

# RADIONUCLIDE DATA SHEET

[TECHNETIUM]

Tc-99

43 protons

56 neutrons

**Half Life:** 2.13 E +5 years

**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
0.294	0.085	100

Max. Beta Range in Air : 79 cm

Max. Beta Range in Water : 0.08 cm

Average gamma E = 0 MeV

## **Intake Data (annual):**

Minimum Ingestion: 4000  $\mu$ Ci equals 5 rem TEDE (WHOLE BODY)

Minimum Inhalation: 700  $\mu$ Ci equals 5 rem TEDE (WHOLE BODY)

## **Doses:**

**Skin Dose:** Reported for 1  $\mu$ Ci over 10 cm<sup>2</sup> of skin  
0 mrad/hr (gamma dose)

Point Source: 415 mrad/hr (beta dose)

Disk Source: 419 mrad/hr (beta dose)

## **Shielding Information:**

Maximum Range For Beta	Plastic	0.08 cm
	Aluminum	0.04 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	4%	Liq. Scint. Counter	85%
Ludlum 3 w/ NaI probe near surface	0%	Gamma Counter	0%

## **Action Quantities:**

Bench Top Quantity Must Be Less Than	7000 $\mu$ Ci
Containers Require Labeling When Greater Than	100 $\mu$ Ci
Rooms Require Posting When There Is Greater Than	1000 $\mu$ Ci
Contamination Lasting More than 24 hrs Require NRC Notification At	3500 $\mu$ Ci