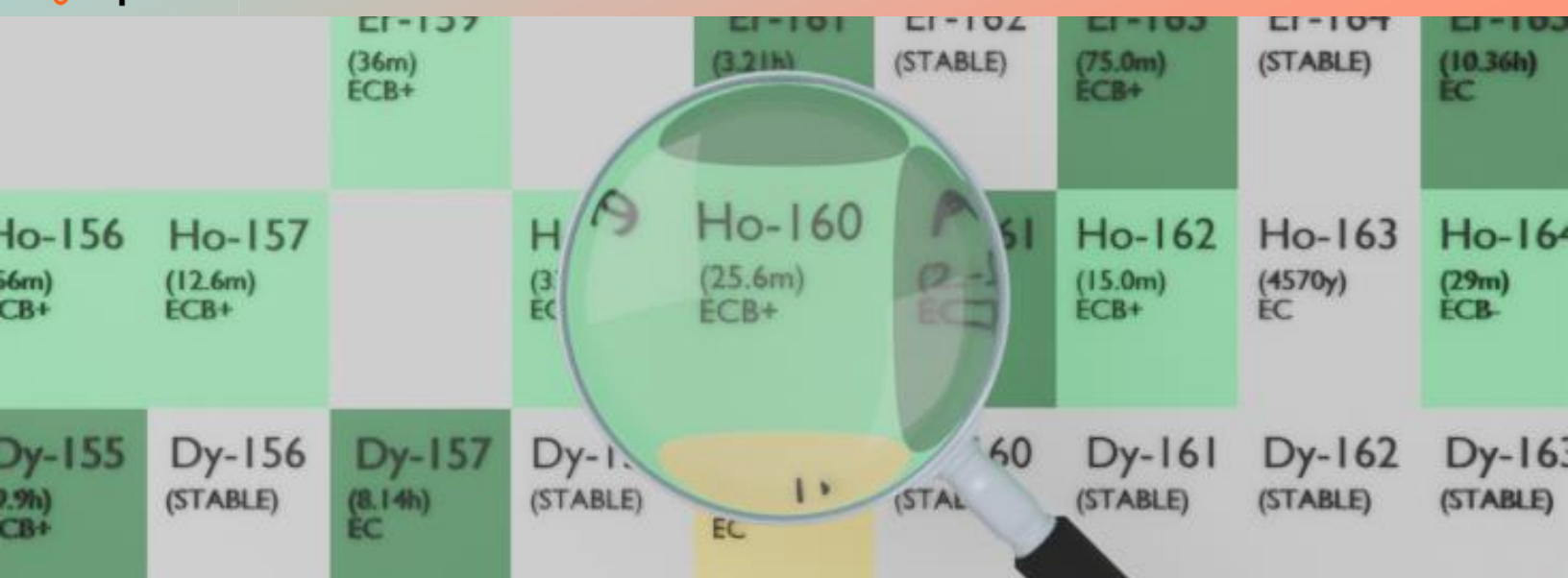




HOLMIUM-160

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ho-160
Atomic number (Z): 67
Mass number (A): 160
Neutron number (N): 93

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 25.6 [m]
Decay constant: 4.5127e-04 [1/s]
Daughters: Dy-160 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

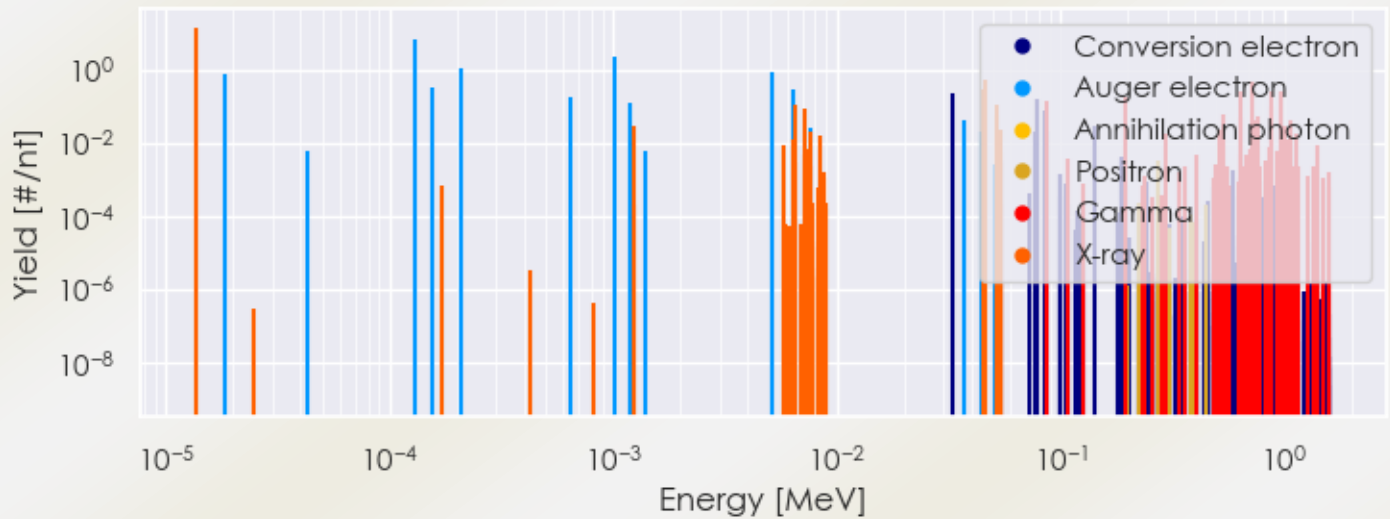
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.07027 [MeV]
Mean photon energy: 1.69501 [MeV]
Air kerma rate constant, Γ_{10} : 6.257e-17 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : 6.275e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 1.126e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 1.126×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 2.716×10^{-13} [Gy·kg/Bq·s]

