RADIONUCLIDE DATA SHEET
Thallium – 201

Tl – 201 81 protons 120 neutrons

Radiation: **Decay mode:** Electron Capture

Major Betas:

Max E (MeV)	Avg E (MeV)	# per 100 dis
None		

Max. Beta Range in air 0 cm or 0 ft
Max. Beta Range in water 0 cm

Major Gammas:

E (MeV)	# per 100 dis
0.135	3
0.166	0.2
0.167	10

Avg. gamma E = 0.063 MeV

Half – life: 3.038 days

Gamma constant: 0.97 mR/hr per 1 mCi at 30 cm

Radiological data:

Min. Ingestion ALI: 20000 μCi equals 5 rem TEDE (Whole Body)
Min. Inhalation ALI: 20000 μCi equals 5 rem TEDE (Whole Body)

Doses:

Skin Dose: Reported for 1 μCi over 10 cm^2 of skin
12.8 mrad/hr (gamma dose)
Point Source: 0 mrad/hr (beta dose)
Disk Source: 0 mrad/hr (beta dose)

Shielding data:

Max. range for beta:	Plastic	=	0 cm
	Aluminum	=	0 cm
Tenth Value Thickness for average gamma:	Concrete	=	4.7 cm
	Lead	=	0.11 cm

Detection Information: Usable Detectors listed with estimated efficiencies
(Use efficiencies listed on instrument when available)

Ludlum 3 with pancake probe at 1 cm:	<1 %	**Liq. Scint. Counter:**	Not known
Ludlum 3 with NaI probe near surface:	1 %	**Gamma Counter:**	20 %

Action Quantities:

Bench top quantity must be less than	200000 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 when greater than	100000 μCi

Updated – 08/02/2005