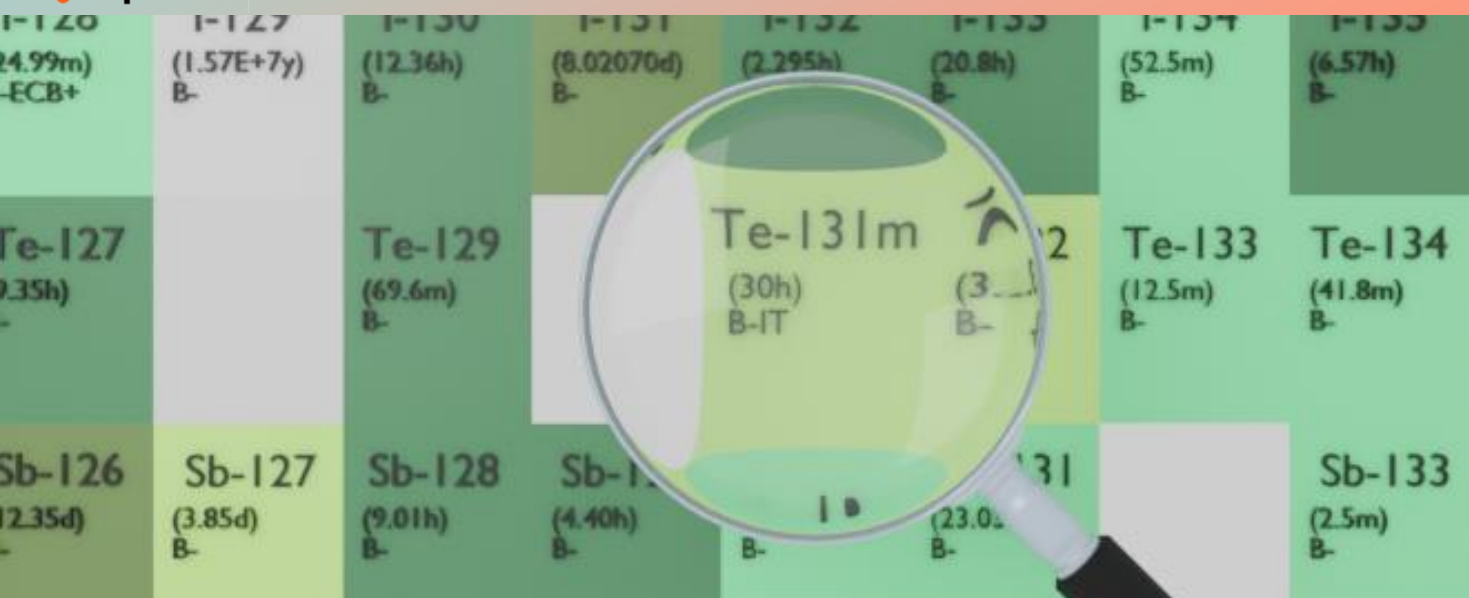




TELLURIUM-131M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Te-131m
Atomic number (Z): 52
Mass number (A): 131
Neutron number (N): 79

RADIOACTIVE DECAY

Decay modes: β^- , Internal transition
Half-life: 30.0 [h]
Decay constant: 6.4180×10^{-6} [1/s]
Daughters: I-131 (77.8%), Te-131 (22.2%)
Radioactive daughters: I-131, Te-131

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.18701 [MeV]
Mean photon energy: 1.45447 [MeV]
Air kerma rate constant, Γ_{10} : 5.329×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 5.329×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 2.996×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

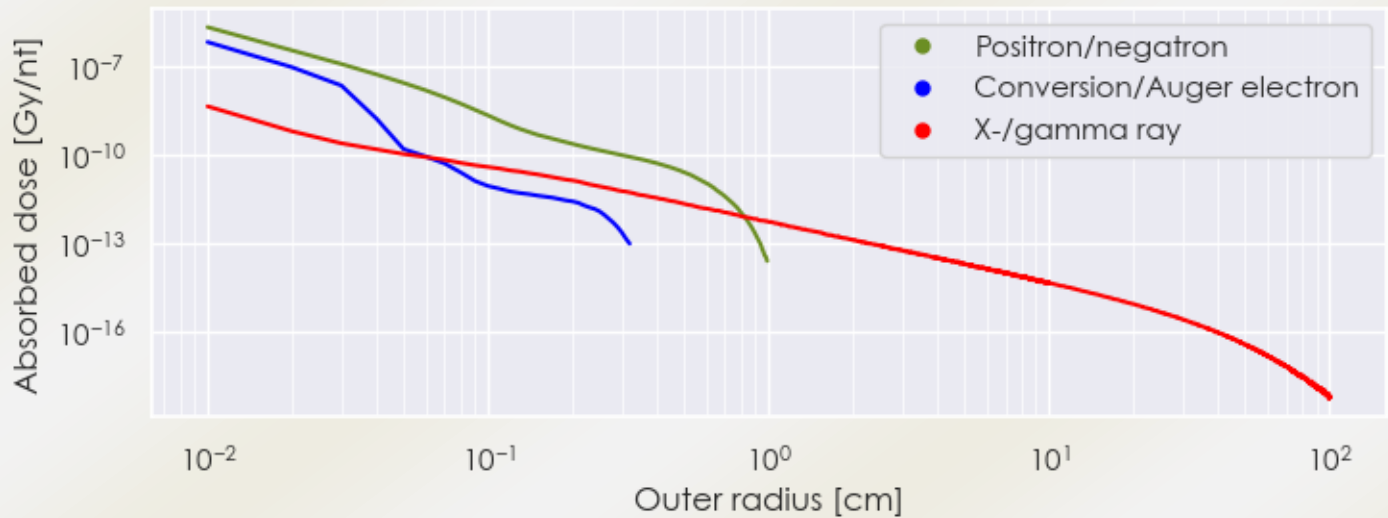
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 2.996×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 2.330×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

