

RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: Re186

FORMS: ALL SOLUBLE

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 90 hours

TYPE DECAY: Beta

beta maximum energies: 1.071 MeV (73%)
0.934 MeV (23%)

gammas: 0.137 MeV (11% + 12% IC)
0.132 MeV (~2%)
0.632 MeV (0.032%)
0.768 MeV (0.035%)

Hazard category: C- level (low hazard) : <100 microcuries to 10 millicurie
B - level (Moderate hazard) : > 10 millicurie to 1 curie
A - level (High hazard) : >1 curie

EXTERNAL RADIATION HAZARDS AND SHIELDING:

The maximum ranges of the betas are ~ 10 ft. in air, 0.07 inch in glass and 0.12 inch in lucite.

The gamma exposure rate at 1 cm from 1 mCi is ~ 0.2 R/hr. The exposure rate varies directly with activity and inversely as the square of the distance. The half value layer of lead is ~ 2.5 mm.

HAZARDS IF INTERNALLY DEPOSITED:

The Annual Limit of Intake (ALI) is 1.9 uCi.

DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and dosimeter rings are required if 10 millicuries or more 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 8 days.
3. Limit of soluble waste to sewer 100 microcuries/ day per lab.