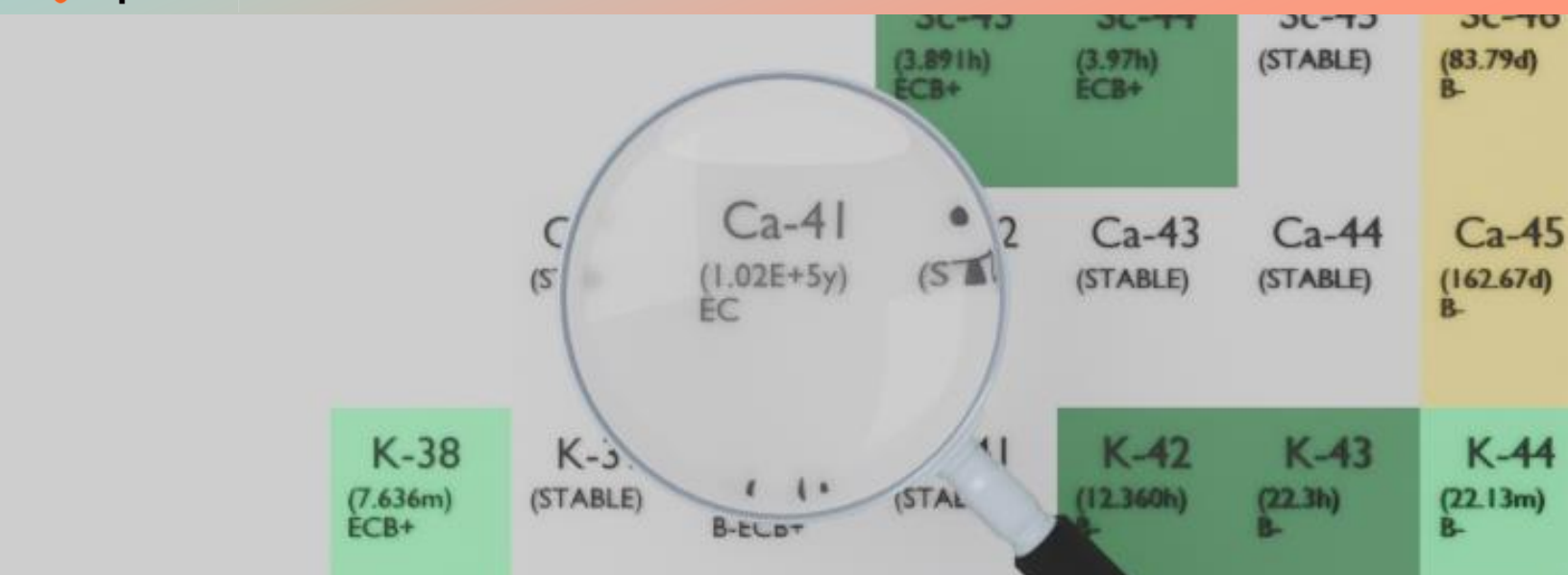




CALCIUM-41

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ca-41
Atomic number (Z): 20
Mass number (A): 41
Neutron number (N): 21

RADIOACTIVE DECAY

Decay modes: Electron capture
Half-life: 102000.0 [y]
Decay constant: 2.1534×10^{-13} [1/s]
Daughters: K-41 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.00273 [MeV]
Mean photon energy: 0.0005 [MeV]
Air kerma rate constant, Γ_{10} : 0.000e+00 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : 0.000e+00 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 4.374e-16 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

