

|                          |                           |                           |                            |                            |                          |                           |                               |                         |
|--------------------------|---------------------------|---------------------------|----------------------------|----------------------------|--------------------------|---------------------------|-------------------------------|-------------------------|
| Eu-147<br>(0.2s)<br>CB+  | Eu-148<br>(5.93d)<br>ECB+ | Eu-149<br>(4.61d)<br>ECB+ | Eu-150<br>(24.1d)<br>ECB+A | Eu-151<br>(54.5d)<br>EC    | Eu-152<br>(93.1d)<br>EC  | Eu-153<br>(36.9y)<br>ECB+ | Eu-154<br>(13.537y)<br>ECB+B- |                         |
| Sm-143<br>(3.75m)<br>CB+ | Sm-144<br>(STABLE)        | Sm-145<br>(340d)<br>EC    | Sm-146<br>(1.060E11y)<br>A | Sm-147<br>(1.060E11y)<br>A | Sm-148<br>(7E11y)<br>A   | Sm-149<br>(STABLE)        | Sm-150<br>(STABLE)            | Sm-151<br>(90y)<br>B-   |
| Pm-142<br>(10.5s)<br>CB+ | Pm-143<br>(265d)<br>EC    | Pm-144<br>(363d)<br>EC    | Pm-145<br>(17.7y)<br>ECA   | Pm-146<br>(2.62E11y)<br>B- | Pm-147<br>(5.368d)<br>B- | Pm-148<br>(53.08h)<br>B-  | Pm-149<br>(2.68h)<br>B-       | Pm-150<br>(2.68h)<br>B- |

# SAMARIUM-147

## SUMMARY DATA

### GENERAL

### CLASSIFICATION

Isotope: Sm-147  
Atomic number (Z): 62  
Mass number (A): 147  
Neutron number (N): 85

### RADIOACTIVE DECAY

Decay modes:  $\alpha$   
Half-life: 106000000000.0 [y]  
Decay constant: 2.0722e-19 [1/s]  
Daughters: Nd-143 (100.0%)  
Radioactive daughters: None

### DOSIMETRIC CONSTANTS

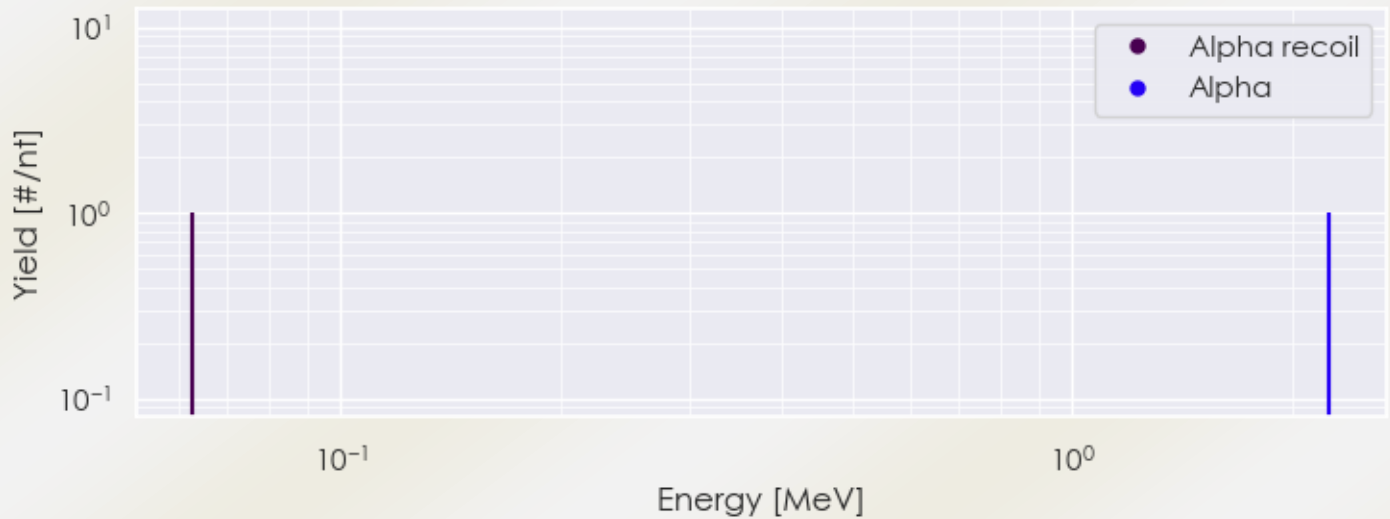
Mean alpha energy: 2.3105 [MeV]  
Mean electron energy: 0.0 [MeV]  
Mean photon energy: 0.0 [MeV]  
Air kerma rate constant,  $\Gamma_{10}$ : 0.000e+00 [Gy·m<sup>2</sup>/Bq·s]  
Air kerma coefficient,  $K_{\text{air}}$ : 0.000e+00 [Gy·m<sup>2</sup>/Bq·s]  
Equilibrium dose constant for weakly-penetrating radiations ( $\alpha$  and/or electrons),  $\Delta_{\text{wp}}$ : 3.702e-13 [Gy·kg/Bq·s]  
Equilibrium dose constant for alphas,  $\Delta_{\alpha}$ : 3.702e-13 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons,  $\Delta_{\beta,\beta^+,e^-}$ : 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for photons,  $\Delta_p$ : 0.000e+00 [Gy·kg/Bq·s]

## 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/Sm-147 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Sm-147%20Summary%20Spectrum.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/Sm-147 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Sm-147%20Summary%20Spectrum.csv)

| Energy [MeV] | Yield [# /nt] if > 0.01 | Radiation type |
|--------------|-------------------------|----------------|
| 2.24759e+00  | 1.000e+00               | Alpha          |
| 6.29105e-02  | 1.000e+00               | Alpha recoil   |

## 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](https://sites.snmmi.org/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6)