

Nickel sulfide

sc-228830



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Nickel sulfide

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

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EMERGENCY:

ChemWatch

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(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS

Ni₃-S₂, "nickel sulfide", "nickel subsulphide", "nickel tritadisulphide", "alpha-nickel sulfide (3:2) crystalline", "nickel tritadisulphide", "nickel sulfide roasting", "nickel sulphide", Heazlewoodite

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	0	■
Toxicity:	2	■
Body Contact:	0	■
Reactivity:	0	■
Chronic:	4	■

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

May cause CANCER by inhalation.

May cause SENSITISATION by skin contact.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be damaging to the health of the individual.

■ Nickel is not well absorbed orally.

Excretion in the urine is complete after about 4-5 days.

■ If ingested, sulfide salts can form hydrogen sulfide, causing headache, cyanosis, low blood pressure, loss of consciousness, tremors and convulsions.

■ Nickel salts cause vomiting, following ingestion as a result of the irritant effects.

Absorption is generally poor and systemic poisoning is rare.

EYE

■ Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn).

Slight abrasive damage may also result.

SKIN

■ The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models).

Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ The material is not thought to produce respiratory irritation (as classified using animal models).

Nevertheless inhalation of dusts, or fume, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

■ Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.

■ Inhalation hazard is increased at higher temperatures.

■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

■ Regular exposure to nickel fume, as the oxide, may result in "metal fume fever" a sometimes debilitating upper respiratory tract condition resembling influenza.

Symptoms include malaise, fever, weakness, nausea and may appear quickly if operations occur in closed or poorly ventilated areas.

CHRONIC HEALTH EFFECTS

■ Skin contact with the material is more likely to cause a sensitization reaction in some persons compared to the general population.

There is sufficient evidence to suggest that this material directly causes cancer in humans.

There is some evidence that inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population.

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

Nickel dusts, fumes and salts are potent contact allergens and sensitizers producing a dermatitis known as "nickel" rash.

In the absence of properly designed ventilation systems or where respiratory protective devices are inadequate, up to 10% of exposed workers are expected to be symptomatic.

CONFIRMED HUMAN CARCINOGEN.

Cancer of the bronchi and nasal sinuses may be caused by the inhalation of fumes produced from the roasting of sulfide ore.

When injected intramuscularly nickel subsulfide induced rhabdomyosarcomas and fibrosarcomas in mice and rats, rhabdomyosarcomas with distant metastases and implantation site sarcomas in rats, and tumours in mice.

Palpable local tumours were produced at sites of implantation after nickel sulfide was removed from rats. Intratracheal injection induced malignant neoplasms of the lungs, adenocarcinomas and squamous cell carcinomas, in rats of both sexes. Intramuscular injection induced injection site sarcomas and rhabdomyosarcomas in rats and mice and fibrosarcomas and undifferentiated sarcomas in male rats. These sarcomas metastasised to distant sites including liver, heart, spleen, mediastinum and mesentary and paraaortic lymph nodes. malignant tumours were produced in rats after insertion into heterotransplanted tracheas and after intrarenal, intratesticular and intraocular administration.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
nickel subsulfide	12035-72-2	> 99

