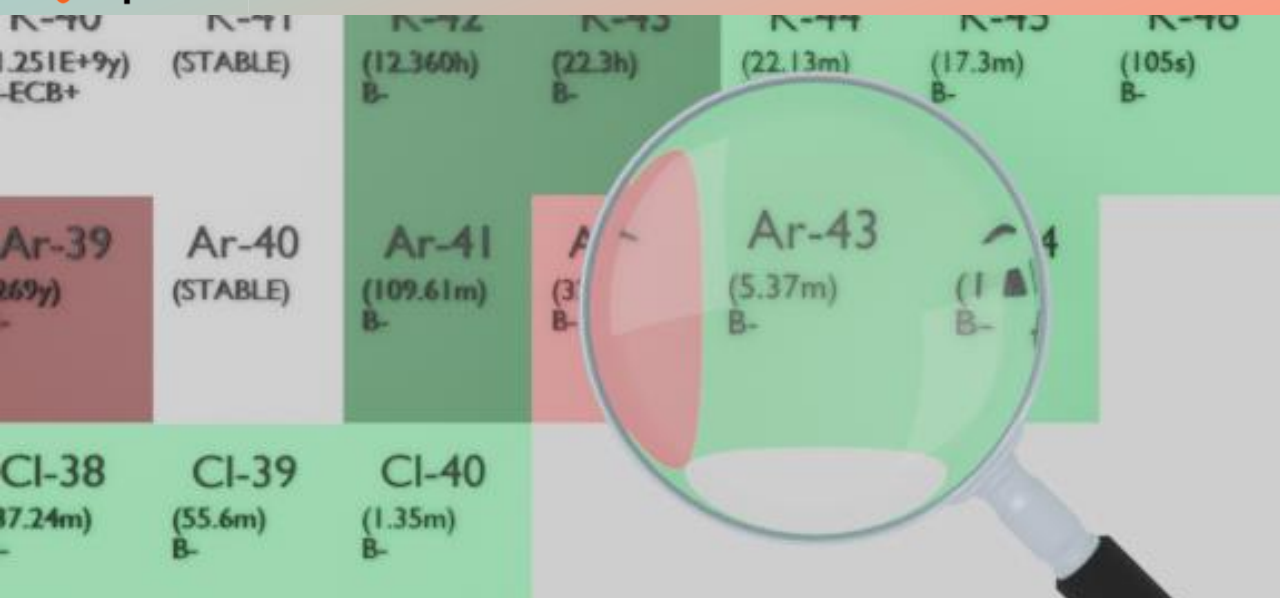




ARGON-43

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Ar-43
Atomic number (Z): 18
Mass number (A): 43
Neutron number (N): 25

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 5.37 [m]
Decay constant: $2.1513\text{e-}03$ [1/s]
Daughters: K-43 (100.0%)
Radioactive daughters: K-43

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 1.35695 [MeV]
Mean photon energy: 1.53518 [MeV]
Air kerma rate constant, Γ_{10} : $5.021\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : $5.021\text{e-}17$ [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $2.174\text{e-}13$ [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [Gy $\cdot$ kg/Bq $\cdot$ s]

