

Os-180 (21.5m) ECB+	Os-181 (105m) ECB+	Os-182 (22.10h) EC	Os-183 (13.0h) EC	Os-184 (STABLE)	Os-185 (93.6d) EC	Os-186 (2.0E+15y) A	Os-187 (STABLE)	
Re-178 (3.2m) CB+	Re-179 (19.5m) ECB+	Re-180 (2.44m) ECB+	Re-181 (1.67m) ECB+	Re-182 (64.0h) EC	Re-183 (70.0d) ECB+	Re-184 (38.0d) ECB+	Re-185 (STABLE)	Re-186 (3.7183d) B-EC
W-177 (132m) CB+	W-178 (21.6d) EC	W-179 (37.05m) EC	W-180 (1.82m) ECB+	W-181 (1.12m) ECB+	W-182 (STABLE)	W-183 (STABLE)	W-184 (STABLE)	W-185 (75.1d) B-

RHENIUM-182

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Re-182
Atomic number (Z): 75
Mass number (A): 182
Neutron number (N): 107

RADIOACTIVE DECAY

Decay modes: Electron capture
Half-life: 64.0 [h]
Decay constant: 3.0085e-06 [1/s]
Daughters: W-182 (100.0%)
Radioactive daughters: None

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.20453 [MeV]
Mean photon energy: 1.79821 [MeV]
Air kerma rate constant, Γ_{10} : 6.480e-17 [Gy·m²/Bq·s]
Air kerma coefficient, K_{air} : 6.480e-17 [Gy·m²/Bq·s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 3.277e-14 [Gy·kg/Bq·s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy·kg/Bq·s]

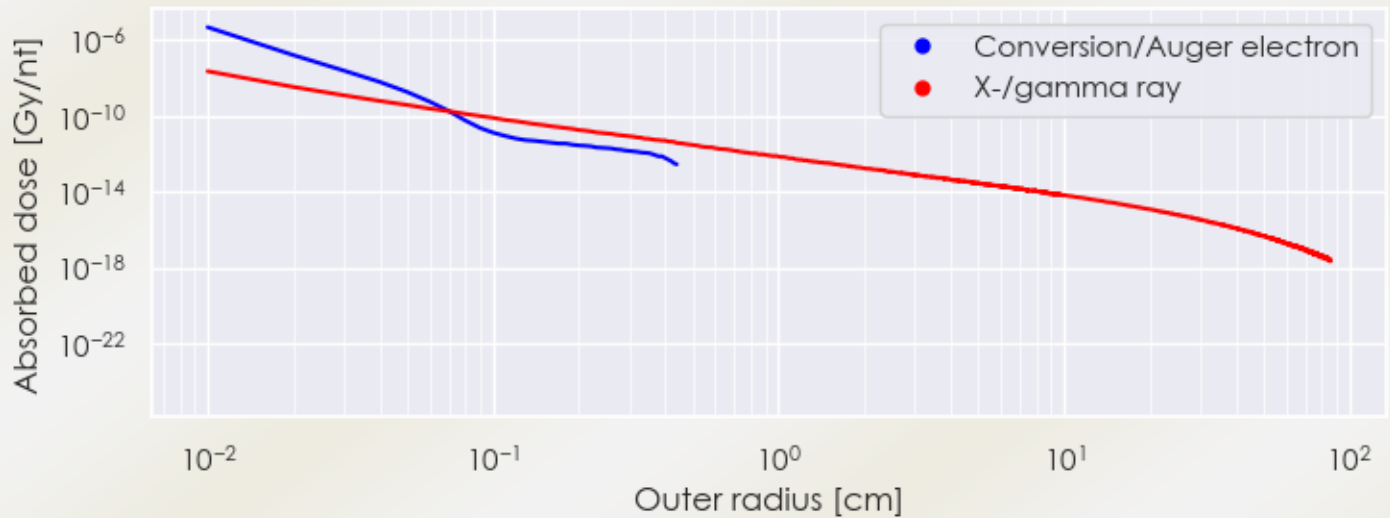
Equilibrium dose constant for betas/electrons, $\Delta_{\beta-, \beta+, e-}$: 3.277×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 2.881×10^{-13} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

