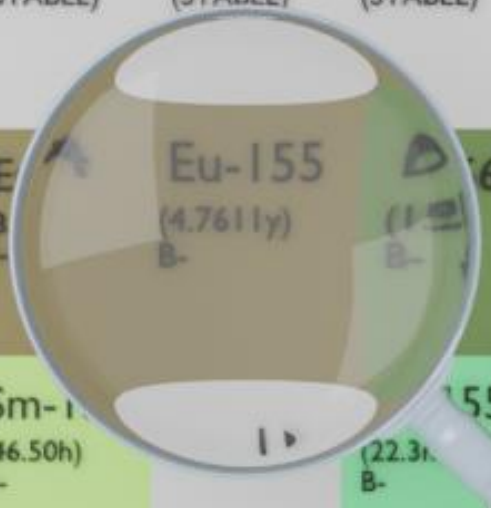




Gd-152 (1.08E+14y) EC	Gd-153 (240.4d) EC	Gd-154 (STABLE)	Gd-155 (STABLE)	Gd-156 (STABLE)	Gd-157 (STABLE)	Gd-158 (STABLE)	Gd-159 (18.479h) B-	Gd-160 (STABLE)
Eu-152 (13.537y) ECB+B-	Eu-153 (STABLE)	Eu-154 (8.593y) B-	Eu-155 (4.7611y) B-	Eu-156 (15.19d) B-	Eu-157 (15.18h) B-	Eu-158 (45.9m) B-	Eu-159 (18.1m) B-	
Sm-150 (STABLE)	Sm-151 (90y) B-	Sm-152 (STABLE)	Sm-153 (46.50h) B-	Sm-154 (22.31h) B-	Sm-155 (9.4h) B-	Sm-156 (8.03m) B-	Sm-157 (8.03m) B-	

EUROPIUM-155

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Eu-155
Atomic number (Z): 63
Mass number (A): 155
Neutron number (N): 92

RADIOACTIVE DECAY

Decay modes: β^-
Half-life: 4.761 [y]
Decay constant: $4.6134\text{e-}09$ [1/s]
Daughters: Gd-155 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.06471 [MeV]
Mean photon energy: 0.06118 [MeV]
Air kerma rate constant, Γ_{10} : $2.271\text{e-}18$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Air kerma coefficient, K_{air} : $2.271\text{e-}18$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $1.037\text{e-}14$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]

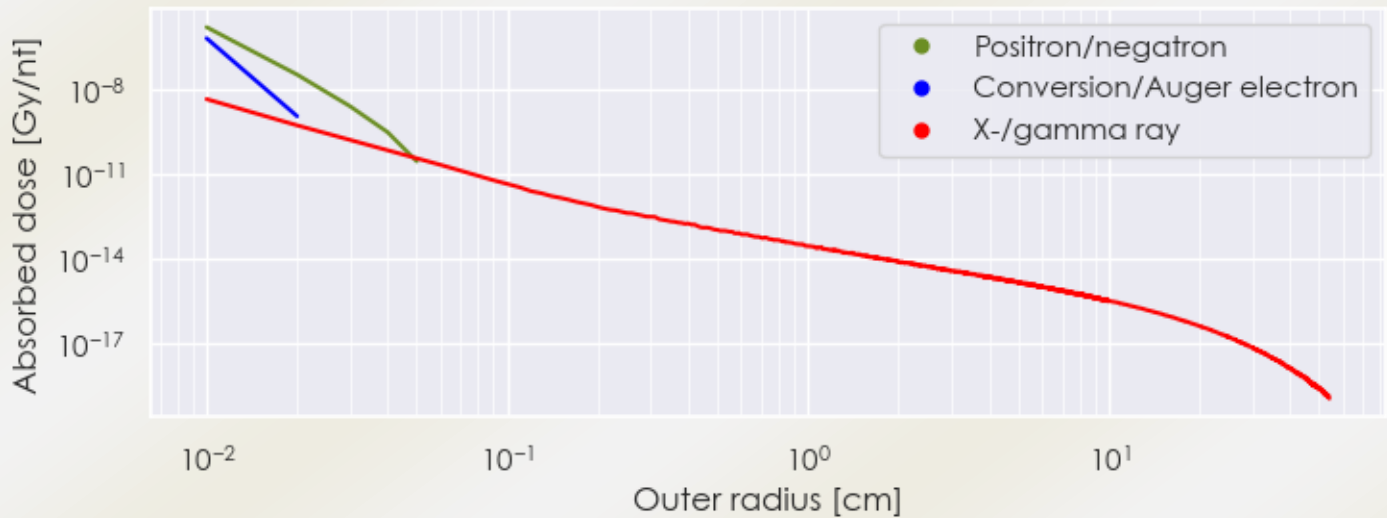
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-, \beta+, e-}$: 1.037×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 9.802×10^{-15} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

