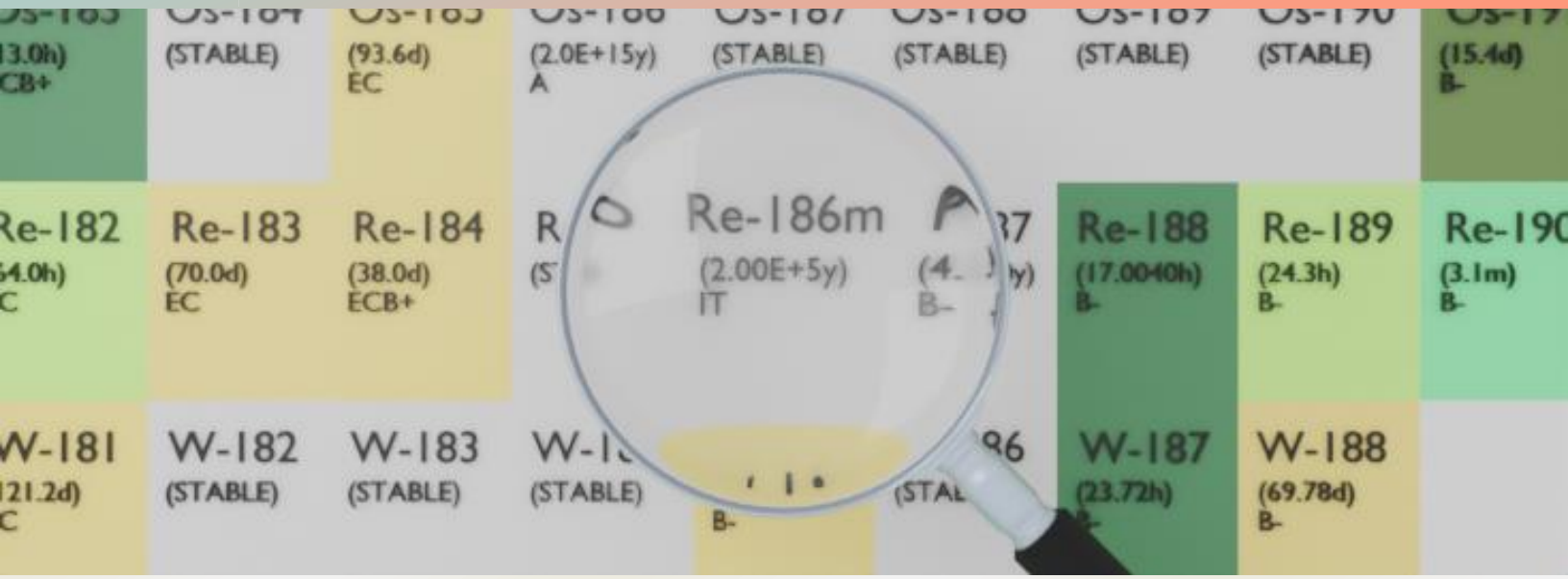


RHENIUM-186M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Re-186m
Atomic number (Z): 75
Mass number (A): 186
Neutron number (N): 111

RADIOACTIVE DECAY

Decay modes: Internal transition
Half-life: 200000.0 [y]
Decay constant: 1.0982e-13 [1/s]
Daughters: Re-186 (100.0%)
Radioactive daughters: Re-186

DOSIMETRIC CONSTANTS

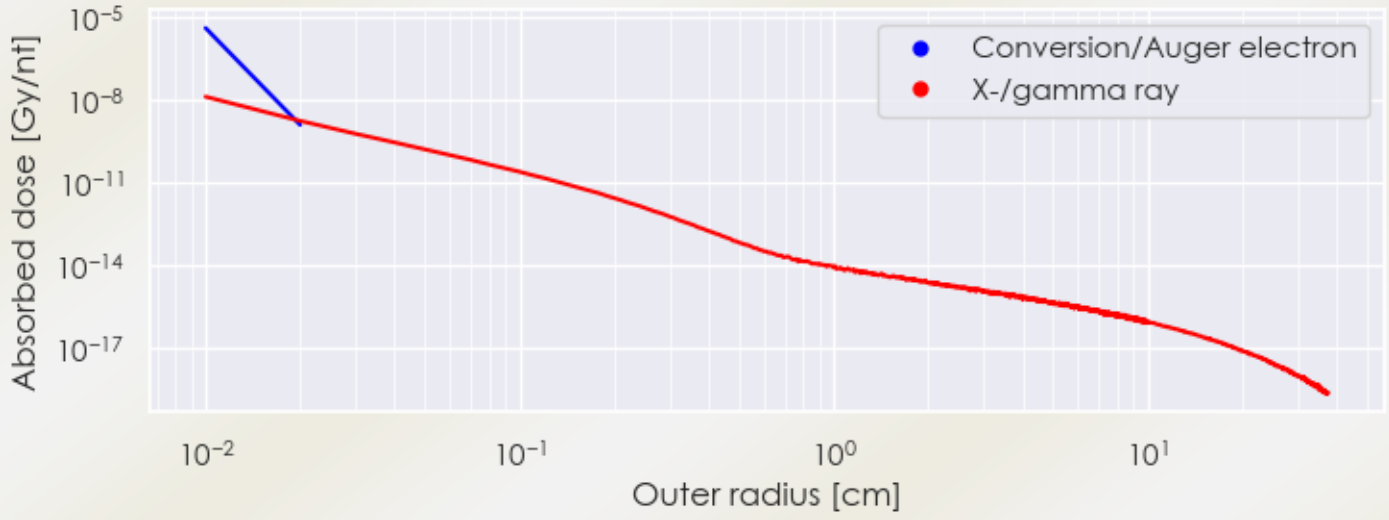
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.12669 [MeV]
Mean photon energy: 0.02067 [MeV]
Air kerma rate constant, Γ_{10}: 1.516e-17 [Gy·m^2/Bq·s]
Air kerma coefficient, K_{air}: 1.516e-17 [Gy·m^2/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (a and/or electrons), Δ_{wp}: 2.030e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{a}: 0.000e+00 [Gy·kg/Bq·s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta-,\beta+,e-}$: 2.030e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for photons, Δ_{p}: 3.312e-15 [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

