

RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: Ag-110m

FORMS: SOLUBLE

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 249.9 days

TYPE DECAY: isomeric transition, beta⁻

beta⁻ energies (MeV): 0.53 (30%), 0.083 (67.5%)

Energies of photons (intensity %/d): 1.562 (1.2%), 1.50 (13%), 1.475 (4.0%)

1.384 (24%), .937 (34%), .885 (73%), .764 (22%),

.707 (17%), .677 (11%), .657 (95%)

Hazard category: C- level (low hazard) : .001 to 0.1 mCi

B - level (Moderate hazard) : > 0.1 mCi to 10.0 mCi

A - level (High hazard) : greater than 10.0 mCi

EXTERNAL RADIATION HAZARDS AND SHIELDING:

The gamma exposure constant is 14.9 R-cm²/mCi-hr. The amount of lead necessary to reduce the exposure rate by a factor of ten is approximately 4 cm. Shielding for gamma rays will stop the beta - particles.

HAZARDS IF INTERNALLY DEPOSITED:

Use of gloves and frequent monitoring while working are important. The campus annual limit of intake (oral) for this nuclide, based upon whole body dose of 500 mrem/year is 54 uCi.

DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and finger dosimeters must be worn when handling mCi amounts of Ag^{110m}. (Note: High exposure rate constant)

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. Work areas may require shielding. 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). Survey waste disposal area to ensure that exposure rates are less than 2 mR/hr at 1 foot.
4. Limit of soluble waste to sewer to 1 microcurie/ day per lab. Solidify in cement aqueous wastes contaminated with more than 1 microcurie of Ag-110m.