

Section 1 - Product and Company Identification

Material Name	▪ Novamet® 15% Silver Coated Nickel Powder
Product Description	▪ Milky colored finely divided powder or flake with no odor.
Product Use	▪ Silver coated nickel is used as a conductive filler in elastomers, adhesives and inks to provide conductive paths for shielding against electromagnetic and radio frequency interference.
Manufacturer	▪ Novamet Specialty Products Corporation 681 Lawlins Road Wyckoff, NJ 07481 United States
Telephone	
General	▪ 201-891-7676
<u>Emergency</u>	▪ 800-424-9300 - CHEMTREC
Preparation Date	▪ 3/10/2011
Last Revision Date	▪ 3/10/2011

Section 2 - Hazards Identification

Emergency Overview

DANGER

Harmful to aquatic life with long lasting effects. Causes damage to organs - Lungs through prolonged or repeated exposure via Inhalation. May cause an allergic skin reaction. Suspected of causing cancer.

Prevention Do not breathe dusts or mists. Do not eat, drink or smoke when using this product. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Contaminated work clothing should not be allowed out of the workplace. Use personal protective equipment as required. Wear protective gloves, clothing, and eye/face protection. Wash thoroughly after handling. Avoid release to the environment.

Response IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. Get medical advice/attention if you feel unwell. IF exposed or concerned: Get medical advice/attention.

Storage/Disposal Store locked up. Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.



May form combustible dust concentrations in air (during processing).

Physical Form

Color

Odor

OSHA

WHMIS

- Solid
- Milky
- Odorless
- Carcinogen
- Class D - Poisonous and Infectious Materials - Division 2 - Subdivision A, Class D - Poisonous and Infectious Materials - Division 2 - Subdivision B



EU

- Toxic - T, Carcinogenic Substances - Category 3 - Carc.Cat.3
R52/53, R40, R43, R48/23



GHS

- Chronic Hazards to the aquatic environment - Category 3, Specific Target Organ Toxicity Repeated Exposure - Category 1, Skin Sensitizer - Category 1, Carcinogenicity - Category 2

Route Of Entry

Target Organs

Medical Conditions

Aggravated by Exposure

- Inhalation, Skin, Eye
- Lungs
- Disorders of the lungs

NFPA:



Potential Health Effects

Inhalation

Acute (Immediate)

Chronic (Delayed)

- Exposure to dust may cause irritation.
- Repeated and prolonged inhalation of nickel particles may cause chronic lung inflammation and lung fibrosis. Inhalation of high amounts of metallic silver vapours may cause lung damage with pulmonary edema.

Skin

Acute (Immediate)

Chronic (Delayed)

- Exposure to dust may cause mechanical irritation. May cause skin sensitization. Symptoms include redness, and skin rash.
- No data available.

Eye

Acute (Immediate)

Chronic (Delayed)

- Exposure to dust may cause mechanical irritation. Excessive concentrations of nuisance dust in the workplace may reduce visibility and may cause unpleasant deposits in eyes.
- No data available.

Ingestion

Acute (Immediate)

Chronic (Delayed)

- Excessive concentrations of nuisance dust in the workplace may cause mechanical irritation to mucous membranes.
- No data available.

Carcinogenic Effects

- The International Agency for Research on Cancer (IARC) found there was inadequate evidence that metallic nickel is carcinogenic to humans but since there was sufficient evidence that it is carcinogenic to animals, IARC concluded that metallic nickel is possibly carcinogenic to humans. Epidemiological studies of workers exposed to nickel powder and to dust and fume generated in the production of nickel alloys and of stainless steel have not indicated the presence of a significant respiratory cancer hazard. The inhalation of nickel powder has not resulted in an increased incidence of malignant lung tumours in rodents.

Carcinogenic Effects			
	CAS	IARC	NTP
Nickel	7440-02-0	Group 2B-Possible Carcinogen	Reasonably Anticipated to be Human Carcinogen

Other Chronic Effects

- Exposure to silver can cause a grey-blue discoloration of the eyes, nose, throat and skin referred to as argyria/argyrosis.

