RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: Sb-125 **FORMS: SOLUBLE**

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 2.7 days TYPE DECAY: beta $^-$

maximum energy: Beta$^-$ 0.61 MeV
Energies of photons (intensity %/d): 0.176 (6%), 0.427 (31%), 0.461 (10%), 0.599 (24%), 0.634 (11%)

Hazard category: C- level (low hazard) : 0.10 to 1.0 mCi
B - level (Moderate hazard) : > 1.0 mCi to 100 mCi
A - level (High hazard) : greater than 100 mCi

EXTERNAL RADIATION HAZARDS AND SHIELDING:

The gamma exposure constant is approximately 2.7 R-mCi^2/mCi-hr.
The amount of lead necessary to reduce the exposure rate by a factor of ten is 1.8 cm.

The beta dose at 1 cm from 1 mCi is approximately 310,000 mrad/hr. The maximum ranges of the various beta particles in various materials is as follows:

Air	71 in.
Water	0.08 in.
Glass	0.03 in.
Lead	0.01 in.

Shielding for the gamma rays will stop the beta particles.

HAZARDS IF INTERNALLY DEPOSITED:

Internal deposition is more of a hazard with this nuclide because of the beta particles -- use of gloves and frequent monitoring while working are important. The annual limit of intake (oral) for this nuclide, based upon whole body dose of 500 mrem/year is 189 uCi.

DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and finger dosimeters must be worn when handling mCi amount of **Sb-125**.

Urine assays may be required after spills or contamination incidents.

SPECIAL PROBLEMS AND PRECAUTIONS:

1. Always wear protective gloves to keep contamination from skin. Change gloves often.
2. Survey work areas at conclusion of work. Instrument and smear surveys are required.
3. Segregate wastes to those with half-lives of greater than 90 days (but not with H3 and/or C14).

4. Limit of soluble waste to sewer to 10 microcuries/ day per lab.

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