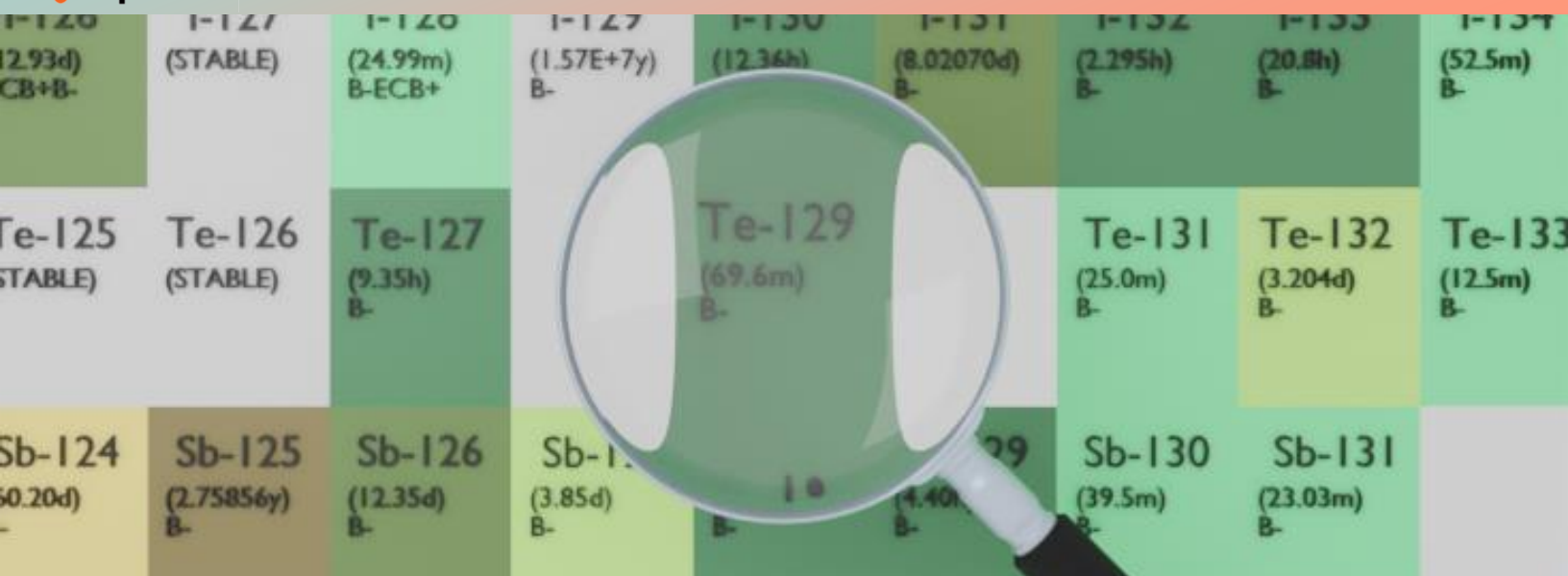




TELLURIUM-129

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Te-129
Atomic number (Z): 52
Mass number (A): 129
Neutron number (N): 77

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 69.6 [m]
Decay constant: 1.6598×10^{-4} [1/s]
Daughters: I-129 (100.0%)
Radioactive daughters: I-129

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.54356 [MeV]
Mean photon energy: 0.06254 [MeV]
Air kerma rate constant, Γ_{10} : 3.272×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 3.272×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 8.709×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

