

# RADIONUCLIDE DATA SHEET

[CALCIUM]



Ca-47

20 protons

27 neutrons

**Half Life:** 4.5 days

**Radiation:** Decay Mode: Beta

**Gamma Constant:** 6.5mR/hr per 1 mCi at 30 cm

**Major Betas:**

Max E(MeV)	Avg E (MeV)	# per 100 dis
0.690	0.241	82
1.988	0.817	18

Max. Beta Range in Air : 841 cm  
 Max. Beta Range in Water : 0.97 cm

**Major Gammas:**

E(MeV)	# per 100 Dis
0.489	7
0.808	7
1.297	75

Average gamma E = 1.20 MeV

**Intake Data (annual):**

Minimum Ingestion: 800  $\mu$ Ci equals 5 rem TEDE (WHOLE BODY)

Minimum Inhalation: 900  $\mu$ Ci equals 5 rem TEDE (WHOLE BODY)

**Doses:**

**Skin Dose:** Reported for 1  $\mu$ Ci over 10 cm<sup>2</sup> of skin  
 17.7 mrad/hr (gamma dose)

Point Source: 570 mrad/hr (beta dose)

Disk Source: 572 mrad/hr (beta dose)

**Shielding Information:**

Maximum Range For Beta	Plastic	0.97 cm
	Aluminum	0.45 cm
Tenth Value Thickness For Average Gamma:	Concrete	17 cm
	Lead	3.2 cm

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

Ludlum 3 w/ pancake probe at 1 cm	9%	Liq. Scint. Counter	80%
Ludlum 3 w/ NaI probe near surface	1%	Gamma Counter	8%

**Action Quantities:**

Bench Top Quantity Must Be Less Than	8000 $\mu$ 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	4000 $\mu$ Ci