

# 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 |