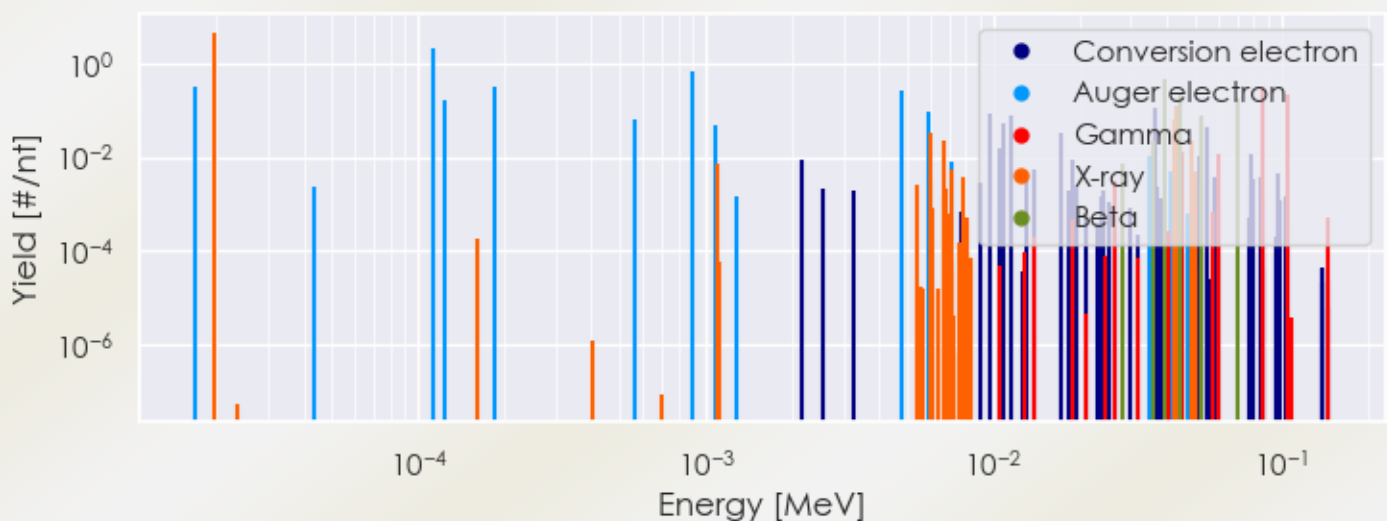
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Eu-155 DPK.csv

SUMMARY SPECTRA (PLOT)