Section 4 - FIRST AID MEASURES

SWALLOWED

· If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

EYE

■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

■ For exposures involving sulfides and hydrogen sulfide (including gastric acid decomposition products of alkaline sulfides).
· Hydrogen sulfide anion produces its major toxic effect through inhibition of cytochrome oxidases.
· Symptoms include profuse salivation, nausea, vomiting and diarrhea. Central nervous effects may include giddiness, headache, vertigo, amnesia, confusion and unconsciousness. Tachypnea, palpitation, tachycardia, arrhythmia, sweating, weakness and muscle cramps may also indicate over-exposures.
· In cases of nickel poisoning, dimercaptol delivered by deep intramuscular injection may be a suitable antidote. (Patients should not exhibit renal or hepatic dysfunction.) The use of diethyldithiocarbamate is the subject of ongoing research.
· Irritant contact dermatoses or eczemas may respond to applications of weak antiseptic packs, antibiotic ointments (tetracyclin or erythromycin) or inert pastes and ointments. Systemic antibiotics are advisable in the presence of lymphangitis or lymphadenitis.
*Preplacement and periodic medical examinations of workers exposed to nickel are recommended. Preplacement examination should evaluate any history of skin allergies or asthma, other exposures to nickel, smoking history, condition of nasal cavity and lungs. Periodic examinations should include chest X-rays. (Source: Occupational Diseases.)

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not applicable
Upper Explosive Limit (%):	Not applicable
Specific Gravity (water=1):	5.82
Lower Explosive Limit (%):	Not applicable

EXTINGUISHING MEDIA

· Water spray or fog.
· Foam.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves for fire only.
When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 100 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Non combustible.
· Not considered to be a significant fire risk, however containers may burn.
Decomposition may produce toxic fumes of: sulfur oxides (SOx), hydrogen sulfide (H₂S), metal oxides.

FIRE INCOMPATIBILITY

■ None known.

PERSONAL PROTECTION

Glasses:
Chemical goggles.
Gloves:
1.NATURAL RUBBER 2.PVC
Respirator:
Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up waste regularly and abnormal spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up or sweep up. NOTE: Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use).
- Dampen with water to prevent dusting before sweeping.
- Place in suitable containers for disposal.

Environmental hazard - contain spillage.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

Environmental hazard - contain spillage.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS

- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Canada - Ontario Occupational Exposure Limits	nickel subsulfide (Nickel subsulfide, as Ni / Sous-sulfure de nickel, en Ni)		0.1 (l)						
Canada - British Columbia Occupational Exposure Limits	nickel subsulfide (Nickel subsulfide, as Ni, Inhalable)		0.1						A1, 1
US - California Permissible Exposure Limits for Chemical Contaminants	nickel subsulfide (Nickel subsulfide)		0.05						
Canada - Nova Scotia Occupational Exposure Limits	nickel subsulfide (Nickel subsulfide)		0.1						Measured as Ni. TLV Basis: lung cancer
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	nickel subsulfide (Nickel subsulphide, (as Ni), (inhalable fraction++))		0.1		0.3				T20

Canada - Alberta Occupational Exposure Limits	nickel subsulfide (Nickel subsulfide, as Ni)	0.1	
US ACGIH Threshold Limit Values (TLV)	nickel subsulfide (Nickel subsulfide)	0.1	Measured as Ni. TLV Basis: lung cancer
Canada - Prince Edward Island Occupational Exposure Limits	nickel subsulfide (Nickel subsulfide)	0.1	Measured as Ni. TLV Basis: lung cancer
US NIOSH Recommended Exposure Limits (RELs)	nickel subsulfide (Nickel metal and other compounds (as Ni))	0.015	See Appendix A [*Note: The REL and PEL do not apply to Nickel carbonyl.]; Ca
Canada - Northwest Territories Occupational Exposure Limits (English)	nickel subsulfide (Nickel sulfide roasting, fume and dust (as Ni))	1	3
US - Idaho - Limits for Air Contaminants	nickel subsulfide (Nickel, metal and insoluble compounds, (as Ni))	1	
US - Minnesota Permissible Exposure Limits (PELs)	nickel subsulfide (Nickel, metal and insoluble compounds (as Ni))	1	
US OSHA Permissible Exposure Levels (PELs) - Table Z1	nickel subsulfide (Nickel, metal and insoluble compounds (as Ni))	1	
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	nickel subsulfide (Nickel, soluble compounds (as Ni))	0.1	
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	nickel subsulfide (Nickel, metal and insoluble compounds (as Ni))	1	
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	nickel subsulfide (Nickel, metal and insoluble compounds (as Ni))	1	
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air	nickel subsulfide (Nickel, metal and insoluble compounds (as Ni))	1	