SUMMARY SPECTRA (PLOT)

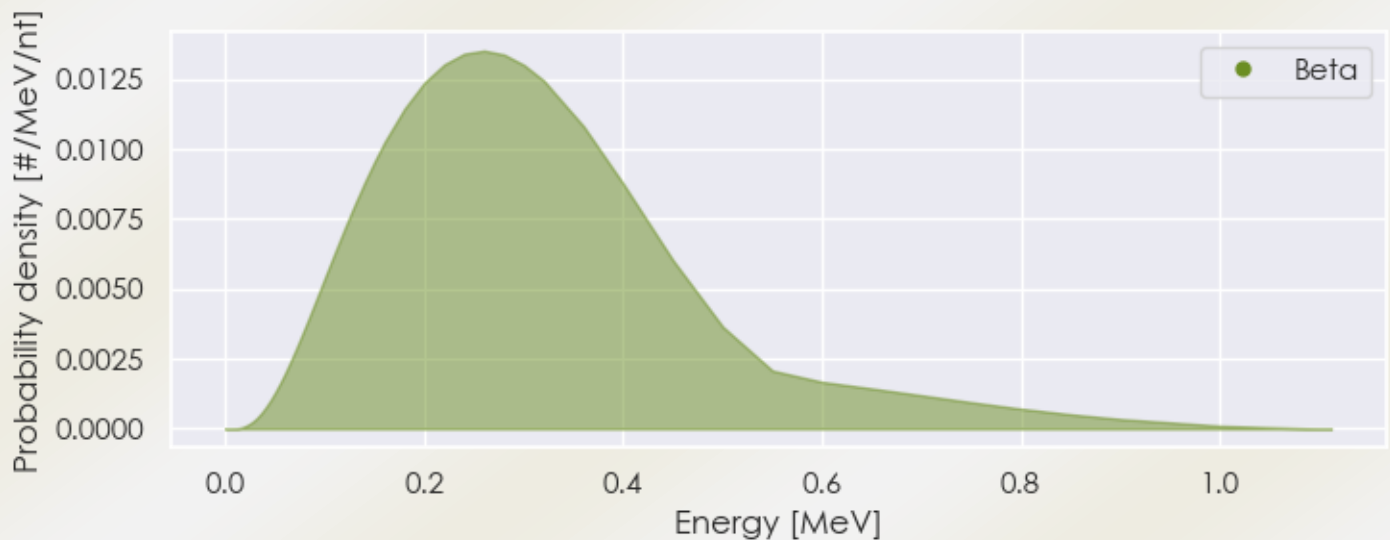
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Ho-160 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Ho-160%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/Ho-160 Beta Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Ho-160%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/Ho-160 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Ho-160%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [#/(nt)] if > 0.01	Radiation type
1.37045e-05	1.416e+01	X-ray
1.22907e-03	2.725e-02	X-ray
6.44440e-03	1.284e-02	X-ray
6.48150e-03	1.135e-01	X-ray
7.25411e-03	8.414e-02	X-ray
7.62077e-03	1.920e-02	X-ray
8.42364e-03	1.476e-02	X-ray
4.52703e-02	2.918e-01	X-ray
4.60801e-02	5.215e-01	X-ray
5.20302e-02	5.367e-02	X-ray
5.21989e-02	1.038e-01	X-ray
5.35316e-02	1.181e-02	X-ray
5.35696e-02	2.289e-02	X-ray
8.67880e-02	1.363e-01	Gamma
1.97020e-01	1.661e-01	Gamma
2.97200e-01	1.704e-02	Gamma
5.13470e-01	2.130e-02	Gamma
5.38560e-01	5.964e-02	Gamma
6.45400e-01	2.471e-01	Gamma
6.46300e-01	4.686e-02	Gamma
7.28180e-01	4.686e-01	Gamma
7.53110e-01	4.260e-02	Gamma
7.65300e-01	5.112e-02	Gamma
8.72030e-01	9.372e-02	Gamma
8.79370e-01	2.662e-01	Gamma
9.62360e-01	2.556e-01	Gamma
9.66170e-01	2.194e-01	Gamma
1.00467e+00	2.897e-02	Gamma

1.04780e+00	1.214e-02	Gamma
1.06907e+00	4.047e-02	Gamma
1.13060e+00	1.661e-02	Gamma
1.81686e-05	7.802e-01	Auger electron
1.28571e-04	6.461e+00	Auger electron
1.54397e-04	3.179e-01	Auger electron
2.10339e-04	1.037e+00	Auger electron
6.48025e-04	1.833e-01	Auger electron
1.01695e-03	2.265e+00	Auger electron
1.19228e-03	1.231e-01	Auger electron
5.12270e-03	8.052e-01	Auger electron
6.38438e-03	2.833e-01	Auger electron
7.67955e-03	2.509e-02	Auger electron
3.29270e-02	2.111e-01	Conversion electron
3.70640e-02	4.151e-02	Auger electron
4.39727e-02	2.076e-02	Auger electron
7.77755e-02	1.933e-02	Conversion electron
7.81973e-02	1.513e-01	Conversion electron
7.90070e-02	1.567e-01	Conversion electron
8.51259e-02	7.872e-02	Conversion electron
8.67880e-02	2.061e-02	Conversion electron
1.43159e-01	2.762e-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