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

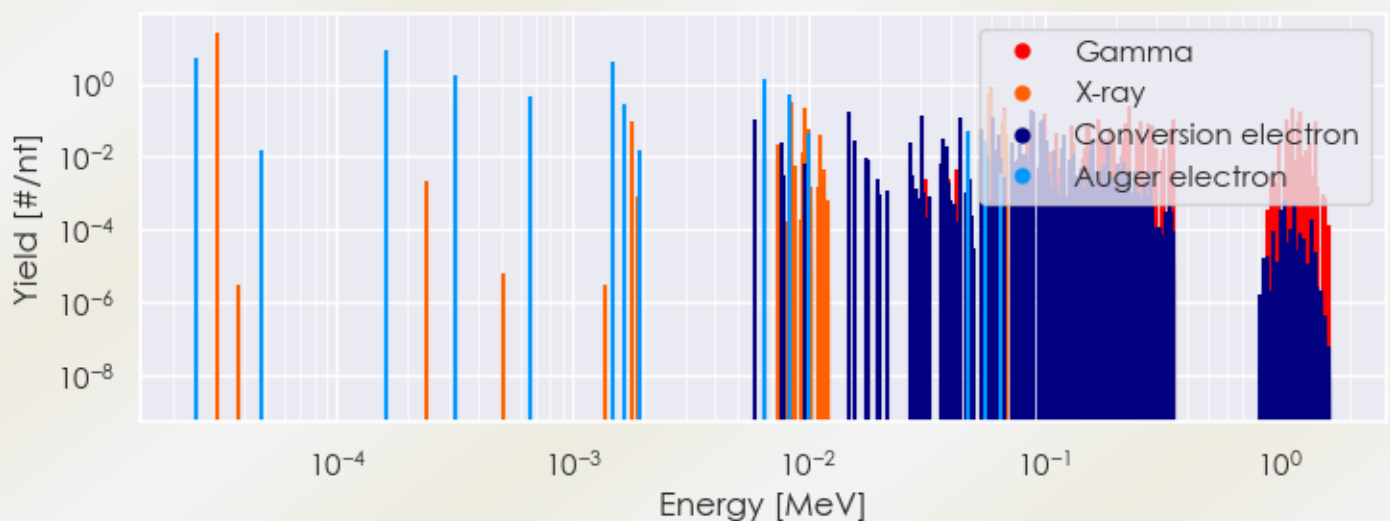
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Re-182 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-182 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-182 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Re-182%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [#]/nt] if > 0.01	Radiation type
3.12401e-05	2.688e+01	X-ray
1.77673e-03	9.921e-02	X-ray
7.40949e-03	2.132e-02	X-ray
8.32492e-03	3.621e-02	X-ray
8.38982e-03	3.195e-01	X-ray
9.50920e-03	1.317e-02	X-ray
9.69189e-03	2.161e-01	X-ray
9.80579e-03	1.649e-02	X-ray
9.95867e-03	5.665e-02	X-ray
1.13129e-02	4.021e-02	X-ray
5.81161e-02	5.166e-01	X-ray
5.94830e-02	8.968e-01	X-ray
6.58000e-02	2.878e-02	Gamma
6.71212e-02	9.643e-02	X-ray
6.74178e-02	1.864e-01	X-ray
6.78500e-02	2.215e-01	Gamma
6.92004e-02	2.194e-02	X-ray
6.92695e-02	4.256e-02	X-ray
6.96433e-02	1.022e-02	X-ray
8.46800e-02	2.750e-02	Gamma
1.00100e-01	1.640e-01	Gamma
1.07130e-01	1.413e-02	Gamma
1.13680e-01	4.857e-02	Gamma
1.30810e-01	7.453e-02	Gamma
1.33800e-01	2.390e-02	Gamma
1.48860e-01	1.748e-02	Gamma
1.52430e-01	8.481e-02	Gamma

