Low Carbon Steel

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: Low Carbon Steel

1.2. Intended Use of the Product

Not specified

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

Company

Nova Steel Corporate Head quarter
(Including Delta Tube, Nova Tube Inc and Nova Steel Baie D'Urfé)
6001 Irwin LaSalle QC, H8N 1A1 Canada
514-789-0511

1.4. Emergency Telephone Number

Emergency Number : 514-789-0511

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA classification

Not classified

2.2. Label Elements

GHS-US/CA Labeling No labeling applicable

2.3. Other Hazards

This product is present in a massive form as an alloy. It does not present the same hazards when the individual components are in their powdered forms. The materials present in this product in their powdered forms present aquatic toxicity to the environment, pyrophoricity, flammability, self-heating capabilities, carcinogenicity, water reactivity, and acute toxicity. When processed or where dust is generated a combustible dust hazard may be present. Avoid generating dust, generating sparks, ignition sources, and take all precautions. Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath. Under normal use and handling of the solid form of this material there are few health hazards. Cutting, welding, melting, grinding etc. of these materials will produce dust, fume or particulate containing the component elements of these materials. Exposure to the dust, fume or particulate of these materials may present significant health hazards. Exposure to dust or fume may cause irritation of the eyes, skin and respiratory tract. Fine particulates dispersed in air may present an explosion hazard.

2.4. Unknown Acute Toxicity No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Product Identifier	% *
Iron	(CAS No) 7439-89-6	86 - 99.6
Nickel	(CAS No) 7440-02-0	<= 5
Chromium	(CAS No) 7440-47-3	<= 5
Silicon	(CAS No) 7440-21-3	<= 3.2
Manganese	(CAS No) 7439-96-5	<= 3
Molybdenum	(CAS No) 7439-98-7	<= 2.5
Copper	(CAS No) 7440-50-8	<= 2.5
Aluminum	(CAS No) 7429-90-5	<= 2
Carbon	(CAS No) 7440-44-0	<= 1.1
Vanadium	(CAS No) 7440-62-2	<= 0.2
Titanium	(CAS No) 7440-32-6	<= 0.15

Niobium	(CAS No) 7440-03-1	<= 0.15
Phosphorus elemental	(CAS No) 7723-14-0	<= 0.15

*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: IF exposed or concerned: Get medical advice/attention. Never give anything by mouth to an unconscious person.

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Keep at rest and in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

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

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

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: Welding, cutting, or processing this material may release dust or fumes that are hazardous.

Inhalation: Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

Skin Contact: May cause an allergic skin reaction. Dust from physical alteration of this product causes skin irritation. 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.

Eye Contact: Dust may cause mechanical irritation to eyes, nose, throat, and lungs.

Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: In massive form, no hazard exists. If physically altered to present slivers, ribbons, dusts or fumes from molten material: Aluminum: Inhalation of finely divided aluminum powder may cause pulmonary fibrosis. 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. 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. 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. 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. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. 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. Silicon: Can cause chronic bronchitis and narrowing of the airways. Repeated inhalation of iron oxide dust can cause siderosis a benign condition. Inhalation of iron oxide fumes undergoing decomposition may cause irritation and flu-like symptoms; otherwise iron oxide is not hazardous. Vanadium: May cause gastrointestinal discomfort, renal damage, nervous system depression and irritation of the respiratory passages. May also cause cardiac palpitations and asthma.

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

If exposed or concerned, get medical advice and attention.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire. Dry sand; Class D Extinguishing Agent (for metal powder fires).

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

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: A non-combustible material, not considered flammable but will melt at ~1510°C (~2750°F).

Explosion Hazard: In molten state: reacts violently with water (moisture). If excessive dust is generated from processing, it may present a dust explosion hazard when dispersed in air at sufficient quantities in the presence of an ignition source.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3. Advice for Firefighters

Precautionary Measures Fire: Under fire conditions, hazardous fumes will be present.

Firefighting Instructions: Exercise caution when fighting any chemical fire.

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

Hazardous Combustion Products: Oxides of aluminum. Oxides of copper. Oxides of nickel. Oxides of Niobium. Oxides of silicone and carbon. Oxides of titanium. Oxides of iron. Phosphorus oxides. Vanadium oxides.

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 handle until all safety precautions have been read and understood. Do not breathe vapors from molten product.

6.1.1. For Non-Emergency Personnel

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

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area. 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.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain and collect as any solid.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. For particulates and dust: Avoid actions that cause dust to become airborne during clean-up such as dry sweeping or using compressed air. Use HEPA vacuum or thoroughly wet with water to clean-up dust. Use PPE described in Section 8. Vacuum must be fitted with HEPA filter to prevent release of particulates during clean-up.

