

Iron Based with Nickel

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).
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SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: Iron Based with Nickel

Product Code: PPW17G; PWMS-1; PWMS-2; Alloy Steel 8Cr

Synonyms: Metal alloy for multiple production uses

1.2. Intended Use of the Product

Alloy

1.3. Name, Address, and Telephone of the Responsible Party

Manufacturer

Ametek Specialty Metal

1085 Rte 519

Eighty Four, PA 15330

1-724-225-8400 (Non-Emergency)

1-703-527-3887 (Emergency)

www.ametek.com

SDS@CHEMTREC.com

1.4. Emergency Telephone Number

Emergency Number : 800-424-9300 CHEMTREC US / 001-703-527-3887 CHEMTREC Intl.

For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

Acute Tox. 4 (Oral) H302

Skin Sens. 1 H317

Carc. 2 H351

STOT RE 1 H372

Aquatic Acute 1 H400

Comb. Dust

Full text of hazard classes and H-statements : see section 16

2.2. Label Elements

GHS-US/CA Labeling

Hazard Pictograms (GHS-US/CA)



Signal Word (GHS-US/CA)

: Danger

Hazard Statements (GHS-US/CA)

: May form combustible dust concentrations in air.

H302 - Harmful if swallowed.

H317 - May cause an allergic skin reaction.

H351 - Suspected of causing cancer.

H372 - Causes damage to organs through prolonged or repeated exposure.

H400 - Very toxic to aquatic life.

Precautionary Statements (GHS-US/CA)

: P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P260 - Do not breathe vapors, mist, or spray.

P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

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P272 - Contaminated work clothing should not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, and eye protection.
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
P321 - Specific treatment (see section 4 on this SDS).
P330 - Rinse mouth.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. User-generated dust and/or fumes may pose a physiological hazard if inhaled or ingested. Avoid inhalation of metal dusts and fumes. May cause an influenza-like illness. Avoid skin and eye contact with dusts to prevent mechanical irritation. Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

2.4. Unknown Acute Toxicity (GHS-US/CA)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Product Identifier	% *	GHS Ingredient Classification
Iron	(CAS-No.) 7439-89-6	47.7 - 88.8	Comb. Dust
Chromium	(CAS-No.) 7440-47-3	0.1 - 18	Comb. Dust
Nickel	(CAS-No.) 7440-02-0	0.1 - 12	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 3, H412 Comb. Dust
Silicon	(CAS-No.) 7440-21-3	0.1 - 4	Comb. Dust
Boron	(CAS-No.) 7440-42-8	0.1 - 4	Comb. Dust
Molybdenum	(CAS-No.) 7439-98-7	0.1 - 2.5	Comb. Dust
Manganese	(CAS-No.) 7439-96-5	0.1 - 2	Comb. Dust
Carbon	(CAS-No.) 7440-44-0	0.1 - 1.5	Comb. Dust
Phosphorus elemental	(CAS-No.) 7723-14-0	0.1 - 0.8	Pyr. Sol. 1, H250 Acute Tox. 1 (Oral), H300 Acute Tox. 2 (Dermal), H310 Acute Tox. 2 (Inhalation:dust,mist), H330 Skin Corr. 1A, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 3, H412
Copper	(CAS-No.) 7440-50-8	0.1 - 0.5	Comb. Dust
Vanadium	(CAS-No.) 7440-62-2	<= 0.1	Comb. Dust
Sulfur	(CAS-No.) 7704-34-9	<= 0.1	Skin Irrit. 2, H315 Aquatic Acute 3, H402

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			Comb. Dust
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Full text of H-phrases: see section 16

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

Skin Contact: Remove contaminated clothing. Cool skin rapidly with cold water after contact with molten product. Removal of solidified molten material from skin requires medical assistance. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation/rash develops or persists.

Eye Contact: Removal of solidified molten material from the eyes requires medical assistance. Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Ingestion: Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: Molten material may produce fumes that are irritating or toxic. Causes damage to organs through prolonged or repeated exposure. Skin sensitization. Suspected of causing cancer. Harmful if swallowed.

Inhalation: During processing, the most significant route of exposure is by the inhalation (breathing) of fumes. If fumes are inhaled, they can cause a condition commonly known as metal fume fever with symptoms which resemble influenza; Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur. . Prolonged exposure may cause irritation.