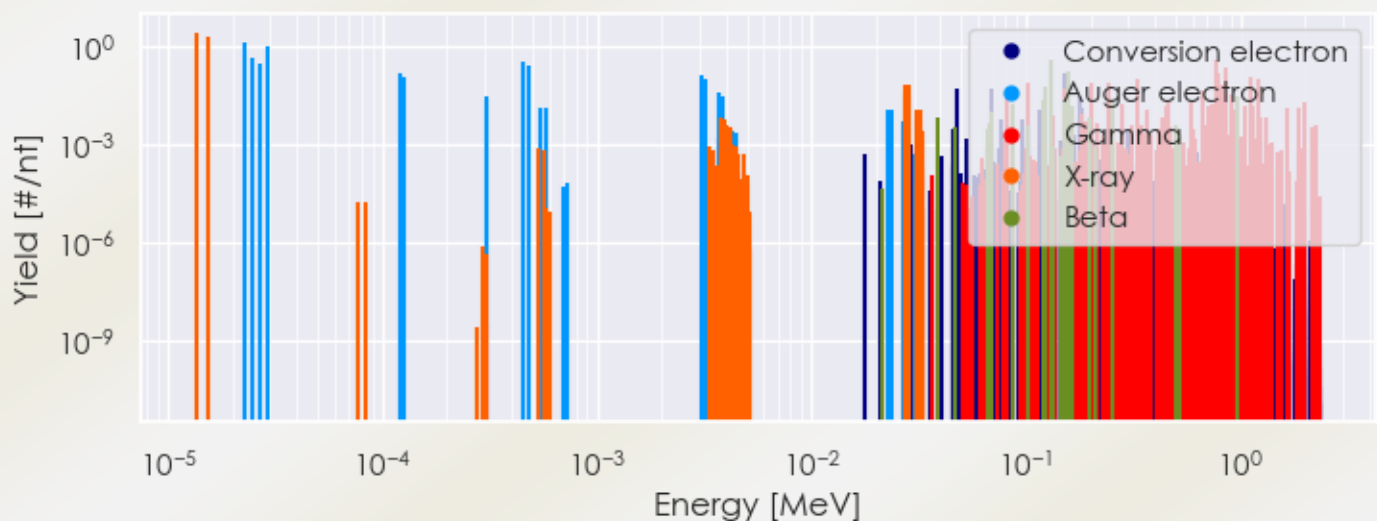
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Te-131m DPK.csv

SUMMARY SPECTRA (PLOT)

