

RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: V- 48

FORMS: ALL SOLUBLE

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 16 days TYPE DECAY: e⁻ capture
(51 %), B+ 0.696 MeV (49%)

gammas: 0.511 MeV (100 %)
 0.945 MeV (10 %)
 0.983 MeV (100 %)
 1.312 MeV (97 %)
 2.241 MeV (3 %)

Hazard category: C- level (low hazard) : .01 to 1.0 microcuries
 B - level (Moderate hazard) : > 1.0 mCi to 100 mCi
 A - level (High hazard) : > 100 mCi

EXTERNAL RADIATION HAZARDS AND SHIELDING:

The exposure rate at 100 cm from 1 mCi is 1.56 mR/hr. The exposure rate varies directly with activity and inversely as the square of the distance. The tenth value of lead for this energy of radiation is approximately 4.5 cm based on 1.3 MeV photons. The use of Pb shields for storage will be more than adequate for positron emission.

HAZARDS IF INTERNALLY DEPOSITED:

The annual limit on oral intake (ALI) of V48 corresponding to a whole-body guideline gamma exposure rate of 500 mrem/year is 100 uCi.

DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges are required when handling mCi amounts of this isotope.

Urine assays may be required after spills or contamination incidents.

SPECIAL PROBLEMS AND PRECAUTIONS:

1. When .01 millicuries are used, work behind lead shielding. Survey frequently. Handle stock solution vials in shields or use tongs or forceps. Change gloves often.
2. Segregate wastes to those with half-lives less than 90 days.
3. Dilute aqueous wastes may be disposed to the sewer system in amounts of up to 10 uCi daily per lab.