Skin Contact: Contact with fumes or metal powder will irritate skin. Contact with hot, molten metal will cause thermal burns. Dust may cause irritation in skin folds or by contact in combination with tight clothing. Mechanical damage via flying particles and chipped slag is possible. May cause an allergic skin reaction.

Eye Contact: During metal processing. Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes. . Mechanical damage via flying particles and chipped slag is possible. May cause slight irritation to eyes.

Ingestion: Ingestion is not considered a potential route of exposure. Ingestion may cause adverse effects.

Chronic Symptoms: Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure. Chromium: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Please refer to IARC volume 23 for a more detailed discussion. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. Nickel metal powder, when respirable, is a suspected human carcinogen, and is known to cause damage to the lungs through inhalation. Inhalation of Nickel compounds has been shown in studies to provide an increased incidence of cancer of the nasal cavity, lung and possibly larynx in nickel refinery workers. Vanadium: May cause gastrointestinal discomfort, renal damage, nervous system depression and irritation of the respiratory passages. May also cause cardiac palpitations and asthma. Copper: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic dust exposure. Molybdenum: Chronic exposure to molybdenum compounds is suspected of causing cancer. Compounds are also known to cause irritation to the skin, eyes, and respiratory tract. Manganese: Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Chronic exposure to excessive manganese levels can lead to a variety of psychiatric and motor disturbances, termed manganism. Silicon: Can cause chronic bronchitis and narrowing of the airways. Inhalation of iron oxide fumes undergoing decomposition may cause irritation and flu-like symptoms, otherwise iron oxide is not hazardous. . Repeated inhalation of iron oxide dust can cause siderosis a benign condition.

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4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible). If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use Class D Extinguisher or dry table salt on metal powder fire.

Unsuitable Extinguishing Media: Do not use water when molten material is involved, may react violently or explosively on contact with water. Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Combustible Dust.

Explosion Hazard: Dust explosion hazard in air.

Reactivity: In molten form may react violently with water.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Metal oxides.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses. Risk of dust explosion.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Avoid generating dust.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel. Stop leak if safe to do so.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area. Eliminate ignition sources.

6.2. Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment. Collect spillage.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions. Avoid generation of dust during clean-up of spills. If metal is in molten form allow to cool and collect as a solid. If metal is in solid form collect for re-melting purposes.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Contact competent authorities after a spill. Use only non-sparking tools. Use explosion proof vacuum during cleanup, with appropriate filter. Do not mix with other materials. Vacuum clean-up is preferred. If sweeping is required use a dust suppressant.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Molten metal and water can be an explosive combination. Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion. Keep dust levels to a minimum and follow applicable regulations. Dust may form flammable and explosive mixture with air.

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Precautions for Safe Handling: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Take precautionary measures against static discharge. Use only non-sparking tools. Keep away from heat, sparks, open flames, hot surfaces. – No smoking. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Hygiene Measures: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Use explosion-proof electrical, ventilating, and lighting equipment. Ground and bond container and receiving equipment. Proper grounding procedures to avoid static electricity should be followed. Avoid creating or spreading dust. Comply with applicable regulations.

Storage Conditions: Store in a well-ventilated place. Keep container tightly closed. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Keep in fireproof place. Store locked up/in a secure area.

Incompatible Materials: Strong acids, strong bases, strong oxidizers. When molten: water.

7.3. Specific End Use(s)

Alloy

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Chromium (7440-47-3)		
Mexico	OEL TWA (mg/m ³)	0.5 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	0.5 mg/m ³
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	0.5 mg/m ³
USA IDLH	US IDLH (mg/m ³)	250 mg/m ³
Alberta	OEL TWA (mg/m ³)	0.5 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.5 mg/m ³
Manitoba	OEL TWA (mg/m ³)	0.5 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	0.5 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.5 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	0.5 mg/m ³
Nunavut	OEL STEL (mg/m ³)	1.5 mg/m ³ (metal)
Nunavut	OEL TWA (mg/m ³)	0.5 mg/m ³ (metal)
Northwest Territories	OEL STEL (mg/m ³)	1.5 mg/m ³ (metal)
Northwest Territories	OEL TWA (mg/m ³)	0.5 mg/m ³ (metal)
Ontario	OEL TWA (mg/m ³)	0.5 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	0.5 mg/m ³
Québec	VEMP (mg/m ³)	0.5 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	1.5 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	0.5 mg/m ³
Yukon	OEL STEL (mg/m ³)	3 mg/m ³
Yukon	OEL TWA (mg/m ³)	0.1 mg/m ³
Nickel (7440-02-0)		
Mexico	OEL TWA (mg/m ³)	1 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	1.5 mg/m ³ (inhalable particulate matter)
USA ACGIH	ACGIH chemical category	Not Suspected as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	0.015 mg/m ³
USA IDLH	US IDLH (mg/m ³)	10 mg/m ³

