

## RADIONUCLIDE SAFETY DATA SHEET

**NUCLIDE: Nb95**

**FORMS: ALL SOLUBLE**

### PHYSICAL CHARACTERISTICS:

HALF-LIFE: 35 days

TYPE DECAY: beta -  
maximum energy 0.16 MeV  
Gamma rays 0.765 MeV (100%)  
1.121 MeV (100%)

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

### EXTERNAL RADIATION HAZARDS AND SHIELDING:

The dose rate from betas at 1 cm from an unshielded 1 mCi (dried sample) of Nb95 (assuming no backscatter or self absorption in the source) is 20 mrad per hour. The exposure rate at 1 cm from 1 mCi due to photons is 4.34 Rads per hour.

Dose rates vary directly with activity and over short distances inversely with the square of the distance from the source.

Maximum range of the betas is 0.01 inches in plastic. The half value layer for the gammas is 0.68 cm of lead.

### HAZARDS IF INTERNALLY DEPOSITED:

The Annual Limit of Intake which would deliver 500 mrems to the whole body is 216 uCi. (Based on ICRP).

### DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and dosimeter rings are required if 5 millicurie is handled, or 1 millicurie handled on a frequent (daily) basis.

Urine assays may be required after spills or contamination incidents.

### SPECIAL PROBLEMS AND PRECAUTIONS:

1. Work behind shielding, preferably transparent materials. Survey frequently. Change gloves often.
2. Segregate wastes to those with half-lives less than 60 days (i.e. may be placed with I-125 wastes).
3. Limit soluble waste to sewer is 10 microcuries/ day per lab.