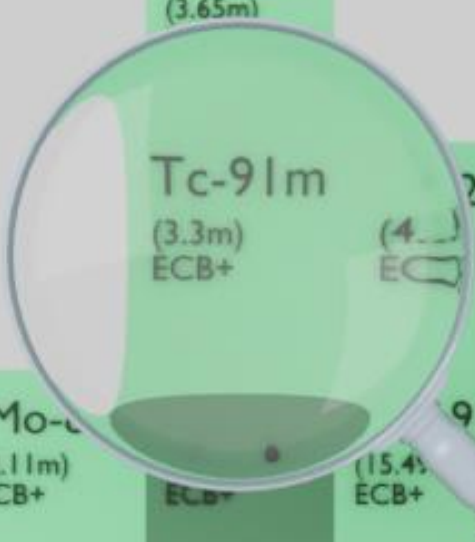




Ru-92 (3.65m) ECB+	Ru-94 (51.8m) ECB+	Ru-95 (1.643h) ECB+	Ru-96 (STABLE)	
Tc-91 (3.3m) ECB+	Tc-92 (4.2m) ECB+	Tc-93 (2.75h) ECB+	Tc-94 (293m) ECB+	Tc-95 (20.0h) EC
Mo-91 (2.11m) ECB+	Mo-92 (15.4h) ECB+	Mo-92 (STABLE)	Mo-93 (4.0E+3y) EC	Mo-94 (STABLE)

TECHNETIUM-91M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Tc-91m
Atomic number (Z): 43
Mass number (A): 91
Neutron number (N): 48

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 3.3 [m]
Decay constant: $3.5007\text{e-}03$ [1/s]
Daughters: Mo-91m (98.0%), Mo-91 (2.02%)
Radioactive daughters: Mo-91m, Mo-91

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 1.88709 [MeV]
Mean photon energy: 1.42305 [MeV]
Air kerma rate constant, Γ_{10} : $1.641\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : $5.360\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $3.023\text{e-}13$ [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [Gy $\cdot$ kg/Bq $\cdot$ s]

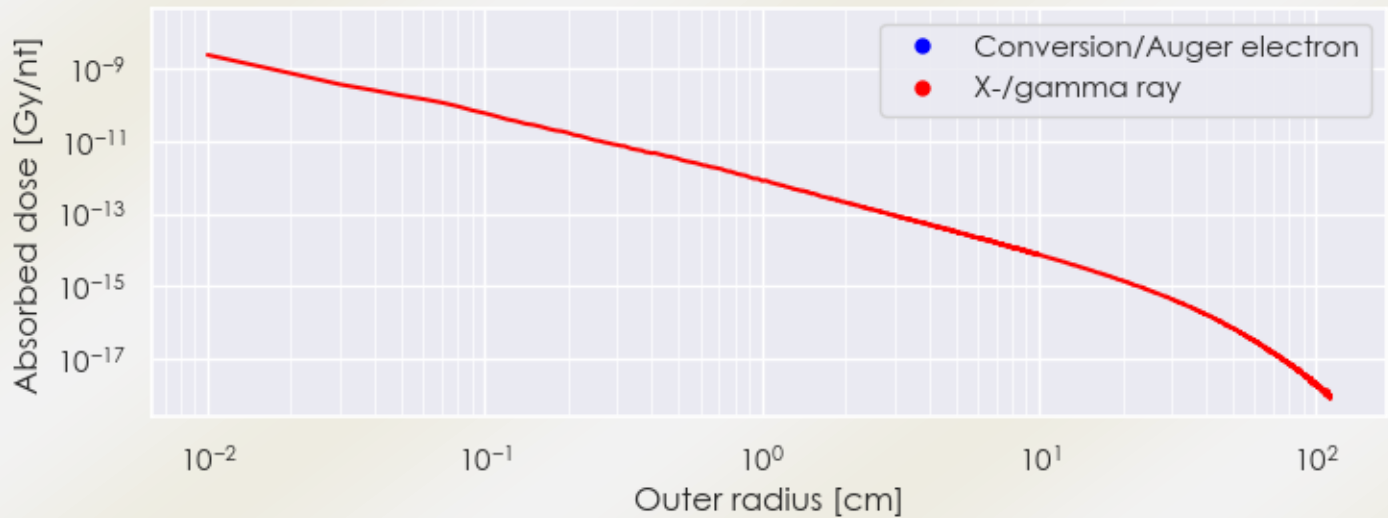
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-, \beta+, e-}$: 3.023×10^{-13} [Gy · kg/Bq · s]

Equilibrium dose constant for photons, Δ_p : 2.280×10^{-13} [Gy · kg/Bq · s]

DOSE POINT KERNELS (PLOT)