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Alberta	OEL TWA (mg/m ³)	1.5 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.05 mg/m ³
Manitoba	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable particulate matter)
New Brunswick	OEL TWA (mg/m ³)	1 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable particulate matter)
Nova Scotia	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable particulate matter)
Nunavut	OEL STEL (mg/m ³)	3 mg/m ³ (inhalable fraction)
Nunavut	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable fraction)
Northwest Territories	OEL STEL (mg/m ³)	3 mg/m ³ (inhalable fraction)
Northwest Territories	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable fraction)
Ontario	OEL TWA (mg/m ³)	1 mg/m ³ (inhalable)
Prince Edward Island	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable particulate matter)
Québec	VEMP (mg/m ³)	1 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	3 mg/m ³ (inhalable fraction)
Saskatchewan	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable fraction)
Yukon	OEL STEL (mg/m ³)	3 mg/m ³
Yukon	OEL TWA (mg/m ³)	1 mg/m ³
Carbon (7440-44-0)		
Mexico	OEL TWA (mg/m ³)	2 mg/m ³ (dust)
Molybdenum (7439-98-7)		
	Internal TWA (mg/m ³)	5 mg/m ³ (Molybdenum (as Mo), Soluble Compounds)
USA ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³ (inhalable particulate matter) 3 mg/m ³ (respirable particulate matter)
USA OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³ (Molybdenum (as Mo), Soluble Compounds) 15 mg/m ³ (Molybdenum (as Mo), Insoluble Compounds) (Total dust)
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	5 mg/m ³ (Molybdenum (as Mo), Soluble Compounds)
USA IDLH	US IDLH (mg/m ³)	5000 mg/m ³
Alberta	OEL TWA (mg/m ³)	10 mg/m ³ (total) 3 mg/m ³ (respirable)
British Columbia	OEL TWA (mg/m ³)	3 mg/m ³ (respirable) 10 mg/m ³ (inhalable)
Manitoba	OEL TWA (mg/m ³)	3 mg/m ³ (respirable particulate matter) 10 mg/m ³ (inhalable particulate matter)
Newfoundland & Labrador	OEL TWA (mg/m ³)	3 mg/m ³ (respirable particulate matter) 10 mg/m ³ (inhalable particulate matter)
Nova Scotia	OEL TWA (mg/m ³)	3 mg/m ³ (respirable particulate matter) 10 mg/m ³ (inhalable particulate matter)
Nunavut	OEL STEL (mg/m ³)	20 mg/m ³ (metal-inhalable fraction) 6 mg/m ³ (metal-respirable fraction)
Nunavut	OEL TWA (mg/m ³)	10 mg/m ³ (metal-inhalable fraction) 3 mg/m ³ (metal-respirable fraction)
Northwest Territories	OEL STEL (mg/m ³)	20 mg/m ³ (metal-inhalable fraction) 6 mg/m ³ (metal-respirable fraction)
Northwest Territories	OEL TWA (mg/m ³)	10 mg/m ³ (metal-inhalable fraction) 3 mg/m ³ (metal-respirable fraction)
Ontario	OEL TWA (mg/m ³)	10 mg/m ³ (metal-inhalable) 3 mg/m ³ (metal-respirable)
Prince Edward Island	OEL TWA (mg/m ³)	3 mg/m ³ (respirable particulate matter) 10 mg/m ³ (inhalable particulate matter)
Saskatchewan	OEL STEL (mg/m ³)	20 mg/m ³ (inhalable fraction) 6 mg/m ³ (respirable fraction)

