Safety Data Sheet

Issuing Date 2015-09-25 **Revision Date** 2015-09-25 **Revision Number** 1

1. Identification of the substance/preparation and of the Company/undertaking

Product Identifier

Product Type Stellite - Welding rods
Product name **Delstain 442 Rod/Wire/Electrode/Part**
Product code KSYN1019-1

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended Use Restricted to professional users.

Details of the Supplier of the Safety Data Sheet

Emergency Telephone Number

Emergency Telephone Number CHEMTREC: +1-703-527-3887 (INTERNATIONAL)
1-800-424-9300 (NORTH AMERICA)

NRC (National Response Center) USA, Poison Centres +1 800 222 1222
Canada, IWK Regional Poison Center +1 902 470 8161 or 1 800 565 8161

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2. Hazards Identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). This product does not require a hazard communication label as it does not pose a hazard in the form delivered. Hazards can occur while using this product. Please read and follow the instructions of this SDS.

Skin sensitization	Category 1
Carcinogenicity	Category 1B
Specific target organ toxicity (repeated exposure)	Category 1

Label Elements

Emergency Overview

DANGER

Hazard Statements

May cause an allergic skin reaction. May cause cancer by inhalation. Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements - Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Contaminated work clothing should not be allowed out of the workplace. Do not breathe dust/fume/gas/mist/vapors/spray. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention Specific treatment (see supplemental first aid instructions on this label)

Skin IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Precautionary Statements - Storage

Store locked up.

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant.

Appearance metallic **Physical State** solid **Odor** none

Hazards not otherwise classified (HNOC)

Welding Hazards CAUTION. Welding will create fumes which may be toxic. The product and work surface will be hot during and after welding. Fire Hazard. Ensure adequate protection is in place to stop individuals from burning themselves. Hexavalent Chrome may be formed during welding.

OTHER INFORMATION

3. Composition/Information on Ingredients

Chemical name	Formula	CAS-No	weight-%	GHS Classification
Iron	Fe	7439-89-6	> 50	
Manganese	Mn	7439-96-5	3 - 5	
Chromium	Cr	7440-47-3	3 - 5	
Nickel	Ni	7440-02-0	3 - 5	STOT RE 1 (H372) S,7 Carc. 2 (H351) S,7 Skin Sens. 1 (H317) S,7 Aquatic Chronic 3 (H412)
Molybdenum	Mo	7439-98-7	2.5 - 3	
Vanadium	V	7440-62-2	0.1 - 1	
Silicon Metal	Si	7440-21-3	0.1 - 1	
Carbon	C	7440-44-0	0.1 - 1	

* The exact percentage (concentration) of composition has been withheld as a trade secret.

NOTE This product may contain additional substances with a content of less than 0.1 % per substance, which are not listed.

Full text of H-Statements referred to under sections 2 and 3

H302 - Harmful if swallowed
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H330 - Fatal if inhaled
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H350i - May cause cancer by inhalation
H351 - Suspected of causing cancer if inhaled
H361f - Suspected of damaging fertility
H372 - Causes damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
H412 - Harmful to aquatic life with long lasting effects

4. First aid measures

FIRST AID MEASURES

General advice

If symptoms persist, call a physician. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Eye Contact

Keep eye wide open while rinsing. If symptoms persist, call a physician. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin contact

Consult a physician if necessary. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash off immediately with soap and plenty of water.

Inhalation

Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. Oxygen or artificial respiration if needed. Get medical attention. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Ingestion

Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician. Rinse mouth.

Self-protection of the first aider

Self-protection of the first aider. Wear suitable gloves.

Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed

CNS and psychiatric effects, Parkinson-like symptoms. Languor, sleepiness and weakness in legs. A stolid masklike appearance of face, emotional disturbances such as uncontrollable laughter and spastic gait with tendency to fall in walking and findings in more advanced cases. . May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically. May cause sensitization by inhalation and skin contact. May cause sensitization of susceptible persons.

