



RADIONUCLIDE DATA SHEET

Rhenium – 186



Re – 186 75 protons 111 neutrons

Radiation: Decay mode: Beta

Major Betas:

Max E (MeV)	Avg E (MeV)	# per 100 dis
0.939	0.309	22
1.077	0.362	71

Max. Beta Range in air 450 cm or 14.76 ft
 Max. Beta Range in water 0.48 cm

Major Gammas:

E (MeV)	# per 100 dis
0.137	10

Avg. gamma E = 0.102 MeV

Half – life: 3.777 days

Gamma constant: 0.2 mR/hr per 1 mCi at 30 cm

Radiological data:

Min. Ingestion ALI: 2000 μ Ci equals 5 rem TEDE (Whole Body)

Min. Inhalation ALI: 2000 μ Ci equals 5 rem TEDE (Whole Body)

Doses:

Skin Dose: Reported for 1 μ Ci over 10 cm² of skin
 1.81 mrad/hr (gamma dose)

Point Source: 613 mrad/hr (beta dose)

Disk Source: 615 mrad/hr (beta dose)

Shielding data:

Max. range for beta:	Plastic	=	0.48 cm
	Aluminum	=	0.23 cm
Tenth Value Thickness for average gamma:	Concrete	=	5.6 cm
	Lead	=	0.01 cm

Detection Information: Usable Detectors listed with estimated efficiencies
 (Use efficiencies listed on instrument when available)

Ludlum 3 with pancake probe at 1 cm:	11 %	Liq. Scint. Counter:	85 %
Ludlum 3 with NaI probe near surface:	3 %	Gamma Counter:	80 %

Action Quantities:

Bench top quantity must be less than	20000 μ Ci
Containers require labeling when greater than	100 μ Ci
Rooms require posting when there is greater than	1000 μ Ci
Contamination lasting more than 24 hrs require NRC notification when greater than	10000 μ Ci