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Saskatchewan	OEL TWA (mg/m ³)	10 mg/m ³ (inhalable fraction) 3 mg/m ³ (respirable fraction)
Silicon (7440-21-3)		
Mexico	OEL TWA (mg/m ³)	10 mg/m ³ (inhalable fraction)
Mexico	OEL STEL (mg/m ³)	20 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust)
British Columbia	OEL TWA (mg/m ³)	10 mg/m ³ (total dust) 3 mg/m ³ (respirable fraction)
New Brunswick	OEL TWA (mg/m ³)	10 mg/m ³
Nunavut	OEL STEL (mg/m ³)	20 mg/m ³
Nunavut	OEL TWA (mg/m ³)	10 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	20 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	10 mg/m ³
Québec	VEMP (mg/m ³)	10 mg/m ³ (containing no Asbestos and <1% Crystalline silica-total dust)
Saskatchewan	OEL STEL (mg/m ³)	20 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	10 mg/m ³
Yukon	OEL STEL (mg/m ³)	20 mg/m ³
Yukon	OEL TWA (mg/m ³)	30 mppcf 10 mg/m ³
Copper (7440-50-8)		
Mexico	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Mexico	OEL STEL (mg/m ³)	2 mg/m ³ (fume) 2 mg/m ³ (dust and mist)
USA ACGIH	ACGIH TWA (mg/m ³)	0.2 mg/m ³ (fume)
USA OSHA	OSHA PEL (TWA) (mg/m ³)	0.1 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1 mg/m ³ (dust and mist) 0.1 mg/m ³ (fume)
USA IDLH	US IDLH (mg/m ³)	100 mg/m ³ (dust, fume and mist)
Alberta	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
British Columbia	OEL TWA (mg/m ³)	1 mg/m ³ (dust and mist) 0.2 mg/m ³ (fume)
Manitoba	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
New Brunswick	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Nova Scotia	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Nunavut	OEL STEL (mg/m ³)	3 mg/m ³ (dust and mist) 0.6 mg/m ³ (fume)
Nunavut	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Northwest Territories	OEL STEL (mg/m ³)	3 mg/m ³ (dust and mist) 0.6 mg/m ³ (fume)
Northwest Territories	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Ontario	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)

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		1 mg/m ³ (dust and mist)
Prince Edward Island	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Québec	VEMP (mg/m ³)	0.2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Saskatchewan	OEL STEL (mg/m ³)	0.6 mg/m ³ (fume) 3 mg/m ³ (dust and mist)
Saskatchewan	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Yukon	OEL STEL (mg/m ³)	0.2 mg/m ³ (fume) 2 mg/m ³ (dust and mist)
Yukon	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Manganese (7439-96-5)		
Mexico	OEL TWA (mg/m ³)	0.2 mg/m ³ 1 mg/m ³ (fume)
Mexico	OEL STEL (mg/m ³)	3 mg/m ³ (fume)
USA ACGIH	ACGIH TWA (mg/m ³)	0.02 mg/m ³ (respirable particulate matter) 0.1 mg/m ³ (inhalable particulate matter)
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (Ceiling) (mg/m ³)	5 mg/m ³ (fume)
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1 mg/m ³ (fume)
USA NIOSH	NIOSH REL (STEL) (mg/m ³)	3 mg/m ³
USA IDLH	US IDLH (mg/m ³)	500 mg/m ³
Alberta	OEL TWA (mg/m ³)	0.2 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.2 mg/m ³
Manitoba	OEL TWA (mg/m ³)	0.02 mg/m ³ (respirable particulate matter) 0.1 mg/m ³ (inhalable particulate matter)
New Brunswick	OEL TWA (mg/m ³)	0.2 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.02 mg/m ³ (respirable particulate matter) 0.1 mg/m ³ (inhalable particulate matter)
Nova Scotia	OEL TWA (mg/m ³)	0.02 mg/m ³ (respirable particulate matter) 0.1 mg/m ³ (inhalable particulate matter)
Nunavut	OEL STEL (mg/m ³)	0.6 mg/m ³
Nunavut	OEL TWA (mg/m ³)	0.2 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	0.6 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	0.2 mg/m ³
Ontario	OEL TWA (mg/m ³)	0.2 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	0.02 mg/m ³ (respirable particulate matter) 0.1 mg/m ³ (inhalable particulate matter)
Québec	VEMP (mg/m ³)	0.2 mg/m ³ (total dust and fume)
Saskatchewan	OEL STEL (mg/m ³)	0.6 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	0.2 mg/m ³
Yukon	OEL Ceiling (mg/m ³)	5 mg/m ³
Vanadium (7440-62-2)		
USA OSHA	OSHA PEL (Ceiling) (mg/m ³)	0.5 mg/m ³ (respirable dust) 0.1 mg/m ³ (fume)
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1 mg/m ³
USA NIOSH	NIOSH REL (STEL) (mg/m ³)	3 mg/m ³
Phosphorus elemental (7723-14-0)		
Alberta	OEL TWA (mg/m ³)	0.1 mg/m ³ (yellow)
New Brunswick	OEL TWA (mg/m ³)	0.1 mg/m ³ (yellow)
New Brunswick	OEL TWA (ppm)	0.02 ppm (yellow)

