

RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: Tc-99

FORMS: ALL SOLUBLE

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 2.13 E 5 years

TYPE DECAY: beta -
maximum energy 0.294 MeV

Hazard category: C- level (low hazard) : 0.01 to 1 millicurie
B - level (Moderate hazard) : > 1 to 100 mCi
A - level (High hazard) : > 100 millicuries

EXTERNAL RADIATION HAZARDS AND SHIELDING:

Maximum ranges of these betas are 25 feet in air, 31 inches in water and 0.025 inch in plastic.

Dose rates vary directly with activity and over short distances inversely with the square of the distance from the source.

HAZARDS IF INTERNALLY DEPOSITED:

The Annual Limit of Intake (kidney) is 400 uCi.

DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and dosimeter rings are required if 5 millicuries are handled at any one time or millicurie levels are handled on a frequent (daily) basis.

Urine assays may be required after spills or contamination incidents.

SPECIAL PROBLEMS AND PRECAUTIONS:

1. Work behind shielding, preferably transparent materials. Survey frequently. Change gloves often.
2. Because of the extremely long half-life, contamination prevention and control is very important. Cover work areas (and possible floor areas) with disposable plastic-backed absorbent paper. Animal cages must be totally enclosed to avoid contamination from urine or bedding.
3. Segregate wastes to those with half-lives greater than 90 days.
4. Limit of soluble waste to sewer is 10 microcuries/ day per lab.