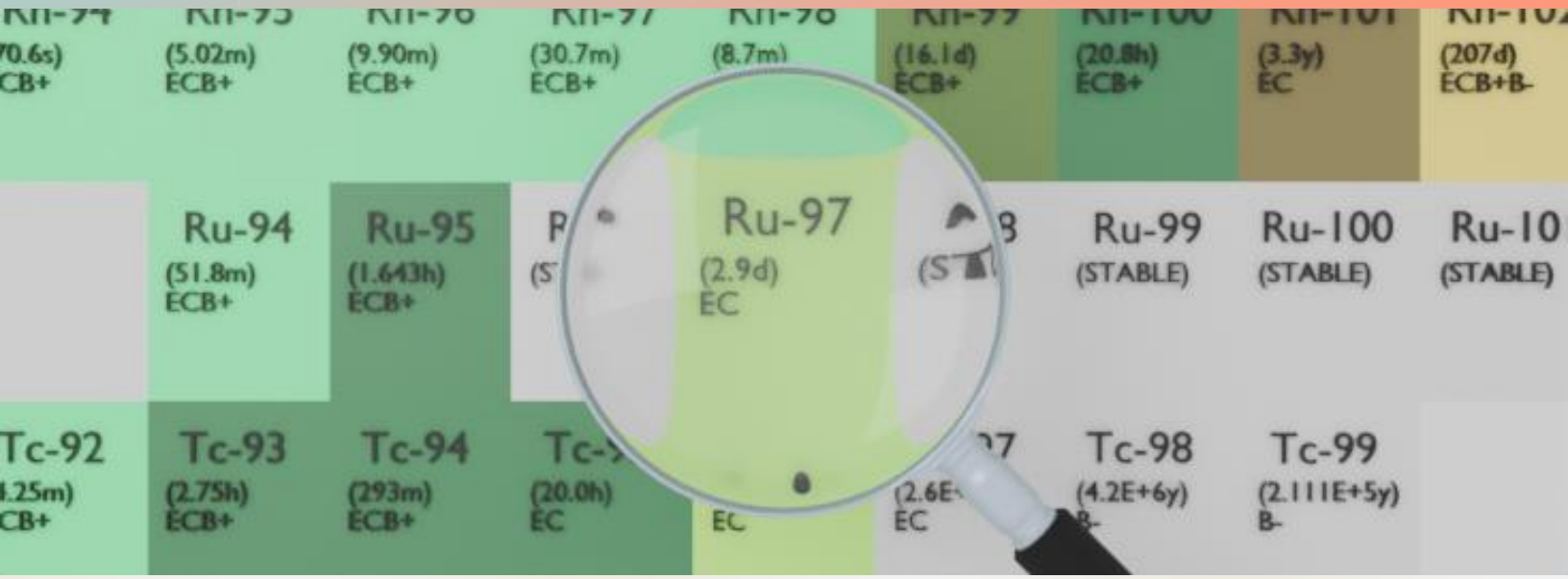


RUTHENIUM-97

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ru-97
Atomic number (Z): 44
Mass number (A): 97
Neutron number (N): 53

RADIOACTIVE DECAY

Decay modes: Electron capture
Half-life: 2.9 [d]
Decay constant: 2.7664e-06 [1/s]
Daughters: Tc-97 (100.0%), Tc-97m (0.0422%)
Radioactive daughters: Tc-97, Tc-97m

DOSIMETRIC CONSTANTS

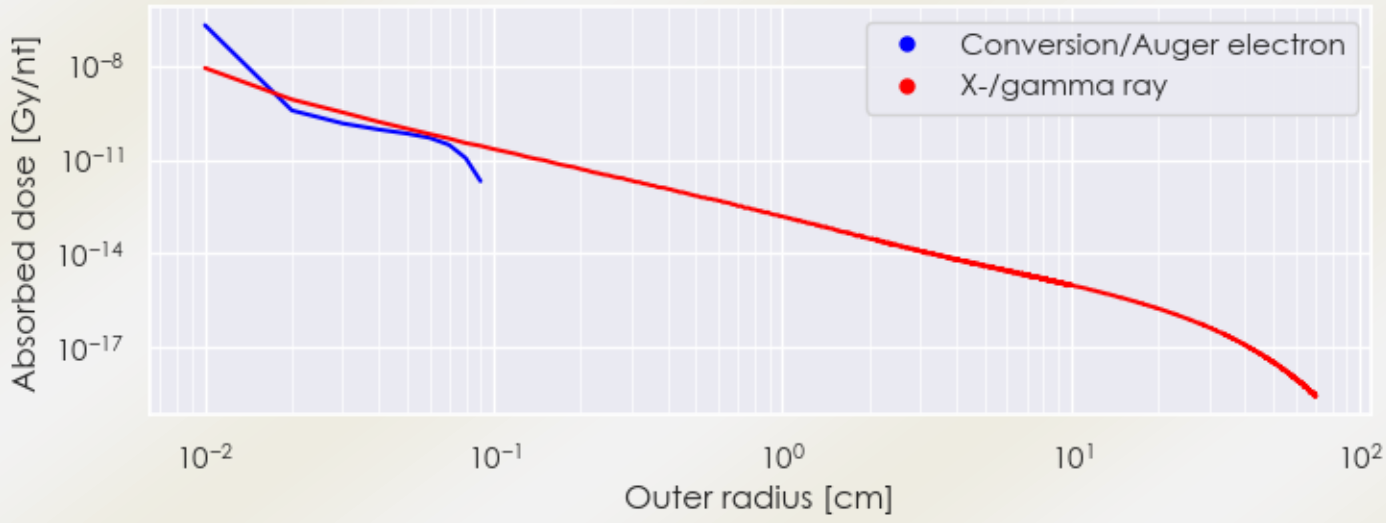
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.01318 [MeV]
Mean photon energy: 0.24077 [MeV]
Air kerma rate constant, Γ_{10}: 1.919e-17 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 1.919e-17 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 2.112e-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, $\Delta_{\beta-,\beta+,e-}$: 2.112e-15 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 3.858e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