Contaminants					
US - Hawaii Air Contaminant Limits	nickel subsulfide (Nickel, metal and insoluble compounds (as Ni))	-	1	-	-
US - Washington Permissible exposure limits of air contaminants	nickel subsulfide (Nickel (as Ni) - Metal and insoluble compounds)	-	1	-	3
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	nickel subsulfide (Nickel metal and insoluble compounds (as Ni))	-	1	-	3
US - Oregon Permissible Exposure Limits (Z-1)	nickel subsulfide (Nickel, metal and insoluble compounds, as Ni)	-	1	-	-
US - Michigan Exposure Limits for Air Contaminants	nickel subsulfide (Nickel, Metal and insoluble compounds (as Ni))	-	1	-	-
US - Alaska Limits for Air Contaminants	nickel subsulfide (Nickel Metal and insoluble compounds (as Ni))	-	1	-	-
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	nickel subsulfide (Nickel: Insoluble compounds (as Ni))	-	1	-	-

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

- particulate.

EYE

- Safety glasses with side shields.
- Chemical goggles.

HANDS/FEET

- Wear chemical protective gloves, eg. PVC.

NOTE: The material may produce skin sensitization in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater

than 240 minutes according to EN 374) is recommended.

- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.

- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

OTHER

- Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area.

- Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted.

- Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.

- Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood.

- Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.

- Overalls.

- P.V.C. apron.

- Barrier cream.

- Skin cleansing cream.

- Eye wash unit.

ENGINEERING CONTROLS

- Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.

- Work should be undertaken in an isolated system such as a "glove-box" . Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.

- Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.

- Open-vessel systems are prohibited.

- Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation.

- Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system.

- For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.

- Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas).

- Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air.

- Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 150 feet/ min. with a minimum of 125 feet/ min. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.

Does not mix with water.

Sinks in water.

State	Divided solid	Molecular Weight	240.25
Melting Range (°F)	1454	Viscosity	Not Applicable
Boiling Range (°F)	Not available.	Solubility in water (g/L)	Immiscible
Flash Point (°F)	Not applicable	pH (1% solution)	Not applicable.
Decomposition Temp (°F)	Not available.	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available.	Vapour Pressure (mmHG)	Not applicable
Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	5.82
Lower Explosive Limit (%)	Not applicable	Relative Vapor Density (air=1)	Not applicable
Volatile Component (%vol)	Not applicable	Evaporation Rate	Not applicable

APPEARANCE

Pale yellow bronze, lustrous metallic appearance; does not mix with water. Soluble in nitric acid.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

- **WARNING:** Avoid or control reaction with peroxides. All transition metal peroxides should be considered as potentially explosive. For example transition metal complexes of alkyl hydroperoxides may decompose explosively.
- The pi-complexes formed between chromium(0), vanadium(0) and other transition metals (haloarene-metal complexes) and mono-or poly-fluorobenzene show extreme sensitivity to heat and are explosive.
- Avoid reaction with borohydrides or cyanoborohydrides.
- Contact with acids produces toxic fumes.
- Sulfides are incompatible with acids, diazo and azo compounds, halocarbons, isocyanates, aldehydes, alkali metals, nitrides, hydrides, and other strong reducing agents.
- Many reactions of sulfides with these materials generate heat and in many cases hydrogen gas.
- Many sulfide compounds may liberate hydrogen sulfide upon reaction with an acid.
- Avoid strong bases.
- Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
- These trifluorides are hypergolic oxidisers. They ignite on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
- The state of subdivision may affect the results.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

nickel subsulfide

TOXICITY AND IRRITATION

NICKEL SUBSULFIDE:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

■ Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's edema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type.

No significant acute toxicological data identified in literature search.

WARNING: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS.