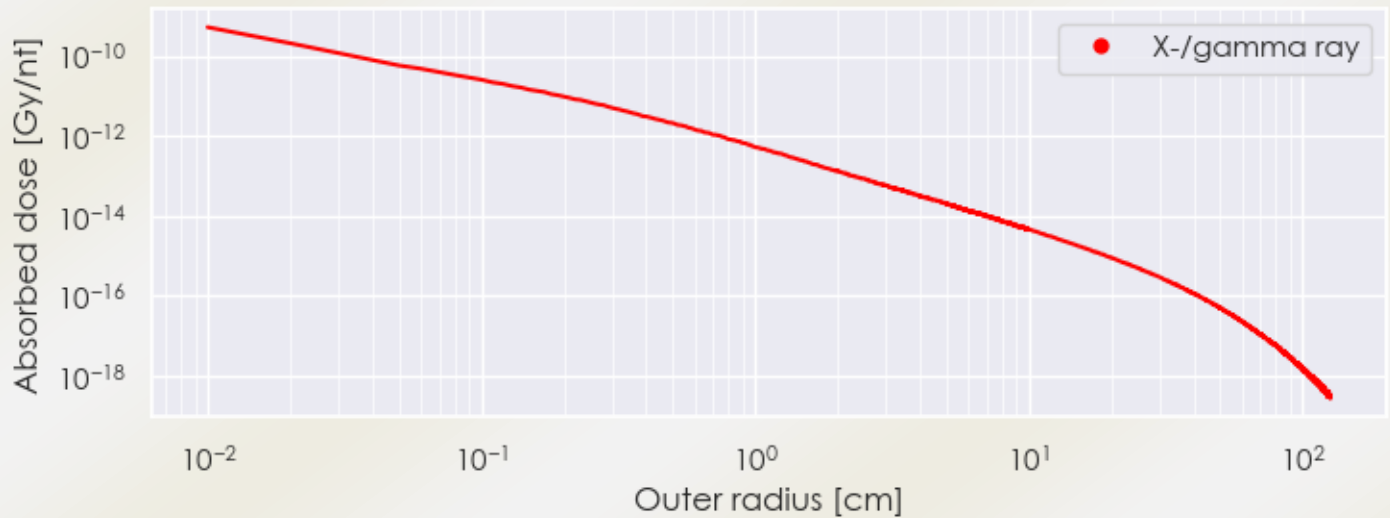
Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 2.174×10^{-13} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 2.460×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

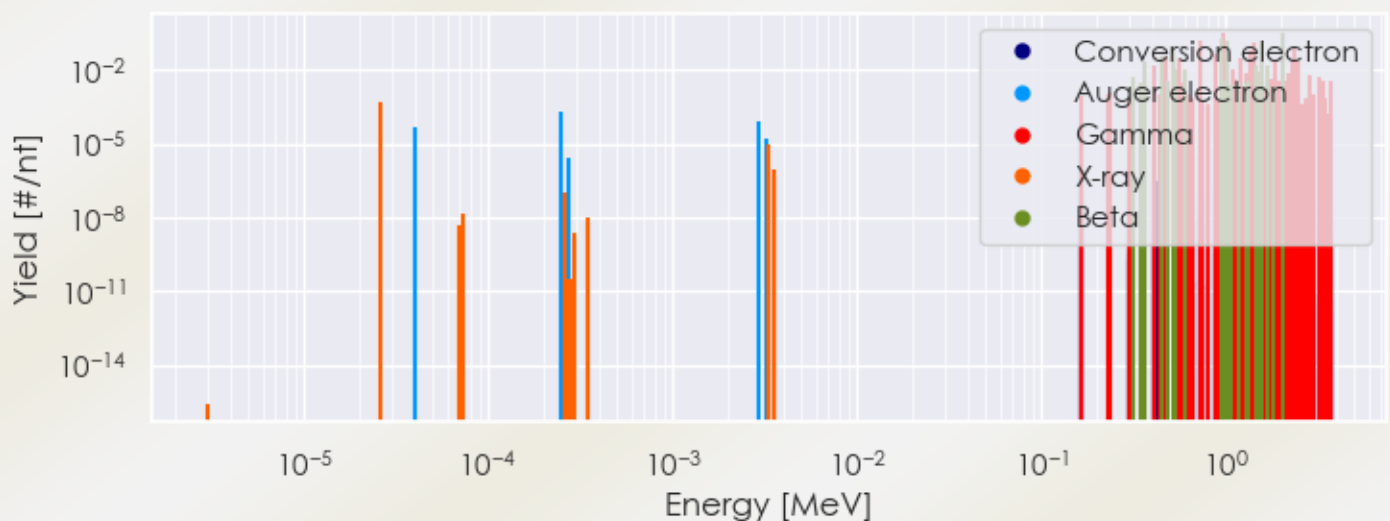
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Ar-43 DPK.csv

