

		11-44 (60.0y) EC	11-45 (184.8m)	11-46 (STABLE)	11-47 (STABLE)	11-48 (STABLE)	11-49 (STABLE)
		Sc-43 (3.09h) EC	Sc-44 (3.97h) ECB+	Sc-45 (30.9d) B-	Sc-46 (83.79d) B-	Sc-47 (3.3492d) B-	Sc-48 (43.67h) B-
Ca-40 (STABLE)	Ca-41 (1.02E+5y) EC	Ca-42 (STABLE)	Ca-43 (3.9h) B-	Ca-44 (STABLE)	Ca-45 (162.67d) B-	Ca-46 (STABLE)	Ca-47 (4.536d) B-

SCANDIUM-44

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Sc-44
Atomic number (Z): 21
Mass number (A): 44
Neutron number (N): 23

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 3.97 [h]
Decay constant: 4.8499e-05 [1/s]
Daughters: Ca-44 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.59606 [MeV]
Mean photon energy: 2.13692 [MeV]
Air kerma rate constant, Γ_{10} : 4.062e-17 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : 7.714e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 9.550e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

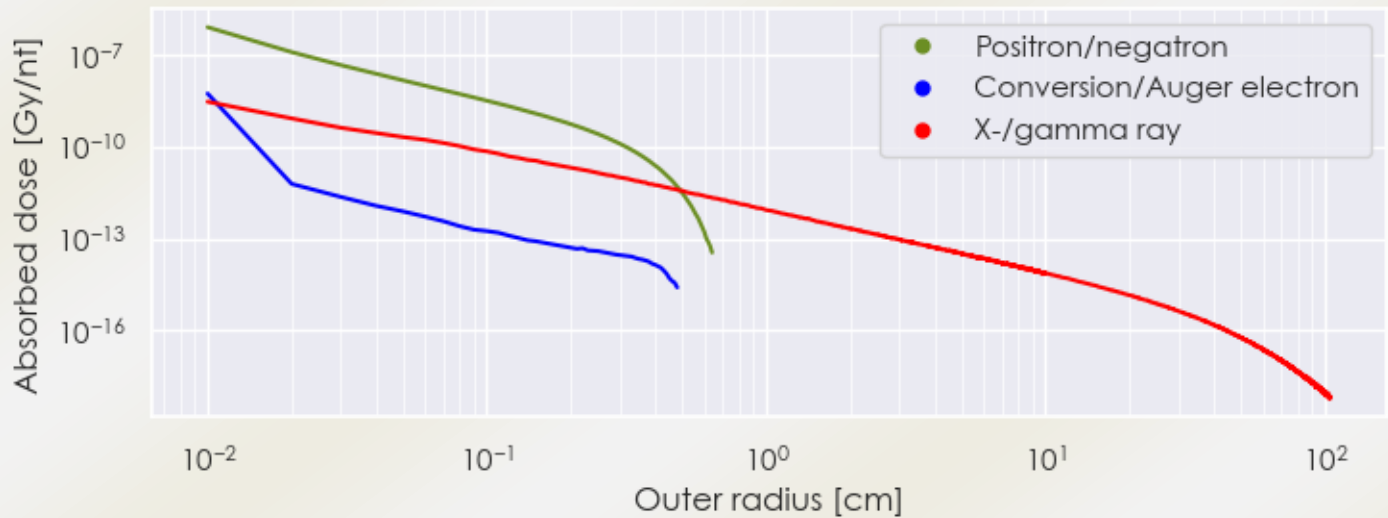
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-, \beta+, e-}$: 9.550×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 3.424×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