5. Fire-fighting measures

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Extinguishing media which must not be used for safety reasons

none.

Specific hazards arising from the chemical

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes Thermal decomposition can lead to release of irritating and toxic gases and vapors May cause sensitization by inhalation and skin contact Carbon oxides

Protective equipment and precautions for firefighters

Use personal protective equipment as required In the event of fire, wear self-contained breathing apparatus

Component Information

Chemical name	Extuinguishing Media for Fires (Suitable)	Extinguishing Media for Fires (Unsuitable)
Chromium	Use extinguishing media appropriate for surrounding fire.	Do not use carbon dioxide, which may form an explosive mixture with powdered chromium.

Silicon Metal	SMALL FIRES: Dry chemical, sand, water spray, foam.; LARGE FIRES: Water spray, fog, foam	

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin and eyes. Ensure adequate ventilation. . Use personal protective equipment as required. Avoid dust accumulation in enclosed space.

OTHER INFORMATION See Section 12 for additional Ecological Information.

Environmental precautions Avoid release to the environment.

Methods and material for containment and cleaning up Pick up and transfer to properly labeled containers. Avoid generation of dust. Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust.

7. Handling and Storage

Precautions for safe handling Do not eat, drink or smoke when using this product. Use personal protective equipment as required. Avoid contact with eyes, skin and clothing. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Keep out of the reach of children. Keep container tightly closed in a dry and well-ventilated place. Keep containers tightly closed in a cool, well-ventilated place.

Incompatible products None known based on information supplied.

Specific use(s) Restricted to professional users.

8. Exposure Controls/Personal Protection

Control parameters

Exposure Guidelines Exposure Guidelines

Chemical name	USA - ACGIH TLV	USA - OSHA PEL	USA - NIOSH IDLH	Argentina	Brazil
Manganese	0.02 mg/m³ TWA (respirable fraction); 0.1 mg/m³ TWA (inhalable fraction)	-	500 mg/m³ IDLH	TWA: 0.2 mg/m³	5 mg/m³ TWA LT (dust); 1 mg/m³ TWA LT (fume)
Chromium	0.5 mg/m³ TWA	1 mg/m³ TWA	250 mg/m³ IDLH	TWA: 0.5 mg/m³	
Nickel	1.5 mg/m³ TWA (inhalable fraction)	1 mg/m³ TWA	10 mg/m³ IDLH	TWA: 1.5 mg/m³	
Molybdenum	10 mg/m³ TWA (inhalable fraction); 3 mg/m³ TWA (respirable fraction)	Not Listed	5000 mg/m³ IDLH	TWA: 10 mg/m³ TWA: 3 mg/m³	
Silicon Metal	-	15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)	Not Listed	TWA: 10 mg/m³	

Chemical name	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec	Canada - Manitoba

Manganese	0.2 mg/m³ TWA	0.2 mg/m³ TWA	0.2 mg/m³ TWA	5 mg/m³ TWAEV (dust); 1 mg/m³ TWAEV (fume) 3 mg/m³ STEV (fume)	0.02 mg/m³ TWA (respirable fraction); 0.1 mg/m³ TWA (inhalable fraction) 0.02 mg/m³ TWA (as Mn, listed under respirable fraction); 0.1 mg/m³ TWA (as Mn)
Chromium	0.5 mg/m³ TWA	0.5 mg/m³ TWA	0.5 mg/m³ TWA	0.5 mg/m³ TWAEV	0.5 mg/m³ TWA
Nickel	1.5 mg/m³ TWA	0.05 mg/m³ TWA	1 mg/m³ TWA (inhalable)	1 mg/m³ TWAEV	1.5 mg/m³ TWA (inhalable fraction)
Molybdenum	10 mg/m³ TWA (total); 3 mg/m³ TWA (respirable)	3 mg/m³ TWA (respirable); 10 mg/m³ TWA (inhalable)	10 mg/m³ TWA (metal, inhalable); 3 mg/m³ TWA (metal, respirable)		10 mg/m³ TWA (inhalable fraction); 3 mg/m³ TWA (respirable fraction)
Silicon Metal		10 mg/m³ TWA (total dust); 3 mg/m³ TWA (respirable fraction)	10 mg/m³ TWA (total dust)	10 mg/m³ TWAEV (containing no Asbestos and <1% Crystalline silica, total dust)	

