

# RADIONUCLIDE DATA SHEET

[THALLIUM]

Ti-201

81protons

120neutrons

**Half Life:** 3.038 days

**Radiation:** Decay Mode: Electron Capture

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

## **Major Alpha:**

E(MeV)	Avg 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: 20000 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 cm<sup>2</sup> of skin  
12.8 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	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 estimate efficiencies

Ludlum 3 w/ pancake probe at 1 cm	<1%	Liq. Scint. Counter	Unknown
Ludlum 3 w/ 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 At	100000 µCi