Potential Environmental Effects

- Nickel powder may cause longterm harmful effects to the aquatic environment.

See Section 12 for Ecological Information.

Section 3 - Composition/Information on Ingredients

Hazardous Components						
Chemical Name	CAS	%(weight)	UN;EINECS	LD50/LC50	EU Classification & R Phrases	Other
Nickel	7440-02-0	80% TO 90%	231-111-4	NDA	Carc.Cat.3; R40 R43 T; R48/23	Carc. 2; STOT RE 1; Skin Sens. 2; Aquatic Chronic 3;
Silver	7440-22-4	10% TO 20%	231-131-3	NDA	NDA	NDA

Under United States Regulations (29 CFR 1900.1200 - Hazard Communication Standard), this product is considered hazardous. In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS). According to European Directive 1999/45/EC this preparation is considered dangerous. According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous. According to the Globally Harmonized Standard for Classification and Labeling (GHS) this product is considered hazardous.

See Section 11 for Toxicological Information.

Section 4 - First Aid Measures

Inhalation

- Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.

Skin

- IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If symptoms of sensitization occur seek medical attention.

Eye

- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes.

Ingestion

- Rinse mouth. Do not give anything by mouth to an unconscious person.

See Section 2 for Potential Health Effects.

Section 5 - Fire Fighting Measures

Extinguishing Media

- LARGE FIRE: Water spray, fog or regular foam.
SMALL FIRES: Dry chemical, CO₂, water spray or regular foam.

Unsuitable Extinguishing Media

- No data available.

Firefighting Procedures

- LARGE FIRES: Move containers from fire area if you can do it without risk.
LARGE FIRES: Do not scatter spilled material with high pressure water streams.
LARGE FIRES: Dike fire-control water for later disposal.

Keep unauthorized personnel away.
Stay upwind.

Unusual Fire and Explosion Hazards

- Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Under special conditions nickel can react with carbon monoxide in reducing atmospheres to form Nickel Carbonyl, Ni(CO)₄, a toxic gas. Metal powders when heated in reducing atmospheres may become pyrophoric.

Hazardous Combustion Products

- No data available.

Protection of Firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

Section 6 - Accidental Release Measures

Personal Precautions

- Do not touch or walk through spilled material.

Emergency Procedures

- As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away. Stay upwind.

Environmental Precautions

- LARGE SPILLS: Prevent entry into waterways, sewers, basements or confined areas.

Containment/Clean-up Measures

- Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Collect spills by wet sweeping or vacuuming with the vacuum exhaust passing through a high efficiency particulate arresting (HEPA) filter if exhaust is discharged into the work place. Wear appropriate nationally approved respirators if collection and disposal of spills is likely to cause the concentration limits of airborne nickel to exceed the locally prescribed exposure limits. Nickel containing material is normally collected to recover nickel values.

Prohibited Materials

- No data available.

Section 7 - Handling and Storage

Handling

- Do not breathe (dust, vapor or spray mist) Do not use in areas without adequate ventilation. Wear appropriate respirator if handling is likely to cause the concentration of airborne nickel to exceed the locally prescribed exposure limits. Minimize dust generation and accumulation. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.

Storage

- Ventilate enclosed areas. Keep container closed. Store locked up. Do not store near acids, reactive substances, acetylene, ammonia and hydrogen peroxide.

Special Packaging Materials

- No data available.

Incompatible Materials or Ignition Sources

- Acids, acetylene, ammonia and hydrogen peroxide.

Section 8 - Exposure Controls/Personal Protection

Personal Protective Equipment

Pictograms



Respiratory

- For limited exposure use an N95 dust mask. For prolonged exposure use an air-purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear protective eyewear (goggles, face shield, or safety glasses).

Hands

- Wear appropriate gloves.

Skin/Body

General Industrial Hygiene Considerations

Engineering Measures/Controls

- Wear long sleeves and/or protective coveralls.
- Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.
- Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values. Ensure that dust handling systems (such as exhaust ducts, dust collectors, vessels and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is not leakage from the equipment). It is recommended that dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment.

