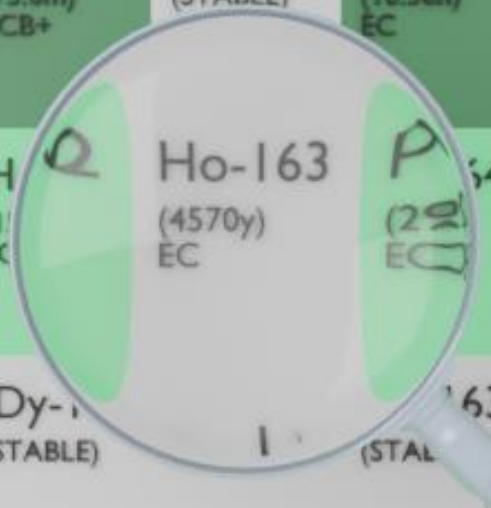




Er-161 (3.21h) ECB+	Er-162 (STABLE)	Er-163 (75.0m) ECB+	Er-164 (STABLE)	Er-165 (10.36h) EC	Er-166 (STABLE)	Er-167 (STABLE)	Er-168 (STABLE)
Ho-159 (3.05m) CB+	Ho-160 (25.6m) ECB+	Ho-161 (2.48h) EC	Ho-162 (1.1h) EC	Ho-163 (4570y) EC	Ho-164 (2.8h) EC	Ho-165 (STABLE)	Ho-166 (26.80h) B-
Dy-158 (STABLE)	Dy-159 (144.4d) EC	Dy-160 (STABLE)	Dy-161 (STABLE)	Dy-162 (STABLE)	Dy-163 (STABLE)	Dy-164 (STABLE)	Dy-165 (2.334h) B-

HOLMIUM-163

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ho-163
Atomic number (Z): 67
Mass number (A): 163
Neutron number (N): 96

RADIOACTIVE DECAY

Decay modes: Electron capture
Half-life: 4570.0 [y]
Decay constant: $4.8063\text{e-}12$ [1/s]
Daughters: Dy-163 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

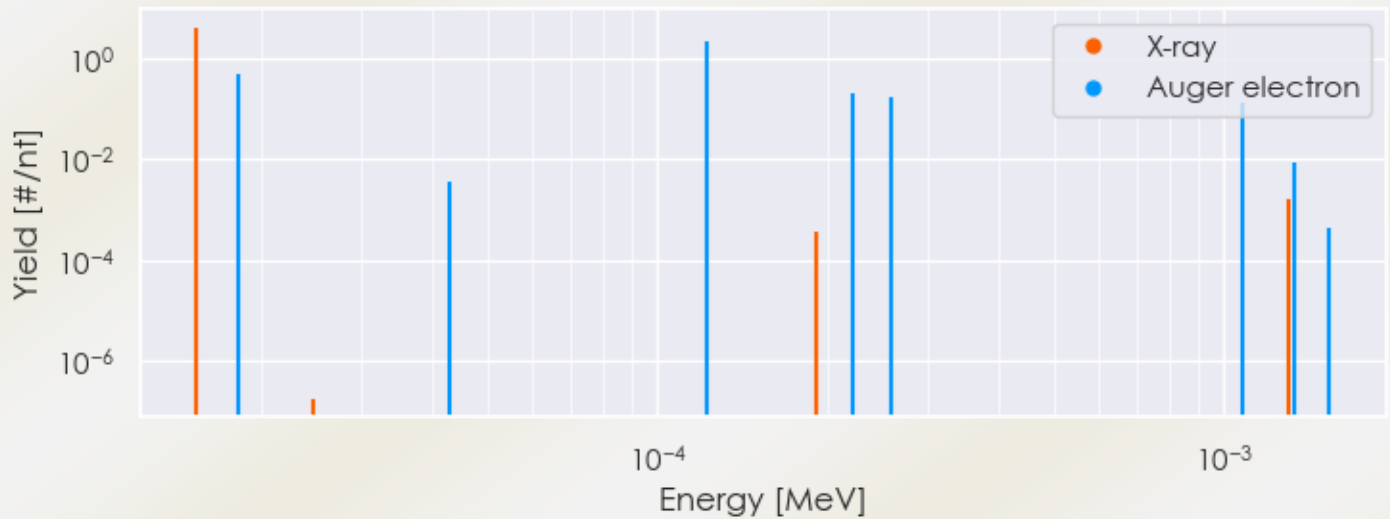
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.00051 [MeV]
Mean photon energy: $6\text{e-}05$ [MeV]
Air kerma rate constant, Γ_{10} : $0.000\text{e+}00$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Air kerma coefficient, K_{air} : $0.000\text{e+}00$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $8.171\text{e-}17$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-, \beta+, e-}$: 8.171×10^{-17} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 9.613×10^{-18} [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-163 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Ho-163%20Summary%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-163 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Ho-163%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.53440e-05	4.205e+00	X-ray
1.81686e-05	4.767e-01	Auger electron
1.22217e-04	2.191e+00	Auger electron
2.21478e-04	2.049e-01	Auger electron
2.58280e-04	1.670e-01	Auger electron
1.08025e-03	1.302e-01	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/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6