

RADIONUCLIDE DATA SHEET

[BISMUTH]

Bi-207

83 protons

124 neutrons

Half Life: 31.55 years

Radiation: Decay Mode: Electron Capture

Gamma Constant: 4.72 mR/hr per 1 mCi at 30 cm

Major Betas:

Max E(MeV)	Avg E (MeV)	# per 100 dis
0.806	0.383	0.012

Max. Beta Range in Air : 241.48 cm

Max. Beta Range in Water : 0.26 cm

Major Gammas:

E(MeV)	# per 100 Dis
0.570	97.74
1.064	74.5
1.770	6.87

Average gamma E = 0.822 MeV

Intake Data (annual):

Minimum Ingestion: 1000 μ Ci equals 5 rem TEDE (WHOLE BODY)

Minimum Inhalation: 200 μ Ci equals 5 rem TEDE (WHOLE BODY)

Doses:

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

Point Source: 79.8 mrad/hr (beta dose)

Disk Source: 80.1 mrad/hr (beta dose)

Shielding Information:

Maximum Range For Beta	Plastic	0.41 cm
	Aluminum	0.18 cm
Tenth Value Thickness For Average Gamma:	Concrete	0 cm
	Lead	0 cm

Detection information: Usable Detectors listed with estimate efficiencies

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

Action Quantities:

Bench Top Quantity Must Be Less Than	4000 μ Ci
Containers Require Labeling When Greater Than	10 μ Ci
Rooms Require Posting When There Is Greater Than	100 μ Ci
Contamination Lasting More than 24 hrs Require NRC Notification At	2000 μ Ci