



# RUBIDIUM-86

## SUMMARY DATA

### GENERAL

#### CLASSIFICATION

Isotope: Rb-86  
 Atomic number (Z): 37  
 Mass number (A): 86  
 Neutron number (N): 49

#### RADIOACTIVE DECAY

Decay modes:  $\beta^-$ , Electron capture  
 Half-life: 18.64 [d]  
 Decay constant:  $4.3035e-07$  [1/s]  
 Daughters: Sr-86 (100.0%), Kr-86 (0.0052%)  
 Radioactive daughters: None

#### DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]  
 Mean electron energy: 0.66799 [MeV]  
 Mean photon energy: 0.09304 [MeV]  
 Air kerma rate constant,  $\Gamma_{10}$ :  $3.275e-18$  [Gy·m<sup>2</sup>/Bq·s]  
 Air kerma coefficient,  $K_{air}$ :  $3.275e-18$  [Gy·m<sup>2</sup>/Bq·s]  
 Equilibrium dose constant for weakly-penetrating radiations (alpha and/or electrons),  $\Delta_{wp}$ :  $1.070e-13$  [Gy·kg/Bq·s]  
 Equilibrium dose constant for alphas,  $\Delta_{\alpha}$ :  $0.000e+00$  [Gy·kg/Bq·s]

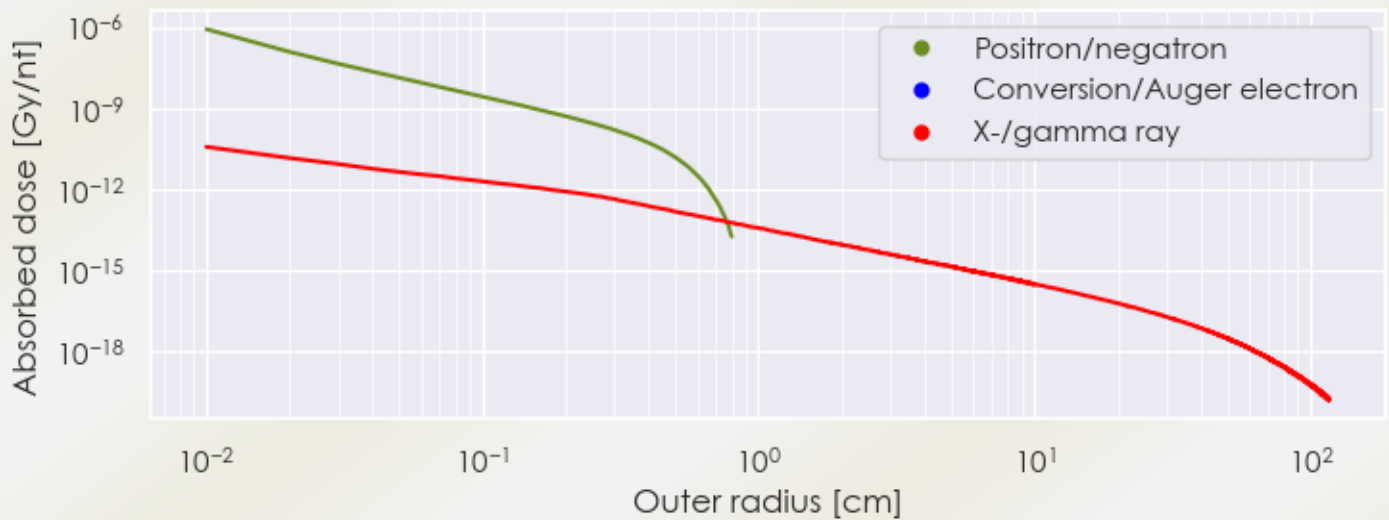
Equilibrium dose constant for betas/electrons,  $\Delta_{\beta,\beta^+,e^-}$ : 1.070e-13 [Gy·kg/Bq·s]

Equilibrium dose constant for photons,  $\Delta_p$ : 1.491e-14 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