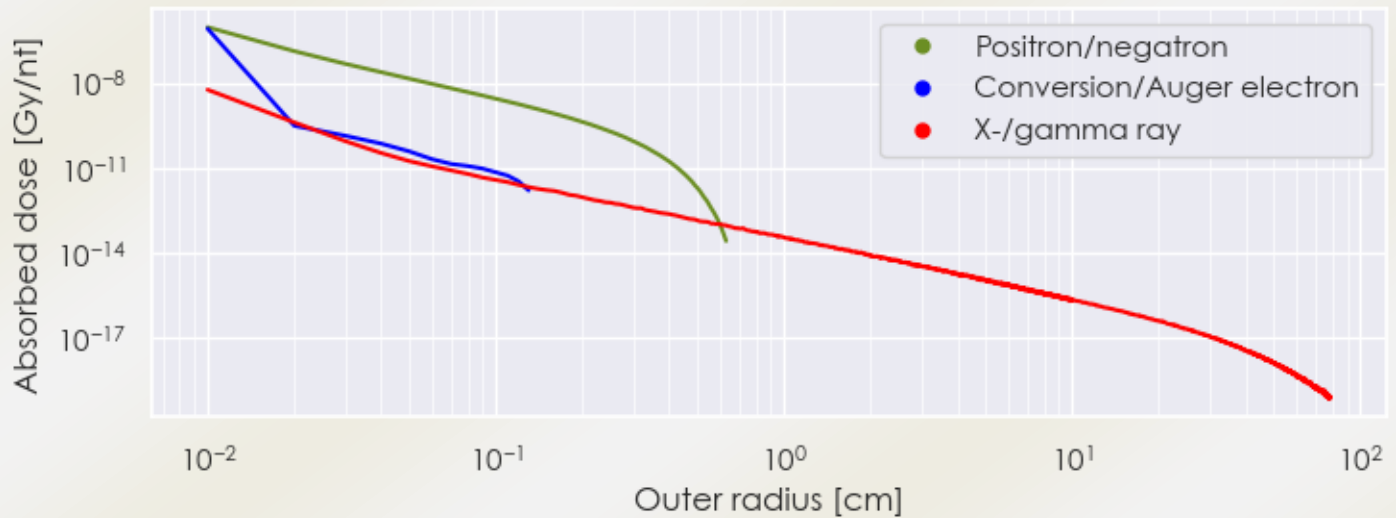
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 8.709e-14 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.002e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

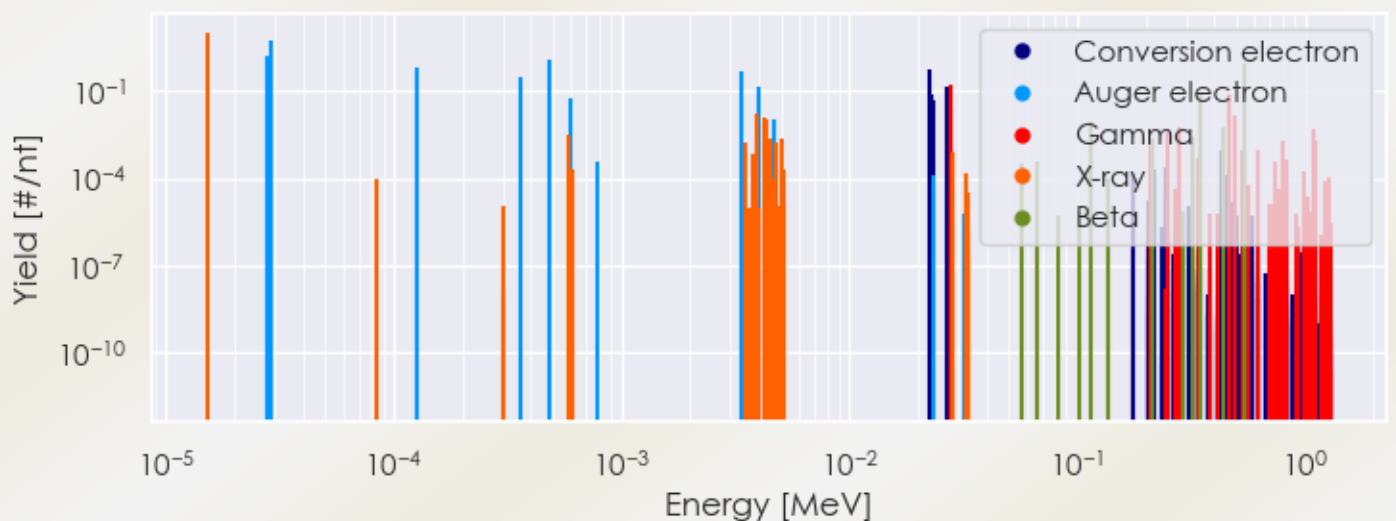
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Te-129 DPK.csv

