

## RADIONUCLIDE SAFETY DATA SHEET

**NUCLIDE:** In-111

**FORMS:** ALL SOLUBLE

### PHYSICAL CHARACTERISTICS:

HALF-LIFE: 2.83 days

TYPE DECAY:  $e^-$  capture

gamma: 0.171 MeV (90%)

0.245 MeV (94%)

X-rays: 0.022 - 0.026 MeV

Conversion electrons: to 0.244 MeV

Auger electrons: to 0.019 MeV

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

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

A - level (High hazard) : > 1 Ci

### EXTERNAL RADIATION HAZARDS AND SHIELDING:

The exposure rate at 1 cm from 1 mCi is 3200 mR/h. The exposure rate varies directly with activity and inversely as the square of the distance. Then tenth value of lead for this energy of radiation is 0.2 cm.

### HAZARDS IF INTERNALLY DEPOSITED:

The annual limit on oral intake (ALI), based upon limiting weighted dose equivalent to the gonads, red bone marrow and G.I. tract, of In-111 corresponding to a whole-body guideline gamma exposure rate of 500 mrem/year is 540 uCi.

### DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and dosimeter rings are required if 10 millicuries are handled at any one time or 5 millicurie levels are handled on a frequent (daily) basis.

Urine assays may be required after spills or contamination incidents.

### SPECIAL PROBLEMS AND PRECAUTIONS:

1. When 5 millicuries are used, work behind lead shielding. 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.