1.56390e-01	7.196e-02	Gamma
1.69150e-01	1.131e-01	Gamma
1.72870e-01	3.572e-02	Gamma
1.78470e-01	2.262e-02	Gamma
1.79400e-01	3.007e-02	Gamma
1.91390e-01	6.682e-02	Gamma
1.98340e-01	4.035e-02	Gamma
2.14320e-01	1.105e-02	Gamma
2.17550e-01	3.264e-02	Gamma
2.21610e-01	6.425e-02	Gamma
2.22070e-01	8.481e-02	Gamma
2.26190e-01	3.058e-02	Gamma
2.29320e-01	2.570e-01	Gamma
2.47460e-01	5.037e-02	Gamma
2.56450e-01	9.509e-02	Gamma
2.64070e-01	3.572e-02	Gamma
2.76310e-01	8.738e-02	Gamma
2.81450e-01	5.680e-02	Gamma
2.86560e-01	7.042e-02	Gamma
2.99900e-01	1.259e-02	Gamma
3.00360e-01	1.696e-02	Gamma
3.23400e-01	1.748e-02	Gamma
3.39060e-01	5.551e-02	Gamma
3.42030e-01	1.054e-02	Gamma
3.51070e-01	1.028e-01	Gamma
1.00170e+00	2.459e-02	Gamma
1.07620e+00	1.054e-01	Gamma
1.11330e+00	4.703e-02	Gamma
1.12130e+00	2.197e-01	Gamma
1.18900e+00	9.021e-02	Gamma
1.22140e+00	1.740e-01	Gamma
1.23100e+00	1.488e-01	Gamma
1.25750e+00	1.064e-02	Gamma
1.29400e+00	1.611e-02	Gamma
1.34270e+00	2.570e-02	Gamma
1.42730e+00	9.792e-02	Gamma
2.53707e-05	5.334e+00	Auger electron
4.81101e-05	1.548e-02	Auger electron

1.61358e-04	9.126e+00	Auger electron
3.15494e-04	3.180e-01	Auger electron
3.18810e-04	1.782e+00	Auger electron
6.64024e-04	4.757e-01	Auger electron
1.47177e-03	4.233e+00	Auger electron
1.65693e-03	2.718e-01	Auger electron
1.91339e-03	1.531e-02	Auger electron
5.97300e-03	1.129e-01	Conversion electron
6.47700e-03	1.230e-02	Conversion electron
6.52889e-03	1.309e+00	Auger electron
7.77300e-03	2.481e-02	Conversion electron
8.28642e-03	5.024e-01	Auger electron
1.00742e-02	4.808e-02	Auger electron
1.49910e-02	1.664e-01	Conversion electron
1.57788e-02	2.940e-02	Conversion electron
2.70230e-02	2.378e-02	Conversion electron
3.04110e-02	1.429e-01	Conversion electron
3.74410e-02	3.329e-02	Conversion electron
3.88910e-02	2.061e-02	Conversion electron
4.39910e-02	1.265e-01	Conversion electron
4.71853e-02	5.420e-02	Auger electron
5.37230e-02	5.723e-02	Conversion electron
5.57730e-02	2.165e-02	Conversion electron
5.63739e-02	2.841e-02	Auger electron
5.76440e-02	1.010e-02	Conversion electron
6.11210e-02	1.204e-01	Conversion electron
6.35288e-02	1.549e-02	Conversion electron
6.41110e-02	3.853e-02	Conversion electron
7.26030e-02	2.390e-02	Conversion electron
7.91710e-02	2.183e-02	Conversion electron
7.97610e-02	1.154e-02	Conversion electron
8.27410e-02	1.161e-02	Conversion electron
8.80230e-02	1.573e-02	Conversion electron
8.85270e-02	1.926e-01	Conversion electron
8.98940e-02	1.729e-01	Conversion electron
9.78288e-02	9.686e-02	Conversion electron
9.94610e-02	1.035e-01	Conversion electron
1.00100e-01	2.692e-02	Conversion electron

1.01603e-01	1.810e-02	Conversion electron
1.03181e-01	2.955e-02	Conversion electron
1.09711e-01	1.584e-02	Conversion electron
1.18733e-01	1.708e-02	Conversion electron
1.21701e-01	4.205e-02	Conversion electron
1.33861e-01	1.240e-02	Conversion electron
1.56501e-01	1.235e-02	Conversion electron
1.57073e-01	1.495e-02	Conversion electron
1.59631e-01	3.011e-02	Conversion electron
1.86761e-01	2.762e-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