RADIONUCLIDE DATA SHEET [YTTRIUM]

University of California San Diego

Y-90 — 39 protons — 51 neutrons

Half Life: 2.67 days
Radiation: Decay Mode: Beta
Gamma Constant: 0 mR/hr per 1 mCi at 30 cm

Major Betas:

Max E(MeV)	Avg E (MeV)	# per 100 dis
2.284	0.935	100

Max. Beta Range in Air : 1062 cm
Max. Beta Range in Water : 1.1 cm

Average gamma E = 0 MeV

Intake Data (annual):

Minimum Ingestion: 500 µCi equals 5 rem TEDE (WHOLE BODY)
400 µCi equals 50 rem CEDE (LLI wall)
Minimum Inhalation: 600 µCi equals 5 rem TEDE (WHOLE BODY)

Doses:

Skin Dose: Reported for 1 µCi over 10 cm² of skin
0 mrad/hr (gamma dose)
Point Source: 685 mrad/hr (beta dose)
Disk Source: 687 mrad/hr (beta dose)

Shielding Information:

Maximum Range For Beta	Plastic	1.1 cm
	Aluminum	0.52 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	13%	Liq. Scint. Counter	90%
Ludlum 3 w/ NaI probe near surface	<1%	Gamma Counter	5%

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 At	2000 µCi