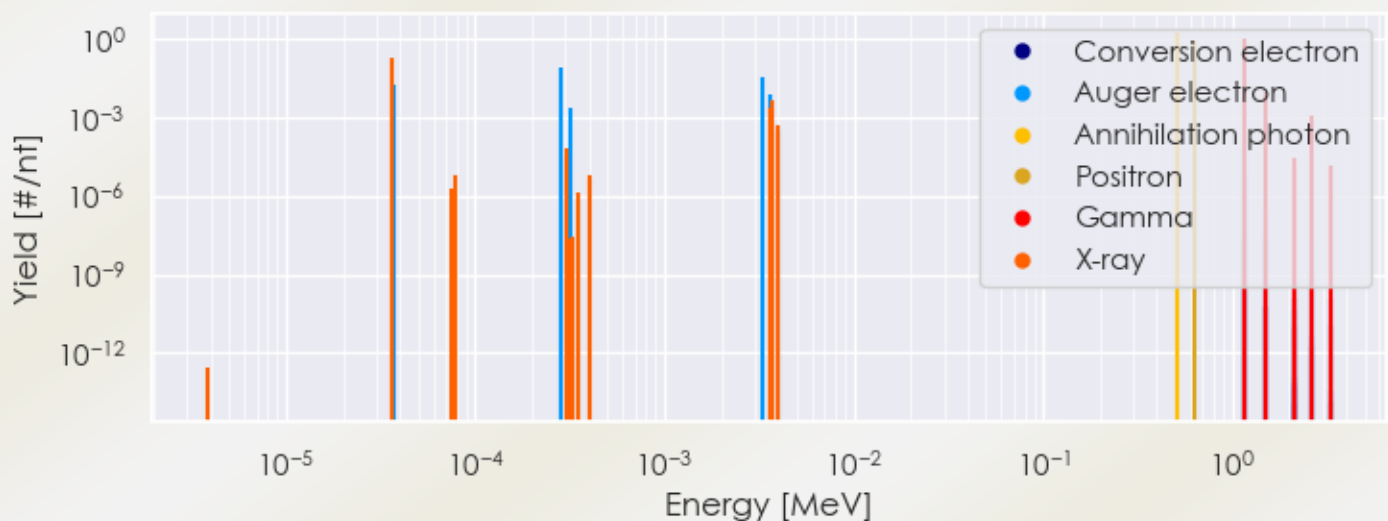
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Sc-44 DPK.csv

SUMMARY SPECTRA (PLOT)

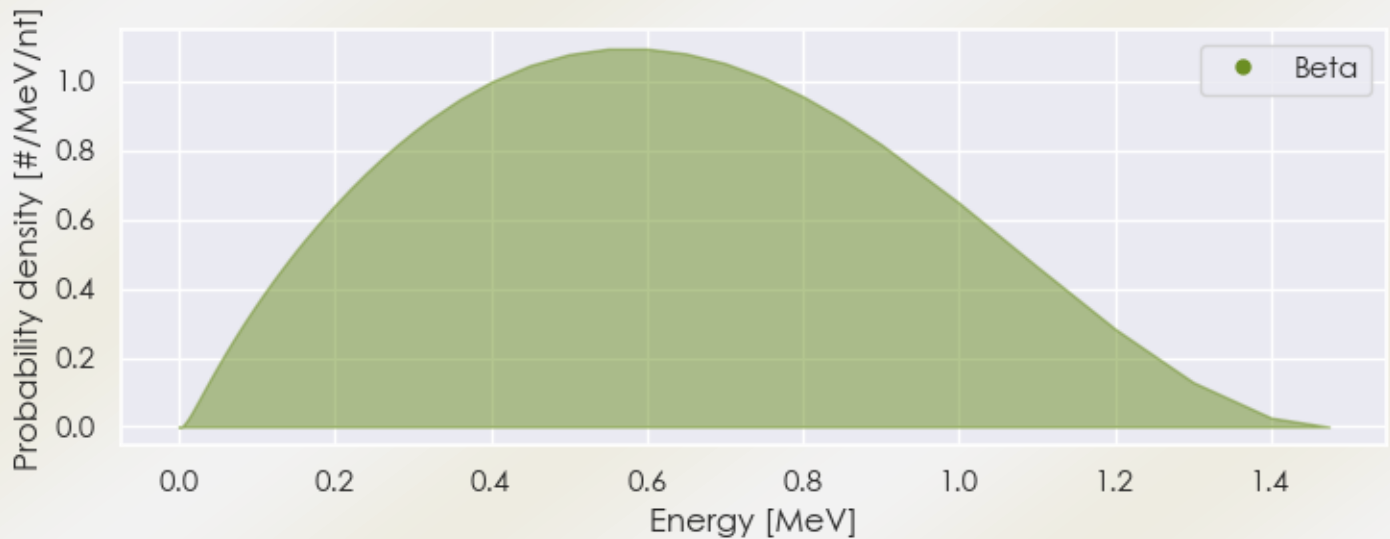
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Sc-44 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/Sc-44 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/Sc-44 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
3.63259e-05	2.069e-01	X-ray
5.11000e-01	1.887e+00	Annihilation photon
1.15702e+00	9.990e-01	Gamma
6.31478e-01	9.435e-01	Positron
3.69989e-05	1.977e-02	Auger electron
2.85646e-04	8.635e-02	Auger electron
3.26864e-03	3.443e-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