RADIONUCLIDE DATA SHEET [THORIUM]

Th-228 — 90 protons — 138 neutrons

Half Life: 1.9116 years
Radiation: Decay Mode: Alpha
Gamma Constant: 0.615 E -2 mR/hr per 1 mCi at 30 cm

Major Alphas:

E(MeV)	# per 100 dis
5.423	72.2
5.340	27.2
5.211	0.420

Max. Beta Range in Air : N/A cm
Max. Beta Range in Water : N/A cm

Major Gammas:

E(MeV)	# per 100 Dis
0.084	1.22
0.132	0.13
0.215	0.25

Average gamma E = 0.108 MeV

Intake Data (annual):

Minimum Ingestion: 10 µCi equals 5 rem TEDE (WHOLE BODY)
6 µCi equals 50 rem CEDE (Bone surface)
Minimum Inhalation: 0.02 µCi equals 5 rem TEDE (WHOLE BODY)
0.01 µCi equals 50 rem CEDE (Bone surface)

Doses:

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

Shielding Information:

Maximum Range For Beta	Plastic	N/A cm
	Aluminum	N/A 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	0.1 µCi
Containers Require Labeling When Greater Than	0.001 µCi
Rooms Require Posting When There Is Greater Than	0.01 µCi
Contamination Lasting More than 24 hrs Require NRC Notification At	0.05 µCi