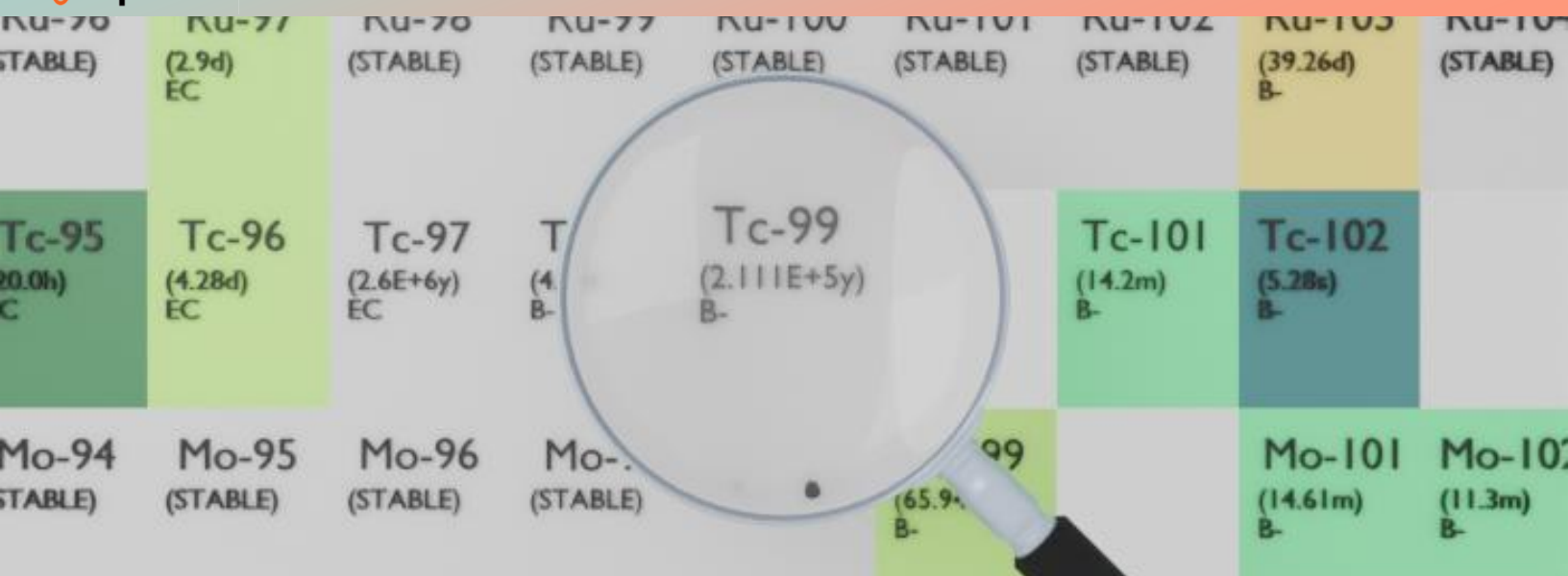




RU-98 (STABLE)	RU-97 (2.9d) EC	RU-96 (STABLE)	RU-95 (STABLE)	RU-94 (STABLE)	RU-93 (STABLE)	RU-92 (STABLE)	RU-91 (39.26d) B-	RU-90 (STABLE)
Tc-95 (20.0h) C	Tc-96 (4.28d) EC	Tc-97 (2.6E+6y) EC	Tc-98 (4.2E+5y) B-	Tc-99 (2.111E+5y) B-	Tc-100 (6.0h) B-	Tc-101 (14.2m) B-	Tc-102 (5.28s) B-	Tc-103 (4.01d) B-
Mo-94 (STABLE)	Mo-95 (STABLE)	Mo-96 (STABLE)	Mo-97 (STABLE)	Mo-98 (STABLE)	Mo-99 (65.94h) B-	Mo-100 (7.38h) B-	Mo-101 (14.61m) B-	Mo-102 (11.3m) B-

TECHNETIUM-99

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Tc-99
Atomic number (Z): 43
Mass number (A): 99
Neutron number (N): 56

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 211100.0 [y]
Decay constant: $1.0405\text{e-}13$ [1/s]
Daughters: Ru-99 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.10125 [MeV]
Mean photon energy: 0.0 [MeV]
Air kerma rate constant, Γ_{10} : $1.047\text{e-}22$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Air kerma coefficient, K_{air} : $1.047\text{e-}22$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $1.622\text{e-}14$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]
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, $\Delta_{\beta-, \beta+, e-}$: 1.622e-14 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 0.000e+00 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