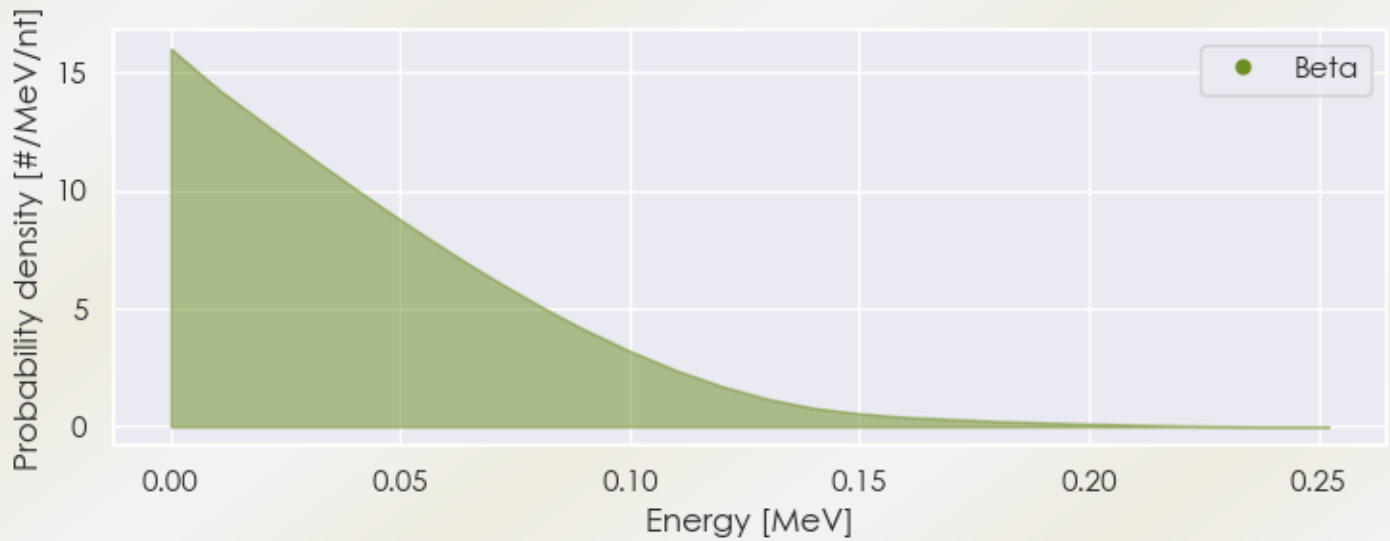
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Eu-155 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/Eu-155 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/Eu-155 Summary Spectrum.csv

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.94271e-05	4.625e+00	X-ray
6.04290e-03	3.178e-02	X-ray
6.71540e-03	2.246e-02	X-ray
4.23559e-02	6.586e-02	X-ray
4.30603e-02	1.184e-01	X-ray
4.52972e-02	1.326e-02	Gamma
4.86161e-02	1.203e-02	X-ray
4.87612e-02	2.327e-02	X-ray
6.00086e-02	1.130e-02	Gamma
8.65450e-02	3.070e-01	Gamma

1.05305e-01	2.115e-01	Gamma
3.56138e-02	2.284e-02	Beta
3.91946e-02	4.666e-01	Beta
4.45576e-02	2.482e-01	Beta
5.22619e-02	8.042e-02	Beta
7.02099e-02	1.747e-01	Beta
1.68638e-05	3.106e-01	Auger electron
1.13406e-04	2.080e+00	Auger electron
1.23275e-04	1.717e-01	Auger electron
1.83156e-04	3.250e-01	Auger electron
5.65340e-04	6.150e-02	Auger electron
8.98069e-04	7.029e-01	Auger electron
1.07580e-03	4.771e-02	Auger electron
4.77589e-03	2.565e-01	Auger electron
5.93163e-03	8.995e-02	Auger electron
9.70560e-03	8.478e-02	Conversion electron
1.04142e-02	1.502e-02	Conversion electron
1.08170e-02	5.427e-02	Conversion electron
1.15213e-02	7.383e-02	Conversion electron
1.72222e-02	3.306e-02	Conversion electron
3.47386e-02	1.027e-02	Auger electron
3.62420e-02	1.107e-01	Conversion electron
5.16588e-02	1.115e-02	Conversion electron
5.50020e-02	4.512e-02	Conversion electron
7.81952e-02	1.120e-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/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6