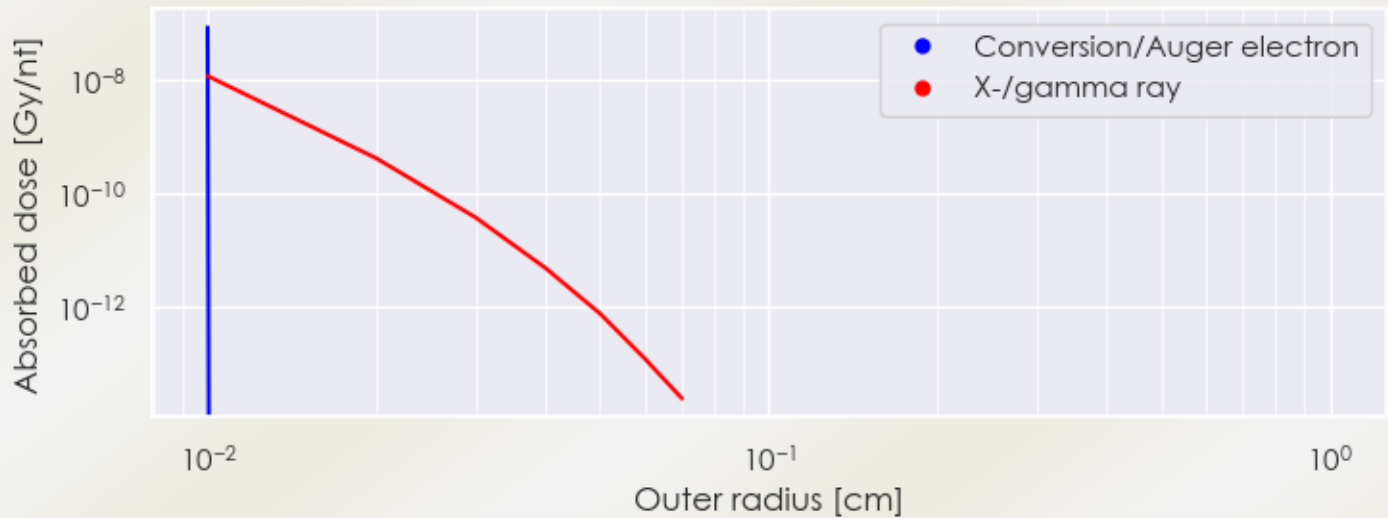
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-\beta^+,e^-}$: 4.374e-16 [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 8.011e-17 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

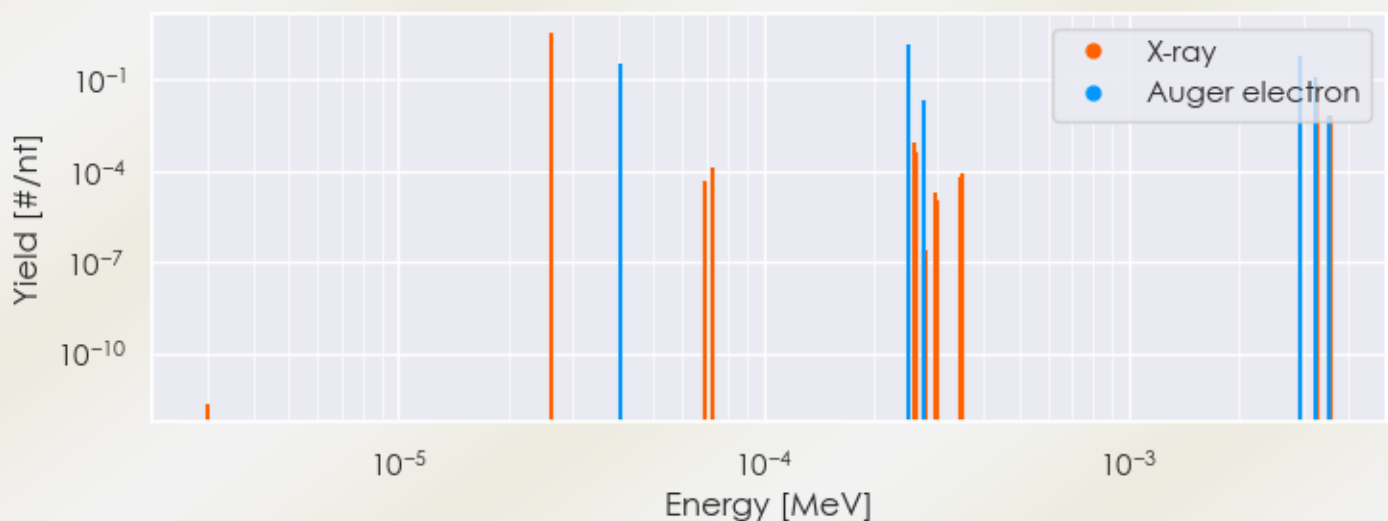
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Ca-41 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/Ca-41 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/Ca-41 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Ca-41%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
2.62293e-05	3.730e+00	X-ray
3.28166e-03	3.737e-02	X-ray
3.28466e-03	7.379e-02	X-ray
4.05727e-05	3.685e-01	Auger electron
2.49300e-04	1.584e+00	Auger electron
2.74650e-04	2.013e-02	Auger electron
2.95325e-03	6.362e-01	Auger electron
3.23898e-03	1.282e-01	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