Chemical name	Chile	Mexico OEL (TWA)	Peru	Uruguay	Venezuela
Manganese	TWA: 0.8 mg/m³ TWA: 4 mg/m³	0.2 mg/m³ TWA LMPE-PPT; 1 mg/m³ TWA LMPE-PPT (fume, as Mn)	0.2 ppm TWA	0.02 mg/m³ TWA (respirable fraction); 0.1 mg/m³ TWA (inhalable fraction)	TWA: 0.2 mg/m³
Chromium	TWA: 0.4 mg/m³	0.5 mg/m³ TWA LMPE-PPT		0.5 mg/m³ TWA	TWA: 0.5 mg/m³
Nickel	TWA: 0.8 mg/m³	1 mg/m³ TWA LMPE-PPT	1.5 mg/m³ TWA	1.5 mg/m³ TWA (inhalable fraction)	TWA: 1.5 mg/m³
Molybdenum		-		10 mg/m³ TWA (inhalable fraction); 3 mg/m³ TWA (respirable fraction)	TWA: 10 mg/m³ TWA: 3 mg/m³
Vanadium	TWA: 0.04 mg/m³	-			
Silicon Metal		10 mg/m³ TWA LMPE-PPT (inhalable fraction)	10 mg/m³ TWA (inhalable fraction); 4 mg/m³ TWA (respirable fraction); 5 mg/m³ TWA (welding fumes)		TWA: 10 mg/m³
Carbon		2 mg/m³ TWA LMPE-PPT (dust)			

NIOSH IDLH: Immediately Dangerous to Life or Health

Other Exposure Guidelines Hexavalent Chrome may be formed during welding.

Chemical name	Derived No Effect Level (DNEL)	Predicted No Effect Concentration (PNEC)
Iron	3 mg/m³ local inhalation	No information available at product level
Manganese	0.2 mg/m³ systemic inhalation	No information available at product level
Chromium	0.5 mg/m³ local inhalation	No information available at product level
Nickel	4 mg/m³ short term local inhalation; 0.05 mg/m³ long term local inhalation	0.0035-0.0218 mg/l freshwater; 0.0023 mg/l marine water
Molybdenum	11.17 mg/m³ longterm local inhalation	No information available at product level
Carbon	10 mg/m³ systemic inhalation	No information available at product level

Appropriate engineering controls

Engineering controls

Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye Protection Use suitable eye protection to guard against the effects of welding.

Skin Protection Long sleeved clothing. Wear fire/flame resistant/retardant clothing. Apron. Wear suitable protective clothing. Wear suitable gloves.

Hand Protection Protective gloves. The product and work surface will be hot during and after welding. Ensure adequate protection is in place to stop individuals from burning themselves.

Respiratory protection Use only with adequate ventilation. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended.

Biological standards

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical State	solid	**Appearance**	metallic
Odor	none	**Melting point/freezing point**	~ 1400 °C / ~ 2552 °F
Boiling temperature / boiling range		**Flash Point**	
Evaporation Rate		**Flammability (solid, gas)**	
Upper flammability limits		**Lower Flammability Limit**	
Water solubility	Insoluble in water	**Autoignition temperature**	
Kinematic viscosity		**Dynamic viscosity**	
Explosive properties	not applicable		

