E0236

Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831

IBO-MSDS-00321

MATERIAL SAFETY DATA SHEET

The issuance of this document complies with the U. S. Department of Labor, Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard 29 CFR 1910.1200. Standard must be consulted for specific requirements.

Definitions:

ACGIH	American Conference of Governmental Industrial Hygienists		
NIOSH	National Institute for Occupational Safety and Health		
NE	Not Established	**NISS**	Not In Sources Searched
NA	Not Applicable	**TLV**	Threshold Limit Value
TWA	Time Weighted Average	**PEL**	Permissible Exposure Limit

IDENTITY (As used on label and list): Nickel (-58, -60, -61, -62, -64) Metal Powder

SECTION I. Manufacturer's Identification

Manufacturer's Name:

UT-Battelle
c/o Oak Ridge National Laboratory
Isotope Business Office
P. O. Box 2008
Oak Ridge, Tennessee 37831

Emergency Telephone Number:
Lab Shift Superintendent **(865) 574-6606**
Telephone Number for Assistance:
Isotope Business Office **(865) 574-6984**

Date Prepared: 6-January-1986
Date Reviewed: 25-July-2003

SECTION II. Hazardous Ingredients/Identity Information

Exposure Limits:
OSHA: TWA 1 mg/m^3
ACGIH TLV: TWA 0.05 mg/m^3 (1989-90)
NIOSH: TWA 15 ug/m^3
Immediately Dangerous to Life and Health: NE

Chemical Formula: Ni

Health Hazard Rating: 4, extreme health hazard
Fire Hazard Rating: 1, slightly flammable
Reactivity Rating: 1, slightly reactive
Secondary Rating*
Health Hazard Rating: 4, extreme health hazard
Fire Hazard Rating: 4, extremely flammable
Reactivity Rating: 1, slightly reactive

CAS Registry Number: 007440-02-0
RTECS Number: QR5950000
DOT Class: 4.1, Flammable Solid
DOT Label: Flammable Solid
DOT Number: UN 3089

*Powder ignites spontaneously in air.

SECTION III. Physical/Chemical Characteristics

Physical Description: Lustrous white, hard, ferromagnetic metal. Stable in air at ordinary temperatures; water does not affect it.
Molecular Weight (naturally occurring): 58.71
Melting Point: 1555°C
Boiling Point: 2837°C
Specific Gravity: 8.90 (water=1)
Evaporation Rate: NISS

Vapor Pressure: 1 mg Hg at 1810°C
Vapor Density: NISS
Percent Volatiles: NA
Solubility: Insoluble in water.

SECTION IV. Fire and Explosion Hazard Data

Flash Point (method): NISS
Autoignition Temperature: NISS
Lower Flammability Limit: NISS
Upper Flammability Limit: NISS
Extinguishing Media: Dry powder, dry sand, dry dolomite, dry graphite, or extinguishing media suitable for surrounding materials.
Firefighting Procedures: Firefighting techniques should concentrate on controlling the spread of the fire to other combustible materials. Wear pressure-demand, self-contained breathing apparatus and full firefighting protective clothing.
Fire and Explosion Hazards: Powder ignites spontaneously in air.

SECTION V. Reactivity Data

Stability: Unstable: ____ Stable: X
Conditions to Avoid: Heat, spark, open flame if in powder form.
Incompatibility (materials to avoid): Ammonium nitrate, fluorine, hydrazine, hydrazoic acid, hydrogen and dioxane, performic acid, phosphorus, selenium.
Hazardous Decomposition or Byproducts: NISS
Hazardous Polymerization: May Occur: ____ Will Not Occur: X

SECTION VI. Health Hazard Data

Routes of Entry:	Inhalation: X Skin: ____ Ingestion: X
Signs and Symptoms of Exposure:	
Acute Inhalation:	Fume may cause metal fume fever; dust may be irritating to nose and throat.
Acute Swallowing:	Not expected to cause toxic effects because it is insoluble.
Acute Skin Contact:	May be sensitizing.
Acute Eye Contact:	Fume and dust may be irritating.
Chronic:	Skin contact may cause dermatitis (nickel itch).
Health Hazards (Target organs/systems):	
Acute:	Blood, cardiovascular system, central nervous system, digestive system, eyes, heart, kidneys (nephrotoxin), liver (hepatotoxin), lungs, mucous membrane, peripheral nervous system, reproductive system, respiratory system, skin (cutaneous hazard), urinary system.
Chronic:	Skin.
Emergency and First Aid Procedures:	
Inhalation:	Remove to fresh air, give artificial respiration if not breathing. Get medical aid.
Swallowing:	Induce vomiting only after massive ingestion.
Skin contact:	Remove contaminated clothing and wash skin with plenty of water. Get medical aid.
Eye contact:	Flush eyes at once with water for at least 15 minutes. Get medical aid.
Physicians' notes:	After fume inhalation, observe patient for 24-48 hours for possible pulmonary edema and/or pneumonitis.

Carcinogenicity: NTP Yes IARC Monographs Yes OSHA Regulated NISS

Medical Conditions Generally Aggravated by Exposure: Allergic skin conditions.

SECTION VII. Precautions for Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled: Notify safety personnel of spills. Recover immediately and place in a container. Remove spills by vacuuming or sweeping. Avoid dusting conditions.

Waste Disposal Method: Reclaim for salvage or reuse. Unsalvageable waste may be buried in an approved landfill or by other procedures which are acceptable under federal, state, and local regulations.

Precautions to be Taken in Handling and Storing: Store in closed container in a dry, well-ventilated area. Protect container from physical damage.

Other Precautions: Avoid eye contact by use of chemical safety glasses where dusty conditions occur. Avoid skin contact. Eyewash stations and washing facilities should be accessible to areas of use.

SECTION VIII. Control Measures

Respiratory Protection (specify type):	When dust concentrations exceed OSHA PEL, use a NIOSH approved respirator for inorganic dust.
Ventilation:	
Local Exhaust:	Employ to keep dust below the TLV level.
Mechanical (general):	Employ to keep dust below the TLV level.
Special:	NISS
Other:	NISS
Protective Gloves:	Compatible chemical resistant gloves.
Eye Protection:	Wear approved chemical safety goggles/glasses.
Other Protective Clothing or Equipment:	Wear protective clothing.
Work/Hygienic Practices:	Use good housekeeping practices to prevent accumulation of dust and follow sound cleaning techniques that will keep airborne dust at a minimum. Wash hands and face thoroughly before eating, drinking, or smoking after handling.

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