Exposure Limits/Guidelines						
	Result	ACGIH	Australia	Canada Ontario	Canada Quebec	China
Silver (7440-22-4)	TWAs	0.1 mg/m3 TWA (dust and fume)	0.1 mg/m3 TWA	0.1 mg/m3 TWAEV	0.1 mg/m3 TWAEV	Not established
Nickel (7440-02-0)	TWAs	1.5 mg/m3 TWA (inhalable fraction)	1 mg/m3 TWA	1 mg/m3 TWAEV (inhalable)	1 mg/m3 TWAEV	1 mg/m3 TWA
	STELs	Not established	Not established	Not established	Not established	2.5 mg/m3 STEL

Exposure Limits/Guidelines (Con't.)						
	Result	China Highly Toxic Goods	France	Germany DFG	Germany TRGS	Ireland
Silver (7440-22-4)	TWAs	Not established	0.1 mg/m3 VME (indicative limit)	Not established	0.1 mg/m3 TWA (inhalable fraction, exposure factor 8)	0.1 mg/m3 TWA
	Ceilings	Not established	Not established	0.8 mg/m3 Peak (inhalable fraction)	Not established	Not established
	MAKs	Not established	Not established	0.1 mg/m3 MAK (inhalable fraction)	Not established	Not established
Nickel (7440-02-0)	TWAs	1 mg/m3 TWA	1 mg/m3 VME; 1 mg/m3 VME (metal gratings)	Not established	Not established	0.5 mg/m3 TWA
	STELs	2.5 mg/m3 STEL	Not established	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)						
	Result	Israel	Japan	Korea	Mexico	New Zealand
Silver (7440-22-4)	TWAs	0.1 mg/m3 TWA (dust and fume)	0.01 mg/m3 OEL	0.1 mg/m3 TWA	0.1 mg/m3 TWA	0.1 mg/m3 TWA
Nickel (7440-02-0)	TWAs	1.5 mg/m3 TWA (inhalable fraction)	1 mg/m3 OEL	1 mg/m3 TWA	1 mg/m3 TWA	1 mg/m3 TWA

Exposure Limits/Guidelines (Con't.)						
	Result	NIOSH	OSHA	Singapore	Spain	Sweden
Silver (7440-22-4)	TWAs	0.01 mg/m3 TWA (dust)	0.01 mg/m3 TWA	0.1 mg/m3 PEL	0.1 mg/m3 VLA-ED (indicative limit value)	0.1 mg/m3 LLV (total dust)
Nickel (7440-02-0)	TWAs	0.015 mg/m3 TWA	1 mg/m3 TWA	1 mg/m3 PEL	1 mg/m3 VLA-ED	0.5 mg/m3 LLV (total dust)

Exposure Limits/Guidelines (Con't.)			
	Result	Switzerland	Taiwan
Silver (7440-22-4)	MAKs	0.1 mg/m3 MAK (inhalable)	Not established
	STELs	0.8 mg/m3 STEL (inhalable)	Not established

	TWAs	Not established	0.01 mg/m3 TWA (dust and fume)
Nickel (7440-02-0)	MAKs	0.5 mg/m3 MAK (inhalable)	Not established
	TWAs	Not established	1 mg/m3 TWA

Exposure Control Notations

Australia

•Nickel (7440-02-0): **Sensitizers:** (sensitiser)

Japan

•Nickel (7440-02-0): **Carcinogens:** (Group 2B - Possibly Carcinogenic to Humans (metal)) | **Carcinogens:** (Group 1 - Carcinogenic to Humans (except Ni metal, Evaluation does not necessarily apply to all individuals within the group)) | **Sensitizers:** (Group 2 airway sensitizer; Group 1 skin sensitizer)

Russia

•Nickel (7440-02-0): **Carcinogens:** (Carcinogen) | **Sensitizers:** (Allergenic substance)

ACGIH

•Nickel (7440-02-0): **Carcinogens:** (A5 - Not Suspected as a Human Carcinogen)

Germany DFG

•Silver (7440-22-4): **Pregnancy:** (classification not yet possible)