OTHER INFORMATION

Component Information

Chemical name	Mol. Weight	Water Solub.	Vap. Press.	Vap. Dens.	pH Val.	Autoign. Temp.	Evap. Rate	Boil. Temp.
Iron	55.84 g/mol		0.000001 hPa at 25 °C			>100 °C		
Manganese	54.93 g/mol		1 mmHg at 1292 °C					
Chromium	51.99 g/mol							2642 °C
Nickel	58.69 g/mol		1 mmHg at 1810 °C					
Molybdenum	95.95 g/mol	0 mg/L at 20 °C						4612 °C at 101.3 hPa
Vanadium	50.94 g/mol							3380 °C
Silicon Metal	28.08 g/mol	<1 mg/L						
Carbon	12.01 g/mol					300 - 500 °C		

Chemical name	Density	Melt. Temp.	Flash Point	Water Sol.	Bulk Dens.	Odor	State	color
Iron	7.87 g/cm3 at 25 °C	1539 °C		insoluble	3000 - 4000 kg/m^3			
Chromium	7.19 g/cm3 at 20 °C	1900 °C		insoluble				grey
Nickel	8.9 g/cm3 at 25 °C			insoluble				

Molybdenum	10.2 g/cm3 at 20 °C	2617 °C (sublimes)		insoluble				
Vanadium				insoluble				
Silicon Metal	2.33 g/cm3 at 25 °C	1410 °C						dark grey; dark brown
Carbon		>=3500 °C		insoluble	0.25 - 0.75 kg/m³ at 20 °C			

VOC Content (%) Not Applicable
Density 8.1-8.4 g/cm3

10. Stability and Reactivity

Reactivity Stable under normal conditions

No data available

Chemical stability Stable under normal conditions.

Stable under normal conditions.

Possibility of Hazardous Reactions None under normal processing.

Conditions to avoid Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.

incompatible materials Acids. Strong oxidizing agents.
Hazardous decomposition products Thermal decomposition can lead to release of toxic/corrosive gases and vapors.

11. Toxicological Information

Information on likely routes of exposure

Inhalation May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Eye Contact Contact with eyes may cause irritation.

Skin contact Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. Prolonged contact may cause redness and irritation. Prolonged skin contact may defat the skin and produce dermatitis. May cause sensitization by skin contact.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion may cause irritation to mucous membranes.

Chemical name	Oral LD50	dermal LD50	Inhalation LC50
Iron - 7439-89-6	= 984 mg/kg (Rat)		Inhalation LC50 (4 hrs)
Manganese - 7439-96-5	LD50 >2000 mg/kg bw	Data waiving - Study Scientifically Unjustified	LC50 >5.14 mg/L air (analytical)
Chromium - 7440-47-3	LD50 >5000 mg/kg bw	Data waiving - Study Scientifically Unjustified	LC50 >5.41 mg/L air (analytical)
Nickel - 7440-02-0	>9000 mg/kg bw	Data waiving - Other Justification	NOAEC >=10.2 mgL air
Molybdenum - 7439-98-7	LD50 >2000 mg/kg bw	Not Classified	LC50 >3.92 mg/L air
Vanadium - 7440-62-2	< 2000 mg/kg bw		Inhalation LC50 (4 hrs)
Silicon Metal - 7440-21-3	LD50 >3160 mg/kg bw	LD50 >5000 mg/kg bw	Acutely Non Toxic
Carbon - 7440-44-0	> 10000 mg/kg (Rat)		Inhalation LC50 (4 hrs)

Information on toxicological effects

Chemical name	US ACGIH - Critical effects
Manganese - 7439-96-5	CNS impairment
Chromium - 7440-47-3	skin and upper respiratory tract irritation
Nickel - 7440-02-0	dermatitis; pneumoconiosis

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Repeated exposure may cause skin dryness or cracking.

Sensitization May cause sensitization of susceptible persons.

MUTAGENIC EFFECTS None known.

Carcinogenicity This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).

