

# RADIONUCLIDE DATA SHEET

[GOLD]

Au-198

79 protons

119 neutrons

**Half Life:** 2.69 days

**Radiation:** Decay Mode: Beta

**Gamma Constant:** 3.24 mR/hr per 1 mCi at 30 cm

**Major Betas:**

Max E(MeV)	Avg E (MeV)	# per 100 dis
0.285	0.079	1
0.961	0.315	99

Max. Beta Range in Air : 390 cm  
Max. Beta Range in Water : 0.42 cm

**Major Gammas:**

E(MeV)	# per 100 Dis
0.412	96
0.676	1
1.088	0.23

Average gamma E = 0.407 MeV

**Intake Data (annual):**

Minimum Ingestion: 1000  $\mu$ Ci equals 5 rem TEDE (WHOLE BODY)

Minimum Inhalation: 2000  $\mu$ Ci equals 5 rem TEDE (WHOLE BODY)

**Doses:**

**Skin Dose:** Reported for 1  $\mu$ Ci over 10 cm<sup>2</sup> of skin  
7.72 mrad/hr (gamma dose)  
Point Source: 613 mrad/hr (beta dose)  
Disk Source: 614 mrad/hr (beta dose)

**Shielding Information:**

Maximum Range For Beta	Plastic	0.42 cm
	Aluminum	0.2 cm
Tenth Value Thickness For Average Gamma:	Concrete	11 cm
	Lead	0.92 cm

**Detection information:** Usable Detectors listed with estimate efficiencies

Ludlum 3 w/ pancake probe at 1 cm	11%	Liq. Scint. Counter	85%
Ludlum 3 w/ NaI probe near surface	1%	Gamma Counter	40%

**Action Quantities:**

Bench Top Quantity Must Be Less Than	10000 $\mu$ Ci
Containers Require Labeling When Greater Than	100 $\mu$ Ci
Rooms Require Posting When There Is Greater Than	1000 $\mu$ Ci
Contamination Lasting More than 24 hrs Require NRC Notification At	5000 $\mu$ Ci