•Nickel (7440-02-0): **Carcinogens:** (Category 1 (causes cancer in man)) | **Carcinogens:** (Category 1 (causes cancer in man)) | **Sensitizers:** (respiratory and skin sensitizer) | **Sensitizers:** (respiratory and skin sensitizer)

Exposure Limits Supplemental

Israel

•Nickel (7440-02-0): **Biological Markers of Occupational Exposure:** (15 µg/L Medium: urine)

ACGIH

•Silver (7440-22-4): **TLV Basis - Critical Effects:** (argyria)

•Nickel (7440-02-0): **TLV Basis - Critical Effects:** (dermatitis; pneumoconiosis)

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

MSHA = Mine Safety and Health Administration

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

LLV = Limit Level Value is the exposure limit for 8-hour work day

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

OEL = Occupational Exposure Limit

PEL = Permissible Exposure Level determined by the Occupational Safety and Health Administration (OSHA)

STEL = Short Term Exposure Limits are based on 15-minute exposures

TLV = Threshold Limit Value determined by the American Conference of Governmental Industrial Hygienists (ACGIH)

TWAEV = Time-Weighted Average Exposure Value

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

VME = Valeur Moyenne d'Exposition is the maximum permissible concentration for a work day

VLA-ED = Valor Límite Ambiental Exposición Diaria is the limit for the daily average concentration

Section 9 - Physical and Chemical Properties

Physical Form

- Solid

Appearance/Description

- Milky colored finely divided powder or flake with no odor.

Color : Milky		Odor : Odorless	
Taste : NDA		Odor Threshold : NDA	
Boiling Point:	NDA	Vapor Pressure:	NDA
Melting Point:	NDA	Vapor Density:	NDA
Specific Gravity:	NDA	Evaporation Rate:	NDA
Density:	NDA	VOC (Wt.):	NDA
Bulk Density:	2 to 4 g/cm ³	VOC (Vol.):	NDA
pH:	NDA	Volatiles (Wt.):	NDA

Water Solubility:	Insoluble	Volatiles (Vol.):	NDA
Solvent Solubility:	NDA	Flash Point:	NDA
Viscosity:	NDA	Flash Point Test Type:	NDA
Half-Life:	NDA	UEL:	NDA
Octanol/Water Partition coefficient:	NDA	LEL:	NDA
Coefficient of water/oil distribution:	NDA	Autoignition:	NDA
Bioaccumulation Factor:	NDA	Bioconcentration Factor:	NDA
Biochemical Oxygen Demand BOD/BOD5:	NDA	Chemical Oxygen Demand:	NDA
Persistence:	NDA	Degradation:	NDA

Section 10 - Stability and Reactivity

- | | |
|---|---|
| Stability | <ul style="list-style-type: none"> Stable under normal temperatures and pressures. |
| Hazardous Polymerization Conditions to Avoid | <ul style="list-style-type: none"> Hazardous polymerization not indicated. Hazardous exothermic reaction improbable. This product can react vigorously with acids to liberate hydrogen, which can form explosive mixtures with air. Under special conditions nickel can react with carbon monoxide in reducing atmospheres to form nickel carbonyl, Ni(CO)₄, a toxic gas. Metal powders when heated in reducing atmospheres may become pyrophoric. |
| Incompatible Materials | <ul style="list-style-type: none"> This product can react vigorously with acids to liberate hydrogen, which can form explosive mixtures with air. This product can react to form explosive compounds with such common substances as acetylene, ammonia and hydrogen peroxide. |
| Hazardous Decomposition Products | <ul style="list-style-type: none"> No data available. |

Section 11 - Toxicological Information

- | | |
|-----------------------------------|---|
| Other Material Information | <ul style="list-style-type: none"> No test data available on material as a whole. Exposure to silver can cause localised argyria of the skin, respiratory tract and conjunctiva. Product contains nickel, which is a possible carcinogen. Nickel may cause skin sensitization. Exposure to dust may cause irritation to skin, eyes and respiratory system. Repeated and prolonged exposure through inhalation may cause lung damage. |
|-----------------------------------|---|