Chemical name	ACGIH	IARC	NTP: (National Toxicity Program)	OSHA
Chromium - 7440-47-3	A4 - Not Classifiable as a Human Carcinogen	Group 3 - Not Classified as a Human Carcinogen	Long-Term Exposure Studies for Which Technical Reports Were Not Prepared 17	Not Listed
Nickel - 7440-02-0	A5 - Not Suspected as a Human Carcinogen	Nickel Compounds: Group 1 - Known Human Carcinogen - Nickel, Metalic & Alloy: Group 2B - Possible Human Carcinogen	Reasonably Anticipated To Be A Human Carcinogen	Not Listed

Chemical name	Chile	Argentina	Venezula	Peru
Chromium - 7440-47-3	A4 - Not Classifiable as a Human Carcinogen	A4 - Not classifiable as a human carcinogen	A4 - Not Classified as a Carcinogen in Humans	
Nickel - 7440-02-0	A1 - Confirmed Human Carcinogen	A5 - Not Suspected as a human carcinogen	A5 - Not an Alleged Carcinogen in Humans	A1 - Confirmed Human Carcinogen

Reproductive toxicity Contains a known or suspected reproductive toxin.

Developmental toxicity None known

Chronic toxicity Prolonged exposure may cause chronic effects. CNS and psychiatric effects, Parkinson-like symptoms. Languor, sleepiness and weakness in legs. A stolid masklike appearance of face, emotional disturbances such as uncontrollable laughter and spastic gait with tendency to fall in walking and findings in more advanced cases. Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons. Repeated or prolonged exposure may cause central nervous system damage. Contains a known or suspected reproductive toxin.

Target organ effects Eyes, respiratory system, Skin, central nervous system (CNS).

Neurological effects Repeated or prolonged exposure may cause central nervous system damage. Prolonged or excessive exposure to manganese in dust or fume may cause irreversible central nervous system damage (Manganism). Symptoms resemble Parkinson's disease and include tremors, impaired speech, mask like face and impaired movement.

Numerical measures of toxicity - Product Information

mg/kg

12. Ecological Information

This product contains a chemical which is listed as a marine pollutant according to DOT.

12.1. Ecotoxicity

Chemical name	Algae toxicity	Acute Fish toxicity	Toxicity to Microorganisms	Daphnia magna
Iron 7439-89-6	NOEC - 1.4 mg/L	Data Waiving - Study Scientifically Unjustified	Not available	Data Waiving - Study Scientifically Unjustified
Manganese 7439-96-5	EC50 - 4.5 mg/L	NOEC - 3.6 mg/L	Not available	EC 50 > 1.6 mg/L
Chromium 7440-47-3	Data Waiving - Study Scientifically Unjustified	Data Waiving - Study Scientifically Unjustified	Not available	Data Waiving - Study Scientifically Unjustified
Nickel 7440-02-0	EC10 - 316.5 ug/L	LC50 - 15.3 mg/L	Not available	LC50 >200ug/L (@6-6.5 pH), 13ug/L (@8-8.5pH)
Molybdenum 7439-98-7	EC10 - 150 mgL, NOEL - 169.9 ,h/L	LC50 - 609 mg/L	Not available	EC50 - 2847.5 mg/L
Silicon Metal 7440-21-3	Data Waiving - Study Scientifically Unjustified	Data Waiving - Other Justification	Not available	Data Waiving - Study Scientifically Unjustified

12.2 Persistence and degradability Product/Substance is inorganic. not applicable.

Bioaccumulation/Accumulation No information available.

12.6 Other adverse effects

13. Disposal Considerations

Waste treatment methods It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Waste from residues/unused products Reuse or recycle. Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

California Waste Status This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical name	California Hazardous Waste Status
Manganese - 7439-96-5	Ignitable
Chromium - 7440-47-3	Toxic Corrosive Ignitable
Nickel - 7440-02-0	Toxic Ignitable
Molybdenum - 7439-98-7	Ignitable

14. Transport Information

DOT Not regulated

Marine pollutant	This product contains a chemical which is listed as a marine pollutant according to DOT.

