

RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: Y-88

FORMS: ALL SOLUBLE

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 106.64 days

TYPE DECAY: electron capture

beta maximum energies: 0.755 MeV (0.22%)

gammas: 0.014 MeV (35.66 %)

0.016 MeV (9.1 %)

0.898 MeV (93.4 %)

1.836 MeV (99.35 %)

2.734 MeV (0.64 %)

Hazard category: C- level (low hazard) : 0.1 to 10 microcurie

B - level (Moderate hazard) : > 10 microcuries to 1 millicurie

A - level (High hazard) : > 1 millicuries

EXTERNAL RADIATION HAZARDS AND SHIELDING:

The maximum ranges of the betas are ~ 8 feet in air, 0.05 inch in glass and 0.1 inch in lucite.

The gamma exposure rate at 1 cm from 1 mCi is 15.2 R/hr. The exposure rate varies directly with activity and inversely as the square of the distance. The tenth value layer of lead is ~ 5 cm.

HAZARDS IF INTERNALLY DEPOSITED:

According to ICRP Publication 30 part 2, 50 % of internally deposited yttrium will be translocated to the skeleton, 15 % to the liver, and 25 % will be excreted directly.

The Annual Limit of Intake (ALI) is 108 uCi.

DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and dosimeter rings are required if 100 microcuries or more are handled. 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).
4. Limit of soluble waste to sewer to 10 microcuries/ day per lab.