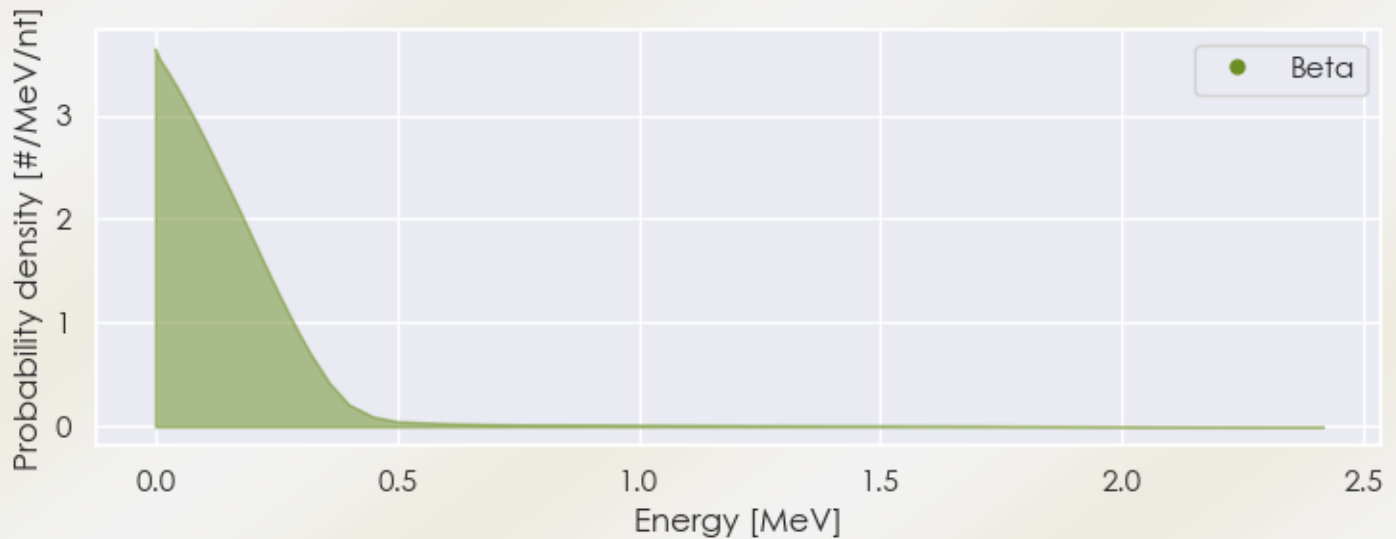
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Te-131m 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/Te-131m 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/Te-131m Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.36110e-05	2.688e+00	X-ray
1.52661e-05	2.064e+00	X-ray
2.71868e-02	3.617e-02	X-ray
2.74652e-02	6.734e-02	X-ray
2.83065e-02	3.599e-02	X-ray
2.86096e-02	6.681e-02	X-ray
3.09901e-02	1.202e-02	X-ray
3.22942e-02	1.205e-02	X-ray
8.11400e-02	4.144e-02	Gamma

1.02060e-01	8.091e-02	Gamma
1.49710e-01	5.170e-02	Gamma
2.00630e-01	7.696e-02	Gamma
2.40930e-01	7.736e-02	Gamma
2.78560e-01	1.816e-02	Gamma
3.34270e-01	9.749e-02	Gamma
3.64980e-01	1.224e-02	Gamma
4.52300e-01	1.579e-02	Gamma
4.62920e-01	1.855e-02	Gamma
5.86300e-01	2.013e-02	Gamma
6.65050e-01	4.420e-02	Gamma
7.13100e-01	1.460e-02	Gamma
7.44200e-01	1.618e-02	Gamma
7.73670e-01	3.892e-01	Gamma
7.82490e-01	7.933e-02	Gamma
7.93750e-01	1.413e-01	Gamma
8.22780e-01	6.236e-02	Gamma
8.52210e-01	2.104e-01	Gamma
9.10000e-01	3.355e-02	Gamma
9.20620e-01	1.224e-02	Gamma
1.05969e+00	1.579e-02	Gamma
1.12546e+00	1.164e-01	Gamma
1.14889e+00	1.539e-02	Gamma
1.20660e+00	9.946e-02	Gamma
1.64601e+00	1.263e-02	Gamma
1.88770e+00	1.381e-02	Gamma
2.00094e+00	2.052e-02	Gamma
6.90635e-02	1.016e-02	Beta
8.61053e-02	1.706e-02	Beta
1.20107e-01	2.318e-02	Beta
1.23514e-01	5.583e-02	Beta
1.30617e-01	3.745e-01	Beta
1.50034e-01	2.202e-02	Beta
1.59059e-01	1.683e-01	Beta
1.63168e-01	1.450e-02	Beta
2.53575e-01	2.636e-02	Beta
9.62583e-01	2.947e-02	Beta
2.29245e-05	1.313e+00	Auger electron

2.49070e-05	4.402e-01	Auger electron
2.70063e-05	3.090e-01	Auger electron
2.89490e-05	9.946e-01	Auger electron
1.20656e-04	1.523e-01	Auger electron
1.25065e-04	1.139e-01	Auger electron
3.02677e-04	2.915e-02	Auger electron
3.04147e-04	2.149e-02	Auger electron
4.49697e-04	3.363e-01	Auger electron
4.76897e-04	2.654e-01	Auger electron
5.41804e-04	1.298e-02	Auger electron
5.78278e-04	1.263e-02	Auger electron
3.08468e-03	1.315e-01	Auger electron
3.20416e-03	1.041e-01	Auger electron
3.67914e-03	3.724e-02	Auger electron
3.83871e-03	3.077e-02	Auger electron
2.26653e-02	1.169e-02	Auger electron
2.35598e-02	1.080e-02	Auger electron
4.79760e-02	4.954e-02	Conversion electron
6.88960e-02	5.009e-02	Conversion electron
1.16546e-01	1.092e-02	Conversion electron
1.50445e-01	1.433e-01	Conversion electron
1.77336e-01	2.891e-02	Conversion electron
1.77910e-01	1.988e-02	Conversion electron
1.81435e-01	1.232e-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