Chemical name	U.S. - DOT Reportable Quantities	DOT Marine Pollutant	DOT Severe Marine pollutant

Chromium 7440-47-3	5000 lbs RQ (The RQ for these hazardous substances is limited to those pieces of the metal having a diameter smaller than 100 µm (0.004 inches).); 2270 kg RQ (The RQ for these hazardous substances is limited to those pieces of the metal having a diameter smaller than 100 µm (0.004 inches).)		
Nickel 7440-02-0	100 lbs RQ (The RQ for these hazardous substances is limited to those pieces of the metal having a diameter smaller than 100 µm (0.004 inches).); 45.4 kg RQ (The RQ for these hazardous substances is limited to those pieces of the metal having a diameter smaller than 100 µm (0.004 inches).)		

TDG Not regulated

MEX Not regulated

IMO / IMDG Not regulated

ICAO / IATA-DGR Not regulated

15. Regulatory Information

Chemical name	Bolivia - hazardous substances regulated under Bolivia's Environmental Regulations for the Industrial Manufacturing Sector
Nickel - 7440-02-0	Present

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical name	CAS-No	weight-%	SARA 313 - Threshold Values %
Chromium - 7440-47-3	7440-47-3	3 - 5	Present

SARA 311/312 Hazard Categories

Acute health hazard	yes
Chronic Health Hazard	yes
Fire Hazard	no
Sudden release of pressure hazard	no
Reactive Hazard	no

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Chromium - 7440-47-3	Not Applicable	Present	Present	Not Applicable
Nickel - 7440-02-0	Not Applicable	Present	Present	Not Applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ

Chromium - 7440-47-3	5000 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 >100 µm); 2270 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 >100 µm)		5000 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 >100 µm); 2270 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 >100 µm)
Nickel - 7440-02-0	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 >100 µm); 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 >100 µm)		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 >100 µm); 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 >100 µm)

U.S. State Regulations

California Proposition 65 This product contains the following Proposition 65 chemicals:.

Chemical name	California - Proposition 65 - Carcinogens List	California - Proposition 65 - Developmental Toxicity	California - Proposition 65 - Reproductive Toxicity	California - 22 CCR - Toxic and Extremely Hazardous Carcinogenic Wastes
Nickel - 7440-02-0	carcinogen, initial date 10/1/89 (metallic)			

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Manganese - 7439-96-5	sn 1155 (dust and fume)	Present	Environmental hazard Present
Chromium - 7440-47-3	sn 0432	Carcinogen; Extraordinarily hazardous	Environmental hazard; Special hazardous substance Present
Nickel - 7440-02-0	sn 1341 (dust and fume)	Carcinogen; Extraordinarily hazardous	Environmental hazard; Special hazardous substance Present
Molybdenum - 7439-98-7	sn 1309	Present	Present
Vanadium - 7440-62-2	sn 3762	Present (dust and fume)	Environmental hazard (dust and fume) Present (dust or fume)
Silicon Metal - 7440-21-3	sn 3125 (powder)	Present (dust, exempt when encapsulated or if particulates are not present and cannot be substantially generated through use of the product)	Present

U.S. EPA Label information

CANADA

Chemical name	WHMIS Classifications of Components
Iron - 7439-89-6	Uncontrolled product according to WHMIS classification criteria
Manganese - 7439-96-5	D2A (including powder)
Chromium - 7440-47-3	Uncontrolled product according to WHMIS classification criteria
Nickel - 7440-02-0	D2A, D2B; B6, D2A (Raney)
Molybdenum - 7439-98-7	Uncontrolled product according to WHMIS classification criteria
Silicon Metal - 7440-21-3	B4
Carbon - 7440-44-0	Uncontrolled product according to WHMIS classification criteria

16. Other Information

Global Automotive Declarable Substance List Classifications

Chemical name	Global Automotive Declarable Substance List Classifications	Global Automotive Declarable Substance List Thresholds
Nickel	Declarable Substance (FI)	0.1 %

NFPA	**Health hazard** 2	**Flammability** 0	**Instability** 0	**Physical and Chemical Hazards** -
HMIS	**Health hazard** 2	**Flammability** 0	**Physical hazards** 0	**Personal precautions** -

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Revision Note No information available

Disclaimer

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End of Safety Data Sheet