

RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: CO-60

FORMS: ALL SOLUBLE

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 5.271 years

TYPE DECAY: beta⁻

beta maximum energy: 0.3178 MeV (99.92 %)

gammas: 1.1732 MeV (99.90 %)

1.3325 MeV (99.98 %)

Hazard category: C- level (low hazard) : 1 uCi to 100 uCi

B - level (Moderate hazard) : > 100 uCi to 10 mCi

A - level (High hazard) : > 10 mCi

EXTERNAL RADIATION HAZARDS AND SHIELDING:

The maximum range of the beta ~ 28 inches in air, 0.013 inch in glass and 0.03 inch in lucite.

The gamma exposure rate at 1 cm from 1 mCi is 12838 mR/hr. The exposure rate varies directly with activity and inversely as the square of the distance. The tenth value layer of lead is 4.5 cm.

HAZARDS IF INTERNALLY DEPOSITED:

Co-60 has a biological half life of 9.5f days, and an effective half life of 9.5 days. The maximum permissible body burden (MPBB) is 1.0 uCi, based on Stanford Guideline of whole body dose not exceeding 500 mRem/yr. The Annual Limit of Intake (ALI) is 54 uCi.

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 on a frequent (daily) basis.

Urine assays may be required after spills or contamination incidents.

SPECIAL PROBLEMS AND PRECAUTIONS:

1. Work behind shielding consisting of lucite (inner) and lead (out). Handle stock solution vials in shields or use tongs or forceps. Change gloves often.
2. Segregate wastes to those with half-lives greater than 90 days (but not with H3 and/or C14).
3. Limit of soluble waste to sewer 1 microcuries/ day per lab.