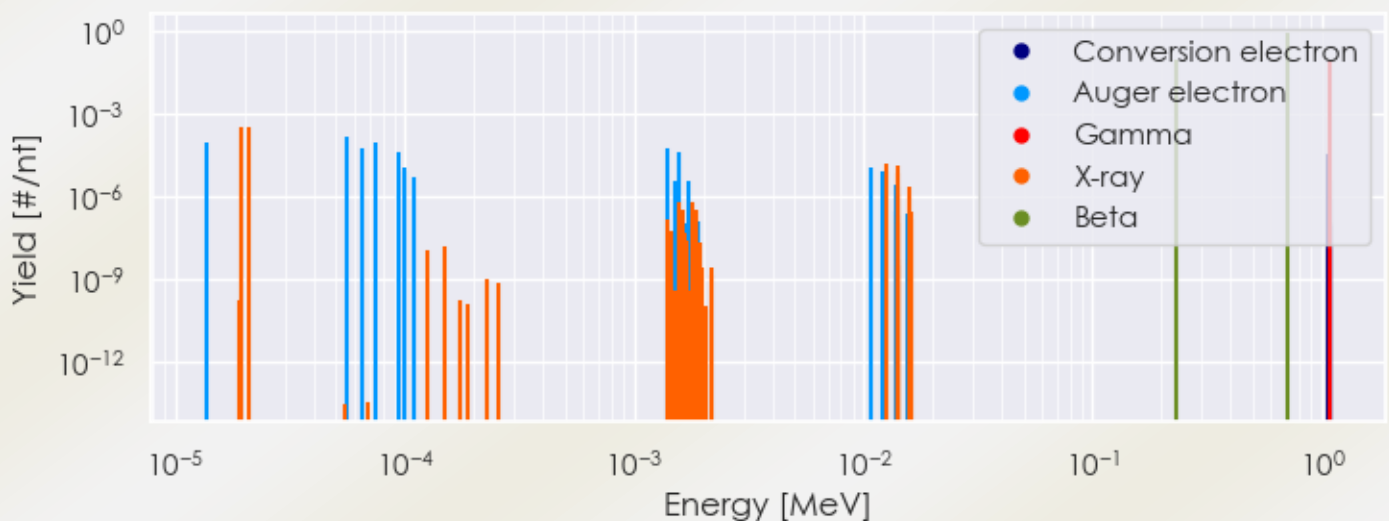
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: [www.mirdsoft.org/products/MIRDspecs/Rb-86 DPK.csv](http://www.mirdsoft.org/products/MIRDspecs/Rb-86 DPK.csv)

SUMMARY SPECTRA (PLOT)

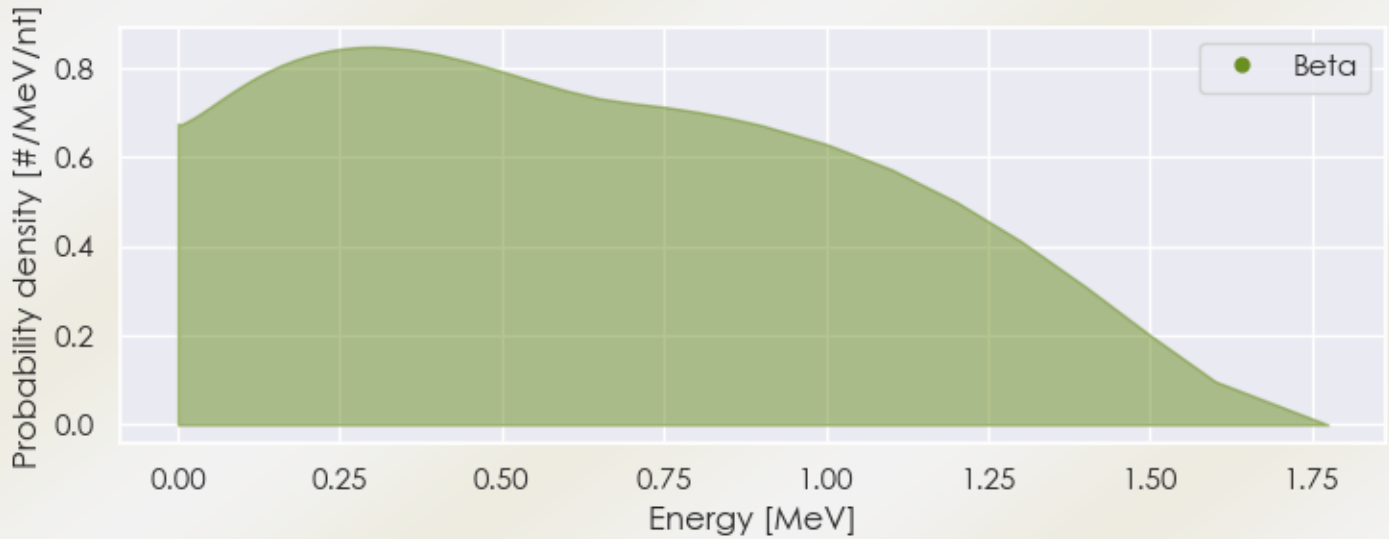
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Rb-86 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Rb-86 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/Rb-86 Beta Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Rb-86 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/Rb-86 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Rb-86 Summary Spectrum.csv)

Energy [MeV]	Yield [# / nt] if > 0.01	Radiation type
1.07700e+00	8.640e-02	Gamma
2.32293e-01	8.640e-02	Beta
7.09183e-01	9.136e-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](https://sites.snmmi.org/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6)