SUMMARY SPECTRA (PLOT)

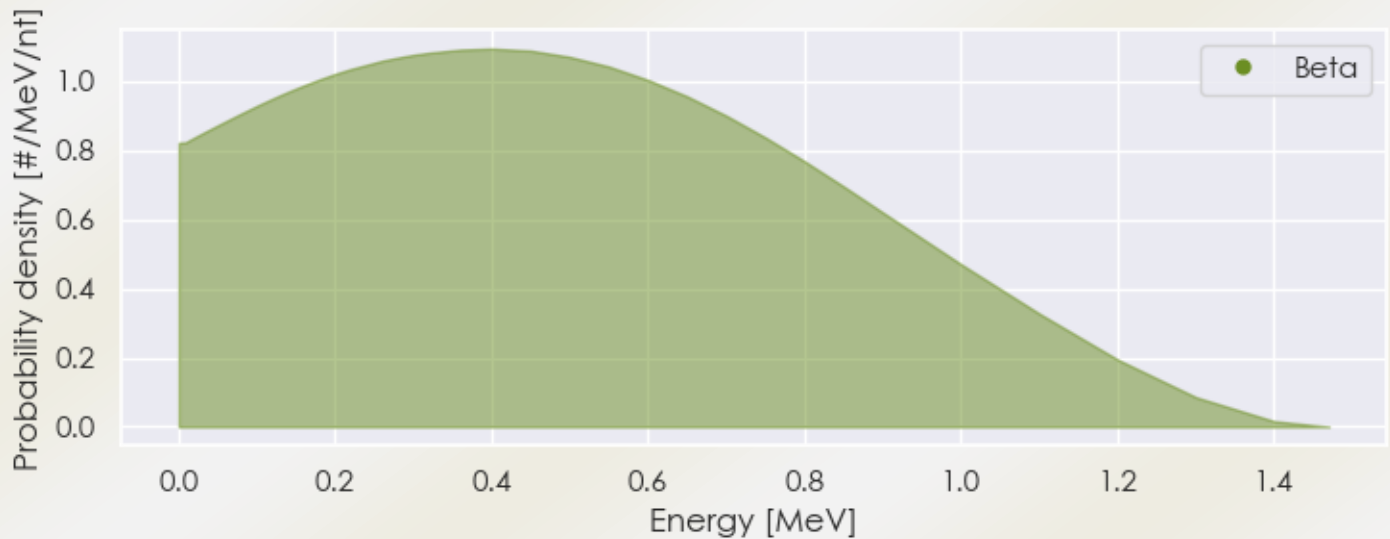
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Te-129 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-129 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-129 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.52488e-05	1.043e+01	X-ray
3.92519e-03	1.583e-02	X-ray
4.21604e-03	1.253e-02	X-ray
4.29209e-03	1.126e-02	X-ray
2.78100e-02	1.632e-01	Gamma
4.59600e-01	7.700e-02	Gamma
4.87390e-01	1.417e-02	Gamma
3.49906e-01	9.273e-02	Beta
5.44400e-01	8.874e-01	Beta
2.78903e-05	1.666e+00	Auger electron

2.91162e-05	4.999e+00	Auger electron
1.26152e-04	6.361e-01	Auger electron
3.57381e-04	3.141e-01	Auger electron
4.83167e-04	1.166e+00	Auger electron
5.94992e-04	5.720e-02	Auger electron
3.33055e-03	4.527e-01	Auger electron
3.98021e-03	1.356e-01	Auger electron
4.66303e-03	1.015e-02	Auger electron
2.26481e-02	5.386e-01	Conversion electron
2.29525e-02	7.011e-02	Conversion electron
2.32555e-02	4.809e-02	Conversion electron
2.69402e-02	1.340e-01	Conversion electron
2.78100e-02	3.251e-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