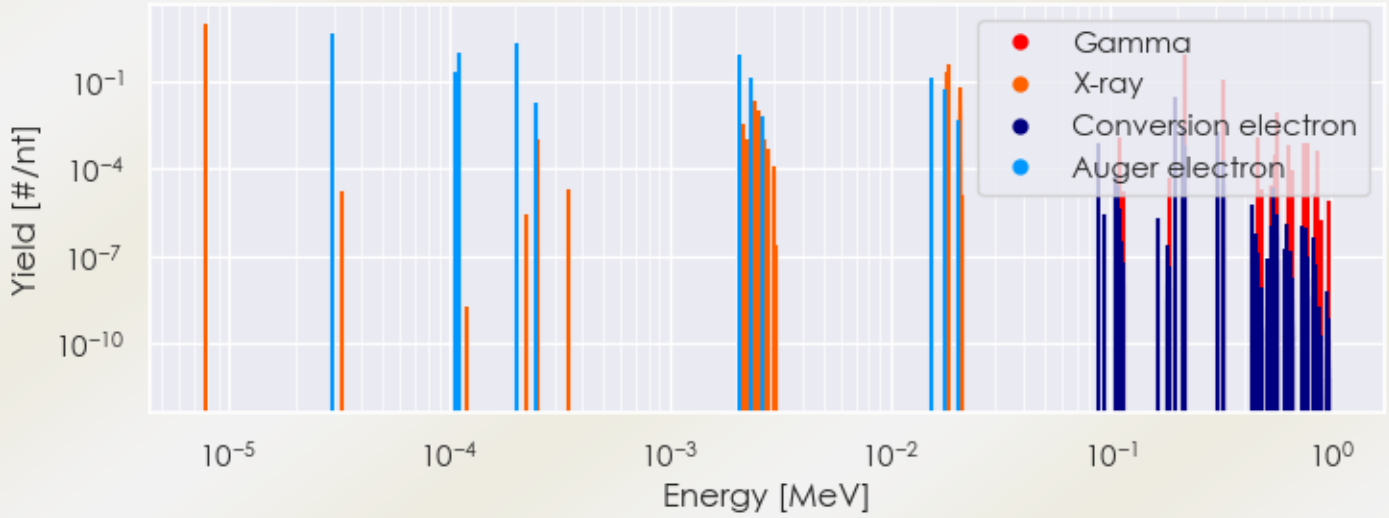
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Ru-97 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/Ru-97 Summary 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/Ru-97 Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
7.87643e-06	9.762e+00	X-ray
2.41453e-03	2.305e-02	X-ray
2.53088e-03	1.071e-02	X-ray
1.82141e-02	2.023e-01	X-ray
1.83344e-02	3.845e-01	X-ray
2.05668e-02	3.180e-02	X-ray
2.05871e-02	6.189e-02	X-ray
2.09655e-02	1.179e-02	X-ray
2.15700e-01	8.560e-01	Gamma
3.24490e-01	1.079e-01	Gamma
2.93992e-05	4.266e+00	Auger electron
1.06664e-04	2.030e-01	Auger electron
1.10211e-04	8.904e-01	Auger electron
2.03926e-04	2.160e+00	Auger electron
2.47564e-04	1.812e-02	Auger electron
2.05401e-03	8.506e-01	Auger electron
2.33289e-03	1.325e-01	Auger electron
1.54229e-02	1.401e-01	Auger electron
1.78238e-02	5.291e-02	Auger electron
1.94688e-01	2.858e-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