CARCINOGEN

Nickel, metallic and alloys	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	2B
Nickel compounds	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	1
Nickel subsulfide	US EPA Carcinogens Listing	Carcinogenicity	A
Nickel subsulfide	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A
Nickel subsulfide	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A1
nickel subsulfide	US - Rhode Island Hazardous Substance List	IARC	C
NICKEL SUBSULFIDE	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
INSOLUBLE NICKEL COMPOUNDS	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65-MC
NICKEL SUBSULFIDE	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65

INSOLUBLE NICKEL COMPOUNDS	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65-MC
Nickel (and compounds)	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	1,2B(N2)
Nickel subsulfide (as Ni)	US NIOSH Recommended Exposure Limits (RELs) - Carcinogens	Carcinogen	Ca
nickel subsulfide	US - Maine Chemicals of High Concern List	Carcinogen	A
TWAMG_M3~	US - Maine Chemicals of High Concern List	Carcinogen	A1
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; EU Carcinogen; IRIS
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; IARC; NTP 11th ROC

Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 This material and its container must be disposed of as hazardous waste.
 Avoid release to the environment.
 Refer to special instructions/ safety data sheets.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
nickel subsulfide	No Data Available	No Data Available		

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.
 † Puncture containers to prevent re-use and bury at an authorized landfill.
 Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
 A Hierarchy of Controls seems to be common - the user should investigate:
 · Reduction
 · Reuse
 · Recycling
 · Disposal (if all else fails)
 This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
 DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.
 · Recycle wherever possible or consult manufacturer for recycling options.
 · Consult Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION



DOT:
 Symbols: G Hazard class or Division: 9

Identification Numbers: UN3077 PG: III
Label Codes: 9 Special provisions: 8, 146,
335, B54,
IB8, IP3,
N20, T1,
TP33

Packaging: Exceptions: 155 Packaging: Non- bulk: 213
Packaging: Exceptions: 155 Quantity limitations: No limit
Passenger aircraft/rail:

Quantity Limitations: Cargo No limit Vessel stowage: Location: A
aircraft only:

Vessel stowage: Other: None

Hazardous materials descriptions and proper shipping names:

Environmentally hazardous substance, solid, n.o.s

Air Transport IATA:

UN/ID Number: 3077 Packing Group: III

Special provisions: A97

Cargo Only

Packing Instructions: 400 kg Maximum Qty/Pack: 956

Passenger and Cargo Passenger and Cargo

Packing Instructions: 400 kg Maximum Qty/Pack: 956

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: 30 kg G Maximum Qty/Pack: Y956

Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
N.O.S. *(CONTAINS NICKEL SUBSULFIDE)

Maritime Transport IMDG:

IMDG Class: 9 IMDG Subrisk: None

UN Number: 3077 Packing Group: III

EMS Number: F-A , S-F Special provisions: 179 274 335 909

Limited Quantities: 5 kg Marine Pollutant: Yes

Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(contains nickel subsulfide)

Section 15 - REGULATORY INFORMATION

nickel subsulfide (CAS: 12035-72-2) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits","Canada - British Columbia Occupational Exposure Limits","Canada - Nova Scotia Occupational Exposure Limits","Canada - Ontario Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances","Canada Domestic Substances List (DSL)","Canada Ingredient Disclosure List (SOR/88-64)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","International Chemical Secretariat (ChemSec) REACH SIN* List (*Substitute It Now!) 1.1","US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified","US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List","US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)","US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)","US - California Permissible Exposure Limits for Chemical Contaminants","US - California Proposition 65 - Carcinogens","US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens","US - Connecticut Hazardous Air Pollutants","US - Maine Chemicals of High Concern List","US - Pennsylvania - Hazardous Substance List","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) - Carcinogens","US EPA Carcinogens Listing","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

■ Inhalation and/or ingestion may produce health damage*.

■ Possible respiratory sensitiser*.

* (limited evidence).

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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