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

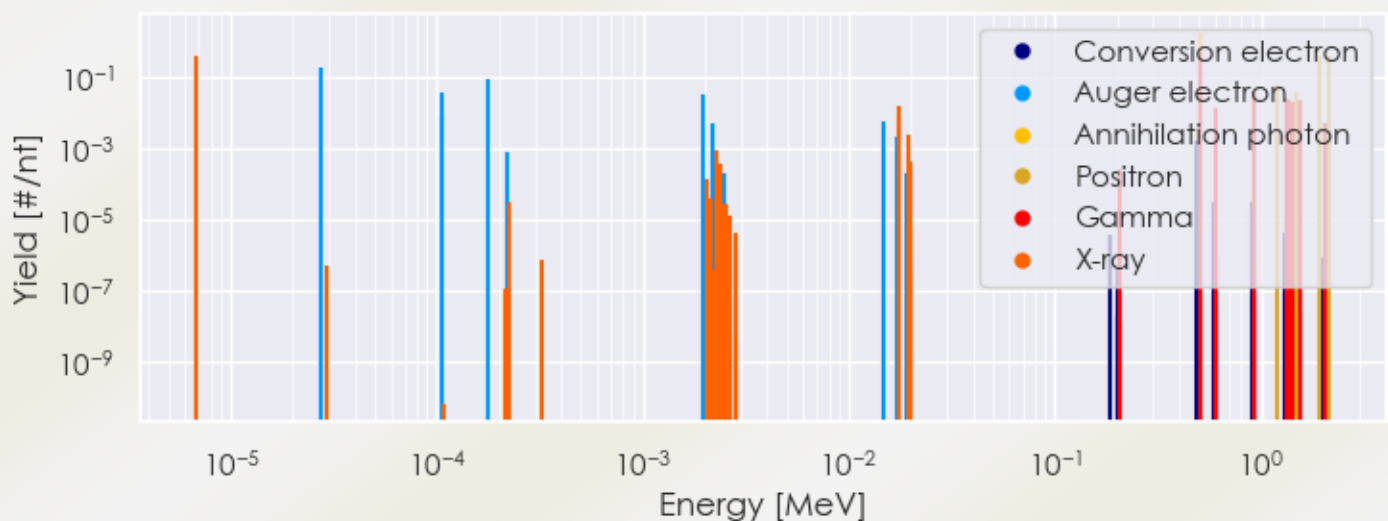
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Tc-91m DPK.csv

SUMMARY SPECTRA (PLOT)

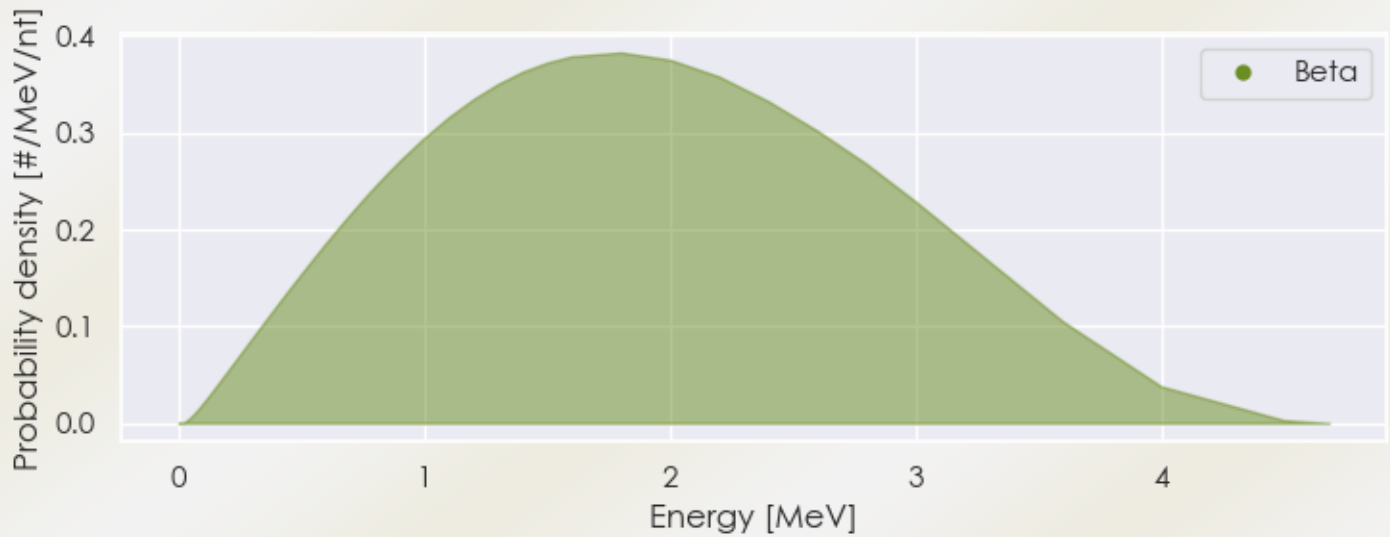
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Tc-91m 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-91m 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-91m Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
6.84801e-06	4.187e-01	X-ray
1.74440e-02	1.525e-02	X-ray
5.02900e-01	5.067e-01	Gamma
5.11000e-01	1.921e+00	Annihilation photon
6.06700e-01	1.447e-02	Gamma
9.27600e-01	3.710e-02	Gamma
1.32840e+00	2.496e-02	Gamma
1.36200e+00	2.470e-02	Gamma
1.43040e+00	1.956e-02	Gamma
1.53440e+00	2.443e-02	Gamma

1.19113e+00	6.073e-02	Positron
1.47639e+00	3.947e-02	Positron
1.91796e+00	4.251e-01	Positron
2.15951e+00	4.352e-01	Positron
2.73607e-05	1.939e-01	Auger electron
1.06683e-04	3.689e-02	Auger electron
1.76240e-04	8.837e-02	Auger electron
1.95193e-03	3.522e-02	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