RADIONUCLIDE DATA SHEET [COPPER]

Cu-64 — 29 protons — 35 neutrons

Half Life: 12.701 hours
Radiation: Decay Mode: Electron Capture 61%; Beta 39%
Gamma Constant: 1.47 mR/hr per 1 mCi at 30 cm

Major Betas:

Max E(MeV)	Avg E (MeV)	# per 100 dis
0.578	0.19	37
Major	**Positrons:**	
0.653	0.278	18

Max. Beta Range in Air : 240 cm
Max. Beta Range in Water : 0.25 cm

Major Gammas:

E(MeV)	# per 100 Dis
1.346	0.5

Average gamma E = 1.346 MeV

Intake Data (annual):

Minimum Ingestion: 10000 µCi equals 5 rem TEDE (WHOLE BODY)
Minimum Inhalation: 20000 µCi equals 5 rem TEDE (WHOLE BODY)

Doses:

Skin Dose: Reported for 1 µCi over 10 cm² of skin
13.3 mrad/hr (gamma dose)
Point Source: 320 mrad/hr (beta dose)
Disk Source: 321 mrad/hr (beta dose)

Shielding Information:

Maximum Range For Beta	Plastic	0.25 cm
	Aluminum	0.1 cm
Tenth Value Thickness For Average Gamma:	Concrete	18 cm
	Lead	3.5 cm

Detection information: Usable Detectors listed with estimate efficiencies

Ludlum 3 w/ pancake probe at 1 cm	6%	Liq. Scint. Counter	60%
Ludlum 3 w/ NaI probe near surface	<1%	Gamma Counter	<1%

Action Quantities:

Bench Top Quantity Must Be Less Than	100000 µCi
Containers Require Labeling When Greater Than	1000 µCi
Rooms Require Posting When There Is Greater Than	10000 µCi
Contamination Lasting More than 24 hrs Require NRC Notification At	50000 µCi