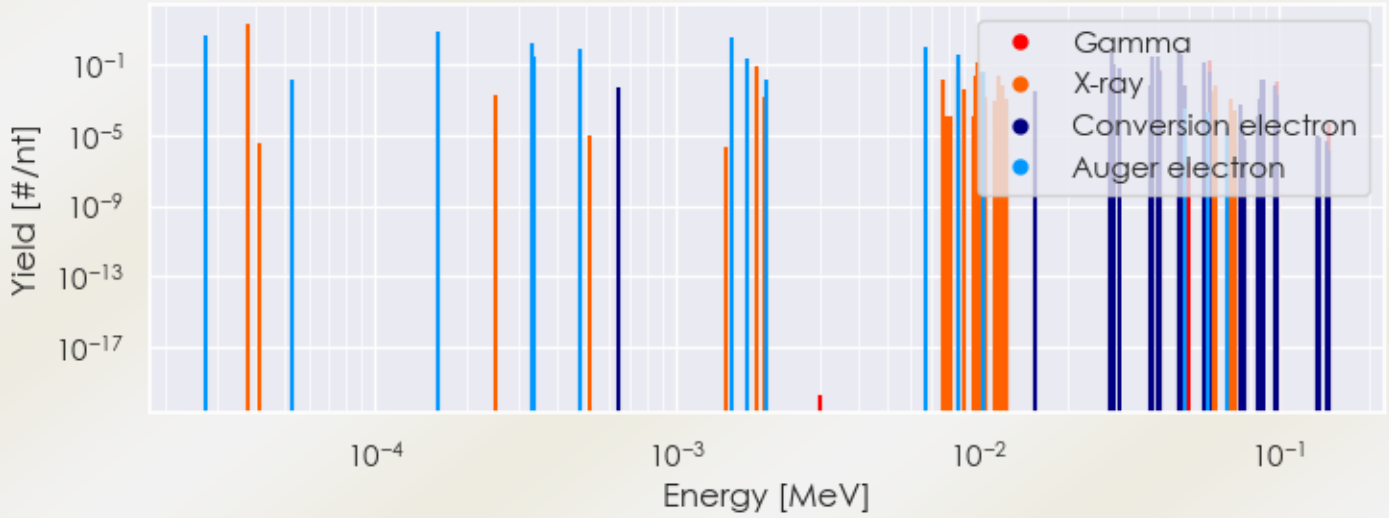
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Re-186m 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/Re-186m Summary 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/Re-186m Summary Spectrum.csv

Energy [MeV]	Yield [#/nt] if > 0.01	Radiation type
3.75795e-05	2.216e+01	X-ray
1.84862e-03	8.968e-02	X-ray
7.62640e-03	1.493e-02	X-ray
8.57619e-03	2.552e-02	X-ray
8.64528e-03	2.251e-01	X-ray
9.83057e-03	2.275e-02	X-ray
1.00312e-02	1.372e-01	X-ray
1.01475e-02	2.805e-02	X-ray
1.02735e-02	4.035e-02	X-ray
1.17147e-02	2.584e-02	X-ray
4.03500e-02	5.038e-02	Gamma
5.90090e-02	1.783e-01	Gamma
9.93620e-02	1.073e-02	Gamma
2.73040e-05	4.381e+00	Auger electron
5.27722e-05	1.276e-02	Auger electron
1.62417e-04	7.385e+00	Auger electron
3.31924e-04	1.501e+00	Auger electron
3.35028e-04	2.833e-01	Auger electron
4.81177e-04	8.484e-01	Auger electron
1.52532e-03	3.530e+00	Auger electron
1.71480e-03	2.490e-01	Auger electron
1.98650e-03	1.331e-02	Auger electron
6.76600e-03	9.066e-01	Auger electron
8.60249e-03	3.545e-01	Auger electron
1.04753e-02	3.444e-02	Auger electron
2.78420e-02	4.633e-01	Conversion electron
2.83570e-02	1.003e-01	Conversion electron

2.98120e-02	6.873e-02	Conversion electron
3.79895e-02	1.475e-01	Conversion electron
3.80070e-02	2.938e-01	Conversion electron
3.94620e-02	2.812e-01	Conversion electron
4.03500e-02	4.304e-02	Conversion electron
4.65010e-02	5.398e-01	Conversion electron
4.70160e-02	5.045e-02	Conversion electron
4.76395e-02	4.140e-01	Conversion electron
5.66485e-02	1.368e-01	Conversion electron
5.90090e-02	4.047e-02	Conversion electron
8.73690e-02	1.426e-02	Conversion electron
8.88240e-02	1.263e-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/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6