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Québec	VEMP (mg/m ³)	0.1 mg/m ³ (yellow)
Sulfur (7704-34-9)		
Alberta	OEL TWA (mg/m ³)	10 mg/m ³

8.2. Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Suitable eye/body wash equipment should be available in the vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Safety glasses. Insufficient ventilation: wear respiratory protection. Gloves. Protective clothing. Protective goggles.



Materials for Protective Clothing: With molten material wear thermally protective clothing. Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves. If material is hot, wear thermally resistant protective gloves. . Wear protective gloves.

Eye and Face Protection: Chemical goggles or face shield. Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits. If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Thermal Hazard Protection: If material is hot, wear thermally resistant protective gloves.

Environmental Exposure Controls: Do not allow the product to be released into the environment.

Consumer Exposure Controls: Do not eat, drink or smoke during use

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Silver, gray powder
Odor	: None
Odor Threshold	: Not applicable
pH	: Not applicable
Evaporation Rate	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: Not applicable
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not applicable
Relative Vapor Density at 20°C	: Not available
Relative Density	: 7.5 - 9.3
Specific Gravity	: Not available
Solubility	: Water: Insoluble
Partition Coefficient: N-Octanol/Water	: Not applicable

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Viscosity : Not available

SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** In molten form may react violently with water.
- 10.2. Chemical Stability:** Stable under recommended handling and storage conditions (see section 7).
- 10.3. Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- 10.4. Conditions to Avoid:** Direct sunlight, extremely high or low temperatures, heat, hot surfaces, sparks, open flames, incompatible materials, and other ignition sources. In molten state: reacts violently with water (moisture). Dust accumulation (to minimize explosion hazard).
- 10.5. Incompatible Materials:** Strong acids, strong bases, strong oxidizers. When molten: water.
- 10.6. Hazardous Decomposition Products:** Not available

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Oral: Harmful if swallowed.

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data:

Iron Based with Nickel	
ATE US/CA (oral)	376.94 mg/kg body weight

Skin Corrosion/Irritation: Not classified

pH: Not applicable

Eye Damage/Irritation: Not classified

pH: Not applicable

Respiratory or Skin Sensitization: May cause an allergic skin reaction.

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Suspected of causing cancer.

Specific Target Organ Toxicity (Repeated Exposure): Causes damage to organs through prolonged or repeated exposure.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: During processing, the most significant route of exposure is by the inhalation (breathing) of fumes. If fumes are inhaled, they can cause a condition commonly known as metal fume fever with symptoms which resemble influenza; Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur. . Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Contact with fumes or metal powder will irritate skin. Contact with hot, molten metal will cause thermal burns. Dust may cause irritation in skin folds or by contact in combination with tight clothing. Mechanical damage via flying particles and chipped slag is possible. May cause an allergic skin reaction.

Symptoms/Injuries After Eye Contact: During metal processing. Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes. . Mechanical damage via flying particles and chipped slag is possible. May cause slight irritation to eyes.

Symptoms/Injuries After Ingestion: Ingestion is not considered a potential route of exposure. Ingestion may cause adverse effects.

Chronic Symptoms: Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure. Chromium: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Please refer to IARC volume 23 for a more detailed discussion. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. Nickel metal powder, when respirable, is a suspected human carcinogen, and is known to cause damage to the lungs through inhalation. Inhalation of Nickel compounds has been shown in studies to provide an increased incidence of cancer of the nasal cavity, lung and possibly larynx in nickel refinery workers. Vanadium: May cause