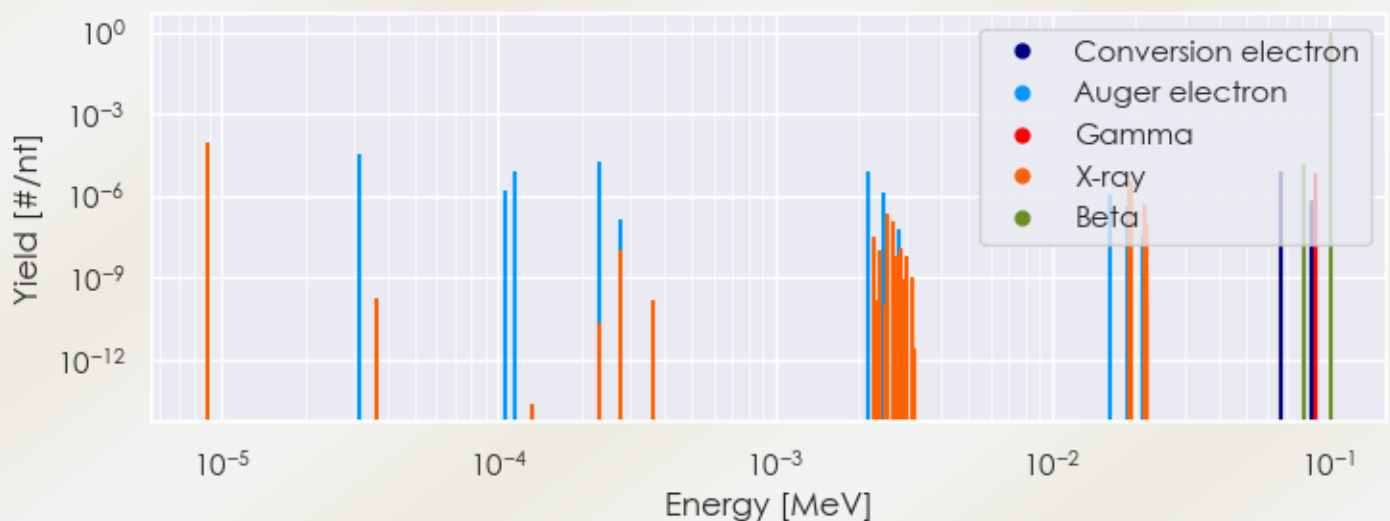
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Tc-99 DPK.csv

SUMMARY SPECTRA (PLOT)

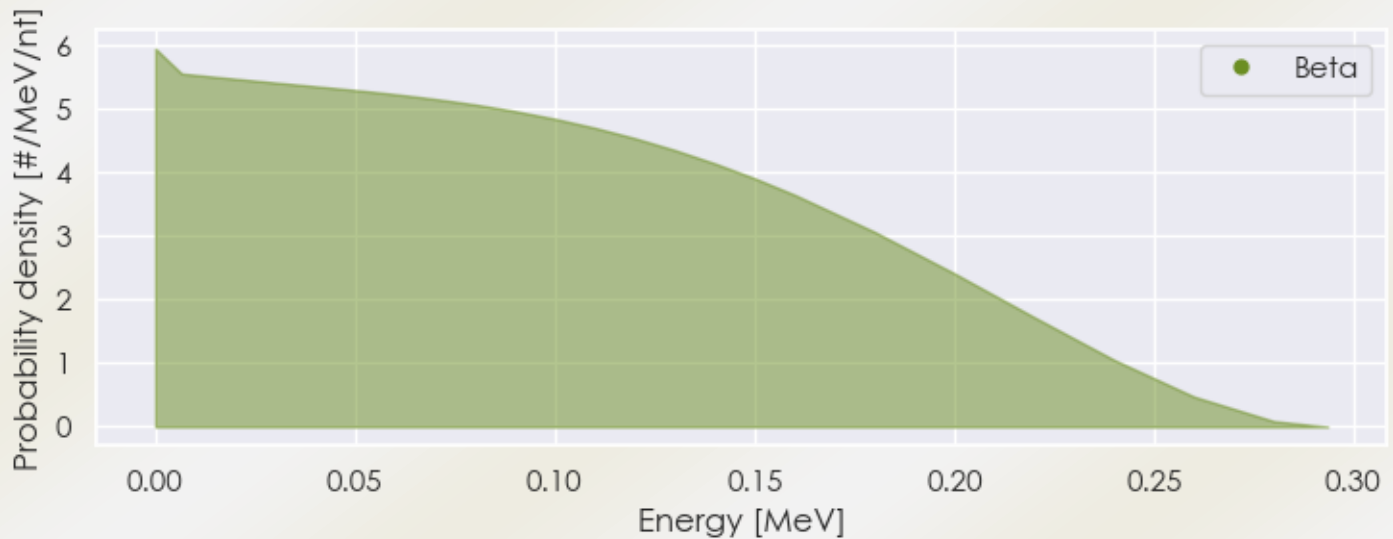
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Tc-99 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/Tc-99 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/Tc-99 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.01254e-01	1.000e+00	Beta

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