Component Name	Concentration	CAS	Data
Nickel	80% TO 90%	7440-02-0	Acute Toxicity: orl-rat TDLo:200 mg/kg; ihl-rbt TCLo:130 ug/m3/6H/35W-I; ihl-rat TCLo:0.5 mg/m3/24H/13W-C; ihl-rat TCLo:0.4 mg/m3/40W-I; Reproductive: orl-rat TDLo:158 mg/kg (multigenerations)

Key to abbreviations

TC = Toxic Concentration

Section 12 - Ecological Information

Component Name	Concentration	CAS	Data
Nickel	80% TO 90%	7440-02-0	Crustacea: 48 Hour(s) EC50 Water Flea 1000 µg/L

- | | |
|----------------------------------|---|
| Ecological Fate | <ul style="list-style-type: none"> No data available. |
| Persistence/Degradability | <ul style="list-style-type: none"> No data available. |
| Bioaccumulation Potential | <ul style="list-style-type: none"> No data available. |
| Mobility in Soil | <ul style="list-style-type: none"> No data available. |
| Other Information | <ul style="list-style-type: none"> May cause long-term adverse effects in the aquatic environment. |

Section 13 - Disposal Considerations

- Product**
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transportation Information

DOT - United States - Department of Transportation

Shipping Name: Not Regulated

TDG - Canada - Transport of Dangerous Goods

Shipping Name: Not Regulated

IMO/IMDG –International Maritime Transport

Shipping Name: Not Regulated

ADN - Europe Transport of Dangerous Goods by Road/Inland Waterway

Shipping Name: Not Regulated

IATA - International Air Transport Association

Shipping Name: Not Regulated

ADR - Europe Transport of Dangerous Goods by Road/Inland Waterway

Shipping Name: Not Regulated

RID - Europe Transport of Dangerous Goods by Railways

Shipping Name: Not Regulated

Section 15 - Regulatory Information

- SARA Hazard Classifications**
- Acute, Chronic
- Risk & Safety Phrases**
- R40 Limited evidence of a carcinogenic effect.
 - R43 May cause sensitisation by skin contact.
 - R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.
 - R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 - S24 Avoid contact with skin.
 - S36/37 Wear suitable protective clothing and gloves.

State Right To Know				
Component	CAS	MA	NJ	PA
Nickel	7440-02-0	Yes	Yes	Yes
			Yes	Yes
Silver	7440-22-4	Yes	Yes	Yes

Inventory

Component	CAS	Canada DSL	Canada NDSL	China	EU EINECS	EU ELNICS
Nickel	7440-02-0	Yes	No	Yes	Yes	No
Silver	7440-22-4	Yes	No	Yes	Yes	No

Inventory (Con't.)						
Component	CAS	Japan ENCS	Korea KECL	TSCA		
Nickel	7440-02-0	No	Yes	Yes		
Silver	7440-22-4	No	Yes	Yes		

Australia

Labor

Australia - Hazardous Substances - Substances Requiring Health Surveillance

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

Australia - High Volume Industrial Chemicals List

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90%

Australia - List of Designated Hazardous Substances - Classification

- Silver 7440-22-4 10% TO 20% Self classification required
- Nickel 7440-02-0 80% TO 90% T Carc.Cat.3 R40, R48/23, R43

Environment

Australia - National Pollutant Inventory (NPI) Substance List

- Silver 7440-22-4 10% TO 20% Not Listed
10 tonnes/year Threshold category 1 (Nickel and compounds); 2000 tonnes/year Threshold category 1 (Nickel and compounds); 2000 tonnes/year Threshold category 1 (Nickel and compounds); 2000 tonnes/year Threshold category 1 (Nickel and compounds)
- Nickel 7440-02-0 80% TO 90% 2b (Nickel and compounds); 60000 MWH Threshold category 2b (Nickel and compounds); 20 MW Threshold category 2b (Nickel and compounds)

Australia - Ozone Protection Act - Scheduled Substances

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

Australia - Priority Existing Chemical Program

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Standby chemical

Canada

Labor

Canada - WHMIS - Classifications of Substances

- Silver 7440-22-4 10% TO 20% Uncontrolled product according to WHMIS classification criteria
- Nickel 7440-02-0 80% TO 90% D2A, D2B; B6, D2A (Raney)