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gastrointestinal discomfort, renal damage, nervous system depression and irritation of the respiratory passages. May also cause cardiac palpitations and asthma. Copper: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic dust exposure. Molybdenum: Chronic exposure to molybdenum compounds is suspected of causing cancer. Compounds are also known to cause irritation to the skin, eyes, and respiratory tract. Manganese: Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Chronic exposure to excessive manganese levels can lead to a variety of psychiatric and motor disturbances, termed manganism. Silicon: Can cause chronic bronchitis and narrowing of the airways. Inhalation of iron oxide fumes undergoing decomposition may cause irritation and flu-like symptoms, otherwise iron oxide is not hazardous. . Repeated inhalation of iron oxide dust can cause siderosis a benign condition.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Chromium (7440-47-3)	
LD50 Oral Rat	> 5000 mg/kg
LC50 Inhalation Rat	> 5.41 mg/l/4h
Iron (7439-89-6)	
LD50 Oral Rat	98.6 g/kg
ATE US/CA (oral)	98,600.00 mg/kg body weight
Nickel (7440-02-0)	
LD50 Oral Rat	> 9000 mg/kg
LC50 Inhalation Rat	> 10.2 mg/l (Exposure time: 1 h)
Carbon (7440-44-0)	
LD50 Oral Rat	> 10000 mg/kg
Molybdenum (7439-98-7)	
LD50 Oral Rat	> 2000 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 3.92 mg/l/4h
Silicon (7440-21-3)	
LD50 Oral Rat	3160 mg/kg
Boron (7440-42-8)	
LD50 Oral Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5.08 mg/l/4h
Manganese (7439-96-5)	
LD50 Oral Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5.14 mg/l/4h
Vanadium (7440-62-2)	
LD50 Oral Rat	> 2000 mg/kg
Phosphorus elemental (7723-14-0)	
LD50 Oral Rat	3030 µg/kg
LD50 Dermal Rat	100 mg/kg
LC50 Inhalation Rat	4.3 mg/l (Exposure time: 1 h)
ATE US/CA (oral)	3.03 mg/kg body weight
ATE US/CA (vapors)	4.30 mg/l/4h
ATE US/CA (dust, mist)	0.05 mg/l/4h
Sulfur (7704-34-9)	
LD50 Oral Rat	> 3000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg
LC50 Inhalation Rat	> 9.23 mg/l/4h
Chromium (7440-47-3)	
IARC Group	3
Nickel (7440-02-0)	

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IARC Group	2B
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Very toxic to aquatic life.

Nickel (7440-02-0)	
LC50 Fish 1	100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
EC50 Daphnia 1	121.6 µg/l (Exposure time: 48h - Species: Ceriodaphnia dubia [static])
LC50 Fish 2	15.3 mg/l
EC50 Daphnia 2	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Other Aquatic Organisms 2	0.174 (0.174 - 0.311) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])

Manganese (7439-96-5)	
NOEC Chronic Fish	3.6 mg/l (Exposure time: 96h; Species: Oncorhynchus mykiss)

Phosphorus elemental (7723-14-0)	
LC50 Fish 1	33.2 mg/l Red Phosphorous (Exposure time: 96 h - Species Danio rerio [static])
EC50 Daphnia 1	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 Fish 2	0.001 - 0.004 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 2	0.025 - 0.037 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

Sulfur (7704-34-9)	
LC50 Fish 1	866 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
EC50 Daphnia 1	736 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 Fish 2	14 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

12.2. Persistence and Degradability

Iron Based with Nickel	
Persistence and Degradability	Not established.

Copper (7440-50-8)	
Persistence and Degradability	Not readily biodegradable.

12.3. Bioaccumulative Potential

Iron Based with Nickel	
Bioaccumulative Potential	Not established.

Phosphorus elemental (7723-14-0)	
BCF Fish 1	< 200

12.4. Mobility in Soil Not available

12.5. Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Sewage Disposal Recommendations: Do not empty into drains; dispose of this material and its container in a safe way.

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Additional Information: Recycle the material as far as possible. Container may remain hazardous when empty. Continue to observe all precautions.

Ecology - Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

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14.1. In Accordance with DOT

Reportable Quantity (RQ) for Nickel must be 100 LBS contained per package. Certification can be reviewed to determine specific RQ value of Nickel.

Non-Bulk packaging equates to < 880 lbs (400 kgs) per package; Bulk packaging equates to > 880 lbs (400 kgs).

For hazardous determination on Non-Bulk packaging, please refer to the material certification for the specific shipment.

All Bulk packaging would meet or exceed the RQ value and is considered hazardous.

Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S.(Contains Nickel)

Hazard Class : 9

Identification Number : UN3077

Label Codes : 9

Packing Group : III

Marine Pollutant :

ERG Number : 171



14.2. In Accordance with IMDG

Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Contains Nickel)

Hazard Class : 9

Identification Number : UN3077

Label Codes : 9

Packing Group : III

EmS-No. (Fire) : F-A

EmS-No. (Spillage) : S-F

Marine pollutant :



14.3. In Accordance with IATA

Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Contains Nickel)

Identification Number : 9

Hazard Class : UN3077

Label Codes : 9

Packing Group : III

ERG Code (IATA) : 9L



14.4. In Accordance with TDG

Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Contains Nickel)

Hazard Class : 9

Identification Number : UN3077

Label Codes : 9

Packing Group : III

Marine Pollutant (TDG) :



SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Iron Based with Nickel	
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard Immediate (acute) health hazard Delayed (chronic) health hazard
Chromium (7440-47-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	5000 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
SARA Section 313 - Emission Reporting	1 %
Iron (7439-89-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

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Nickel (7440-02-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	100 lb (only applicable if particles are < 100 µm)
SARA Section 313 - Emission Reporting	0.1 %
Carbon (7440-44-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Molybdenum (7439-98-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Silicon (7440-21-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Boron (7440-42-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Copper (7440-50-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	5000 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
SARA Section 313 - Emission Reporting	1 %
Manganese (7439-96-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
SARA Section 313 - Emission Reporting	1 %
Vanadium (7440-62-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
SARA Section 313 - Emission Reporting	1 % (except when contained in an alloy)
Phosphorus elemental (7723-14-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302 Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	1 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	100 lb (this material is a reactive solid, the TPQ does not default to 10000 pounds for non-powder, non-molten, non-solution form)
SARA Section 313 - Emission Reporting	1 % (yellow or white)
Sulfur (7704-34-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2. US State Regulations

Nickel (7440-02-0)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.

Chromium (7440-47-3)	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances U.S. - Pennsylvania - RTK (Right to Know) List	
Nickel (7440-02-0)	

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U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances
U.S. - Pennsylvania - RTK (Right to Know) List

Molybdenum (7439-98-7)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Silicon (7440-21-3)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Boron (7440-42-8)

U.S. - New Jersey - Right to Know Hazardous Substance List

Copper (7440-50-8)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Manganese (7439-96-5)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Vanadium (7440-62-2)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Phosphorus elemental (7723-14-0)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Sulfur (7704-34-9)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

15.3. Canadian Regulations

Chromium (7440-47-3)

Listed on the Canadian DSL (Domestic Substances List)

Iron (7439-89-6)

Listed on the Canadian DSL (Domestic Substances List)

Nickel (7440-02-0)

Listed on the Canadian DSL (Domestic Substances List)

Carbon (7440-44-0)

Listed on the Canadian DSL (Domestic Substances List)

Molybdenum (7439-98-7)

Listed on the Canadian DSL (Domestic Substances List)

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Silicon (7440-21-3)
Listed on the Canadian DSL (Domestic Substances List)
Boron (7440-42-8)
Listed on the Canadian DSL (Domestic Substances List)
Copper (7440-50-8)
Listed on the Canadian DSL (Domestic Substances List)
Manganese (7439-96-5)
Listed on the Canadian DSL (Domestic Substances List)
Vanadium (7440-62-2)
Listed on the Canadian DSL (Domestic Substances List)
Phosphorus elemental (7723-14-0)
Listed on the Canadian DSL (Domestic Substances List)
Sulfur (7704-34-9)
Listed on the Canadian DSL (Domestic Substances List)

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 02/08/2018

Revision

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

GHS Full Text Phrases:

Acute Tox. 1 (Oral)	Acute toxicity (oral) Category 1
Acute Tox. 2 (Dermal)	Acute toxicity (dermal) Category 2
Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Carc. 2	Carcinogenicity Category 2
Comb. Dust	Combustible Dust
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Pyr. Sol. 1	Pyrophoric solids Category 1
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization, Category 1
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
H250	Catches fire spontaneously if exposed to air
H300	Fatal if swallowed
H302	Harmful if swallowed
H310	Fatal in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H330	Fatal if inhaled
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure

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H400	Very toxic to aquatic life
H402	Harmful to aquatic life
H412	Harmful to aquatic life with long lasting effects

The above information is believed to be accurate based on the most current data available. Ametek makes no warranty, either expressed or implied, with respect to such information, and assumes no liability resulting from its use. Users are advised to conduct their own test to determine the safety and suitability of each product or product combination for their own purposes. Ametek shall not be liable for claims, losses or damages of any third party or for lost profits or incidental or consequential damages.

NA GHS SDS 2015 (Can, US, Mex)