

RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: I-125 FORMS: ORGANIC: STABLE, NON-CLEAVING IODINE

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 60 days

TYPE DECAY: e^- capture
Gamma rays 0.035 MeV (7 %)
Xrays 0.027-.031 MeV (140 %)

Hazard category: C- level (low hazard) : 1 to 100 uCi
B - level (Moderate hazard) : > 100 uCi to 10 mCi
A - level (High hazard) : > 10 millicuries

EXTERNAL RADIATION HAZARDS AND SHIELDING:

Exposure rate at 1 cm from 1 mCi is 1.5 R/hr. (Exposure varies directly with activity and inversely with square of distance from materials.)

Amount of lead required to reduce the exposure rate by a factor of 10 (1 TVL) is approximately 0.1 mm. 1/8 inches of glass would reduce the exposure rate (ER) by half. Leaded rubber gloves (0.1 mm lead = 1 TVL) are available from Health Physics.

HAZARDS IF INTERNALLY DEPOSITED:

Assuming generalized deposition in the body, a biological half-life of 12 days (i.e. the value cited for organic iodide by the ICRP) and an uptake of 100%, the Annual Limit of Intake that would give a dose of 500 millirems to the whole body would be 700 microcuries. The dose to the whole body from ingestion of 1 microcurie would be 0.7 millirem.

The Annual Limit of Intake for the nuclide in forms that are incorporated into genetic materials giving a dose of 500 mrem to DNA would be 170 microcuries. (NCRP)

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 frequently (daily) basis.

Urine assays may be required after spills or contamination incidents.

SPECIAL PROBLEMS AND PRECAUTIONS:

1. Poor efficiency of detection using G.M. survey meters. Survey by smear tests or NaI Scintillation probes.
2. Segregate wastes to those with half-lives >19 to <65 days. Items in work areas must be considered as contaminated unless cleared with scintillation survey meter.
3. Limit soluble waste to sewer is 100 uCi / month per lab.