SUMMARY SPECTRA (PLOT)

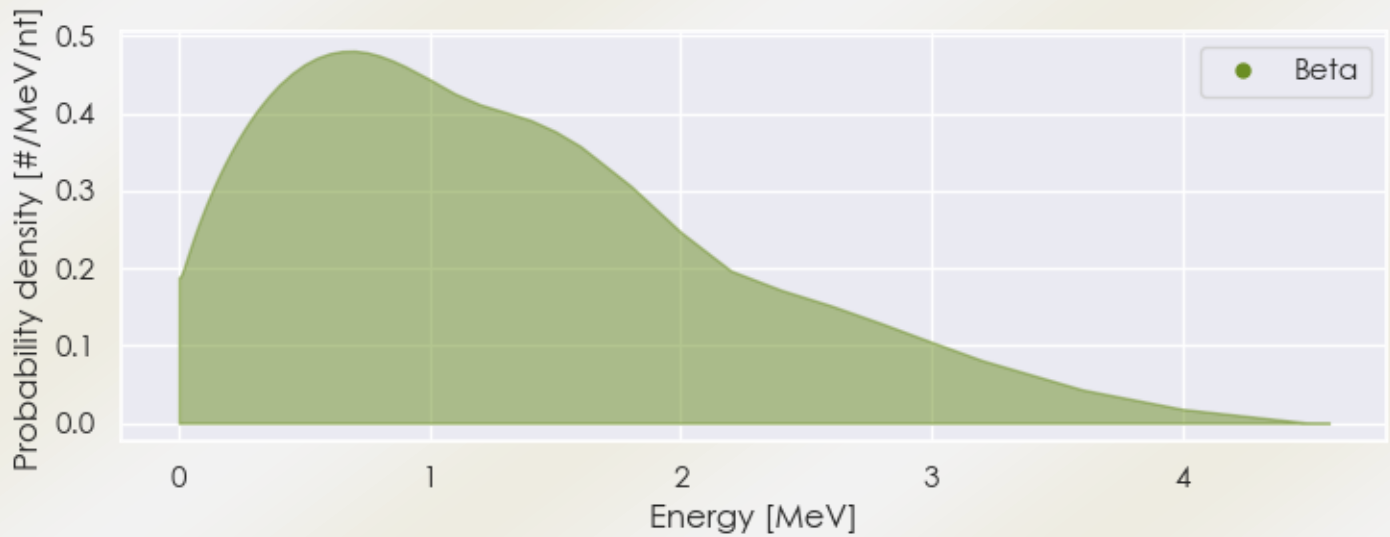
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Ar-43 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/Ar-43 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/Ar-43 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
4.13900e-01	1.459e-02	Gamma
4.79200e-01	3.944e-02	Gamma
5.61100e-01	3.196e-02	Gamma
7.38100e-01	1.546e-01	Gamma
8.90400e-01	4.022e-02	Gamma
9.74900e-01	3.400e-01	Gamma
1.11010e+00	1.061e-02	Gamma
1.20240e+00	3.342e-02	Gamma
1.20710e+00	2.577e-02	Gamma
1.36990e+00	6.800e-02	Gamma

1.43980e+00	1.255e-01	Gamma
1.44300e+00	1.632e-02	Gamma
1.86610e+00	2.394e-02	Gamma
2.31890e+00	1.054e-02	Gamma
2.33390e+00	2.785e-02	Gamma
2.34450e+00	7.388e-02	Gamma
2.47990e+00	2.227e-02	Gamma
3.61678e-01	2.178e-02	Beta
4.54950e-01	3.464e-02	Beta
5.18811e-01	5.444e-02	Beta
6.06254e-01	1.089e-02	Beta
9.57741e-01	1.881e-01	Beta
1.01593e+00	1.584e-01	Beta
1.48100e+00	1.485e-02	Beta
1.59299e+00	1.584e-01	Beta
1.70812e+00	1.386e-02	Beta
2.06748e+00	2.969e-01	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/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6