

## RADIONUCLIDE SAFETY DATA SHEET

**NUCLIDE: Tc-99m**

**FORMS: ALL SOLUBLE**

### PHYSICAL CHARACTERISTICS:

HALF-LIFE: 6.02 hours

TYPE DECAY: Isomeric Transition

gammas: 0.141 MeV (89.1 %)

Hazard category: C- level (low hazard) : 100 uCi to 10 mCi

B - level (Moderate hazard) : > 10 mCi to 1 Ci

A - level (High hazard) : > 1 Ci

### EXTERNAL RADIATION HAZARDS AND SHIELDING:

The gamma exposure rate at 1 cm from 1 mCi is 720 mR/hr. The exposure rate varies directly with activity and inversely as the square of the distance. The half-value layer is 0.3 mm of lead. To facilitate control of the radiation exposure from millicurie amounts of this radionuclide, the use of 4 mm thickness of lead will attenuate the radiation emitted by a factor of about 10,000.

### HAZARDS IF INTERNALLY DEPOSITED:

The annual limit on oral intake (ALI) of Tl-99m corresponding to a whole-body guideline gamma exposure rate of 500 mrem/year is 8.0 mCi.

### DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and dosimeter rings are required if 5 millicuries are handled at any one time or 1 millicurie levels are handled on a frequent (daily) basis.

Urine assays may be required after spills or contamination incidents.

### SPECIAL PROBLEMS AND PRECAUTIONS:

1. Always use a syringe shield for drawing up of doses and injecting. Survey frequently. Handle stock solution vials in shields or use tongs or forceps. Change gloves often.
2. Segregate wastes to those with half-lives less than 4 days.
3. Dilute aqueous wastes may be disposed to the sewer system in amounts of up to 100 uCi daily per lab. (Patient urine is exempt from this limit.)

