

RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: Co-58

FORMS: ALL SOLUBLE

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 71.3 days

TYPE DECAY: EC B⁺

Beta⁺ maximum energy: 0.474 MeV (99.92 %)
gammas: 0.511 MeV (30.0 %)
0.810 MeV (99.0 %)
0.865 MeV (1.4 %)
1.67 MeV (0.6 %)

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

EXTERNAL RADIATION HAZARDS AND SHIELDING:

The gamma exposure rate at 1 cm from 1 mCi is 5500 mR/hr. The exposure rate varies directly with activity and inversely as the square of the distance. The tenth layer of lead is 2.9 cm.

HAZARDS IF INTERNALLY DEPOSITED:

Co-58 has a biological half life of 9.5 days, and an effective half life of 8.4 days. The maximum permissible body burden (MPBB) is 3.0 uCi, based on Stanford Guideline of whole body dose not exceeding 500 mRem/yr. The Annual Limit of Intake (ALI) is 162 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 (outer). 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 soluble waste to sewer 10 microcuries/ day per lab.