



SAFETY DATA SHEET
Radioactive Ni-63 Ionization Source

Conforms to US OSHA Hazard Communication 29CFR1910.1200

SECTION 1: Radioactive Material Identification

Common Names: Nickel-63
 Atomic Number: 28
 Chemical Form: Nickel metal
 Chemical Symbol: Ni-63 or ⁶³Ni
 Mass Number: 63 (35 neutrons)
 Physical Form: Nickel-63 is Electrolessly plated on one face of a thin nickel substrate.

SECTION 2: Radiation Characteristics

Physical half-life: 100.1 years
 Specific Activity (GBq/g): 2,097

Principle Emissions	E _{Max} (keV)	E _{eff} (keV)	Dose Rate (mGy/h/MBq at 1 cm)	Shielding Required
Beta	65.9 (100%)	17	228 ^a	-
Gamma / X-Rays	-	-	-	-
Alpha	-	-	-	-
Neutron (n)	-	-	-	-

^a Handbook of Health Physics and Radiological Health, Lippincott Williams & Wilkins, Third Edition, 1998

Progeny: Copper-63 (Cu-63)

SECTION 3: Detection and Measurement

Methods of detection (In order of preference)

1. A radiation survey meter equipped with a thin-window, energy-compensated Geiger Mueller detector.
2. A radiation contamination monitor equipped with a Geiger Mueller pancake detector.
3. A radiation survey meter equipped with a plastic scintillator detector.

Dosimetry

Whole Body o Skin } Extremity } Neutron o



Internal: Sealed sources pose no internal radiation hazard. However, in the event of loss of containment by the sealed source, all precautions should be taken to prevent inhalation or ingestion of the material.

Critical Organ(s): Not known at this time.

Annual Dose Limits: Non-nuclear energy workers: 1mSv per year
 Nuclear energy workers: 50 mSv in one year
 Pregnant nuclear energy workers: 5 mSv over the balance of the pregnancy

SECTION 4: Preventive Measures

1. Always use the principles of Time, Distance, and Shielding to minimize dose
2. Engineering Controls: Sealed radioactive sources used in industrial applications should always be within a protective source housing to minimize radiation dose and to protect the source capsule from damage.
3. Personal Protective Equipment: No special PPE required. (For normal handling of the unsealed sources only, wear disposable gloves, safety glasses, personal protective equipment, and clothing as appropriate to the material handled).
4. Special Storage Requirements: None

SECTION 5: Control Levels

Oral Ingestion	Inhalation	
ALI (kBq)	ALI (kBq)	DAC (Bq/ml)
333,000	74,000	2.59 x 10 ⁻²
Exemption Quantity (EQ):	100 MBq	

SECTION 6: Non-Radiological Hazards

Identified as a possible carcinogen. In large doses, it has been known to cause lung damage and dermatitis. OSHA Permissible Exposure Limit (PEL): 1 mg/m³ TWA

SECTION 7: Emergency Procedures

The following is a guide for first responders. The following actions, including remediation, should be carried out by qualified individuals. In cases where life-threatening injury has resulted, first treat the injury, second deal with personal decontamination.

- Personal Decontamination Techniques



- Wash well with soap and water and monitor skin
- Do not abrade skin, only blot dry
- Decontamination of clothing and surfaces are covered under operating emergency procedures



- Spill and Leak Control
 - Alert everyone in the area
 - Confine the problem or emergency (includes the use of absorbent material)
 - Clear the area
 - Summon Aid
- Suggested Emergency protective Equipment
 - Gloves
 - Footwear Covers
 - Safety Glasses
 - Outer layer or easily removed protective clothing (as situation requires)

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