Canada - WHMIS - Ingredient Disclosure List

- Silver 7440-22-4 10% TO 20% 1 %
- Nickel 7440-02-0 80% TO 90% 0.1 %

Environment

Canada - CEPA - Priority Substances List

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Carc.Cat.3; R40 R43 T; R48/23

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% T R:40-43-48/23 S:(2)-36/37/39-45

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% S, 7

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% S:(2)-36/37/39-45

Germany

Environment

Germany - Water Classification (VwVwS) - Annex 1

- Silver 7440-22-4 10% TO 20% ID Number 1443, not considered hazardous to water
- Nickel 7440-02-0 80% TO 90% Not Listed

Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes

- Silver 7440-22-4 10% TO 20% Number 1031, hazard class 3 - severe hazard to waters
- Nickel 7440-02-0 80% TO 90% Number 7182, hazard class 2 - hazard to waters (footnote 47)

Germany - Water Classification (VwVwS) - Annex 3

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% ID Number 7616, hazard class 2 - hazard to waters (particle size <0.1 mm)

Hong Kong

Labor

Hong Kong - Dangerous Substances Regulations - Classification

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

Hong Kong - Dangerous Substances Regulations - Particular Risks

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

Hong Kong - Dangerous Substances Regulations - Safety Precautions

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

Other

Hong Kong - Controlled Carcinogens

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

India

Environment

India - Hazardous Chemical Rules - List of Hazardous and Toxic Chemicals

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% (powder)

Mexico

Other

Mexico - Hazard Classifications

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

Mexico - Regulated Substances

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

Russia

Labor

Russia - Limiting Quantities of Hazardous Substances

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

Taiwan

Environment

Taiwan - Toxic Chemical Substances Control Act - Threshold Regulated Quantities

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

Taiwan - Toxic Chemical Substances Control Act - Classification and Control Levels

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

- Silver 7440-22-4 10% TO 20% 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers); 454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers)
- Nickel 7440-02-0 80% TO 90% 100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers)

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

- Silver 7440-22-4 10% TO 20% 1.0 % de minimis concentration
- Nickel 7440-02-0 80% TO 90% 0.1 % de minimis concentration

U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII

- Silver 7440-22-4 10% TO 20% Included in waste stream: F039
- Nickel 7440-02-0 80% TO 90% Included in waste streams: F006, F039

U.S. - RCRA (Resource Conservation & Recovery Act) - Constituents for Detection Monitoring

- Silver 7440-22-4 10% TO 20% (total)
- Nickel 7440-02-0 80% TO 90% (total)

U.S. - RCRA (Resource Conservation & Recovery Act) - D Series Wastes - Max Conc of Contaminants for the Tox Characteristic

- Silver 7440-22-4 10% TO 20% 5.0 mg/L regulatory level
- Nickel 7440-02-0 80% TO 90% Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261

- Silver 7440-22-4 10% TO 20% hazardous constituent - no waste number
- Nickel 7440-02-0 80% TO 90% hazardous constituent - no waste number

U.S. - RCRA (Resource Conservation & Recovery Act) - List for Hazardous Constituents

- Silver 7440-22-4 10% TO 20% (total)
- Nickel 7440-02-0 80% TO 90% (total)

U.S. - RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards

- Silver 7440-22-4 10% TO 20% 0.43 mg/L (wastewater); 0.14 mg/L TCLP (nonwastewater)
- Nickel 7440-02-0 80% TO 90% 3.98 mg/L (wastewater); 11.0 mg/L TCLP (nonwastewater)

U.S. - RCRA (Resource Conservation & Recovery Act) - TSD Facilities Ground Water Monitoring

- Silver 7440-22-4 10% TO 20% (total)
- Nickel 7440-02-0 80% TO 90% (total)

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% carcinogen, initial date 10/1/89

U.S. - California - Proposition 65 - Developmental Toxicity

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

- Silver 7440-22-4 10% TO 20% Not Listed
- Nickel 7440-02-0 80% TO 90% Not Listed

