

RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: Ni-63

FORMS: SOLUBLE

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 96 Years

TYPE DECAY: beta⁻

maximum energies: Beta⁻ 0.0659 MeV

Energies of photons (intensity %/d): no photons

Hazard category: C- level (low hazard) : .010 to 1.0 mCi

B - level (Moderate hazard) : > 1.0 mCi to 100 mCi

A - level (High hazard) : greater than 100 mCi

EXTERNAL RADIATION HAZARDS AND SHIELDING:

The beta dose is not a significant problem, because the maximum range of the betas in air is only 2.14 inches. The maximum ranges of the various beta particles in various materials is as follows:

Air	2.14 inches
Water	0.0026 inches
Polyethylene	0.0024 inches

Disposable gloves will totally stop the beta particles.

HAZARDS IF INTERNALLY DEPOSITED:

Internal deposition is more of a hazard with this nuclide than the external dose. Gloves and periodic monitoring, using smears, while working are important.

The campus maximum permissible body burden for this nuclide, based upon 10 % of the dose limit to bone is 20 uCi. The annual limit of intake is 82 uCi via inhalation of vapors.

DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and finger dosimeters are not useful for monitoring beta radiations for Ni⁶³.

Urine assays may be required after spills or contamination incidents.

SPECIAL PROBLEMS AND PRECAUTIONS:

1. Always wear protective gloves to keep contamination from skin. Change gloves often.
2. Survey work areas at conclusion of work. Smear surveys are required.
3. Segregate wastes to those with half-lives of greater than days (but not with H3 and/or C14).
4. Limit of soluble waste to sewer to 10 microcuries/ day per lab.