



RADIONUCLIDE DATA SHEET

Bismuth



Bi-207 83 protons 124 neutrons

Radiation: **Decay mode:** Electron Capture

Major Gammas:

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

Major Betas:

Max E (MeV)	Avg E (MeV)	# per 100 dis
0.806	.0383	0.012

Max. Beta Range in air 241.48 cm or 7.92 ft **Avg. gamma E =** 0.822 MeV
 Max. Beta Range in water 0.26 cm

Half - life: 31.55 years

Gamma constant: 4.72 mR/hr per mCi at 30 cm

Radiological data: **Min. Ingestion ALI:** 1000µCi equals 5rem TEDE (Whole Body)
 Min. Inhalation ALI: 200µCi equals 5rem TEDE (Whole Body)

Doses:

Skin Dose: Reported for 1 µCi 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 data: **Max. range for beta:** Plastic = 0.41 cm
 Aluminum = 0.18 cm
 Tenth Value Thickness for average gamma: Concrete = cm
 Lead = cm

Detection Information: Usable Detectors listed with estimated efficiencies
 (Use efficiencies listed on instrument when available)
Ludlum 3 with pancake probe at 1 cm: % **Liq. Scint. Counter:** %
Ludlum 3 with NaI probe near surface: % **Gamma Counter:** %

Action Quantities:

Bench top quantity must be less than 4000 µCi
 Containers require labeling when greater than 10 µCi
 Rooms require posting when there is greater than 100 µCi
 Contamination lasting more than 24 hrs require NRC notification when greater than 2000 µCi