6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see item 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: May generate flammable/explosive dusts or turnings when brushed, machined or ground. Use care during processing to minimize generation of dust. Where excessive dust may result, use approved respiratory protection equipment. Heating of product can release toxic or irritating fumes; ensure proper ventilation is employed, proper precautions are enforced, and applicable regulations are followed. Inhalation of fumes may cause metal fume fever.

Precautions for Safe Handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust, fumes.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Store in a dry, cool place. Keep/Store away from extremely high or low temperatures, incompatible materials.

Incompatible Materials: Strong acids, strong bases, strong oxidizers. Water, humidity. Corrosive substances in contact with metals may produce flammable hydrogen gas.

7.3. Specific End Use(s)

Not specified

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.

Manganese (7439-96-5)		
Mexico	OEL TWA (mg/m³)	0.2 mg/m³ 1 mg/m³ (fume)
Mexico	OEL STEL (mg/m³)	3 mg/m³ (fume)
USA ACGIH	ACGIH TWA (mg/m³)	0.02 mg/m³ (respirable fraction) 0.1 mg/m³ (inhalable fraction)
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (Ceiling) (mg/m³)	5 mg/m³ (fume)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1 mg/m³ (fume)
USA NIOSH	NIOSH REL (STEL) (mg/m³)	3 mg/m³
USA IDLH	US IDLH (mg/m³)	500 mg/m³
Alberta	OEL TWA (mg/m³)	0.2 mg/m³
British Colombia	OEL TWA (mg/m³)	0.2 mg/m³
Manitoba	OEL TWA (mg/m³)	0.02 mg/m³ (respirable fraction) 0.1 mg/m³ (inhalable fraction)
New Brunswick	OEL TWA (mg/m³)	0.2 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.02 mg/m³ (respirable fraction) 0.1 mg/m³ (inhalable fraction)
Nova Scotia	OEL TWA (mg/m³)	0.02 mg/m³ (respirable fraction) 0.1 mg/m³ (inhalable fraction)
Nunavut	OEL Ceiling (mg/m³)	5 mg/m³
Nunavut	OEL STEL (mg/m³)	3 mg/m³ (fume)
Nunavut	OEL TWA (mg/m³)	1 mg/m³ (fume)
Northwest Territories	OEL STEL (mg/m³)	0.6 mg/m³
Northwest Territories	OEL TWA (mg/m³)	0.2 mg/m³
Ontario	OEL TWA (mg/m³)	0.2 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	0.02 mg/m³ (respirable fraction) 0.1 mg/m³ (inhalable fraction)
Québec	VEMP (mg/m³)	0.2 mg/m³ (total dust and fume)
Saskatchewan	OEL STEL (mg/m³)	0.6 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.2 mg/m³
Yukon	OEL Ceiling (mg/m³)	5 mg/m³

Silicon (7440-21-3)		
Mexico	OEL TWA (mg/m³)	10 mg/m³ (inhalable fraction)
Mexico	OEL STEL (mg/m³)	20 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	10 mg/m³ (total dust) 5 mg/m³ (respirable dust)
British Colombia	OEL TWA (mg/m³)	10 mg/m³ (total dust) 3 mg/m³ (respirable fraction)
New Brunswick	OEL TWA (mg/m³)	10 mg/m³

Nunavut	OEL TWA (mg/m³)	5 mg/m³ (respirable mass) 10 mg/m³ (total mass)
Northwest Territories	OEL STEL (mg/m³)	20 mg/m³
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³
Québec	VEMP (mg/m³)	10 mg/m³ (containing no Asbestos and <1% Crystalline silica-total dust)
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³
Yukon	OEL STEL (mg/m³)	20 mg/m³
Yukon	OEL TWA (mg/m³)	30 mppcf 10 mg/m³

Chromium (7440-47-3)		
Mexico	OEL TWA (mg/m³)	0.5 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	0.5 mg/m³
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.5 mg/m³
USA IDLH	US IDLH (mg/m³)	250 mg/m³
Alberta	OEL TWA (mg/m³)	0.5 mg/m³
British Colombia	OEL TWA (mg/m³)	0.5 mg/m³
Manitoba	OEL TWA (mg/m³)	0.5 mg/m³
New Brunswick	OEL TWA (mg/m³)	0.5 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.5 mg/m³
Nova Scotia	OEL TWA (mg/m³)	0.5 mg/m³
Nunavut	OEL STEL (mg/m³)	1.5 mg/m³
Nunavut	OEL TWA (mg/m³)	0.5 mg/m³
Northwest Territories	OEL STEL (mg/m³)	1.5 mg/m³ (metal)
Northwest Territories	OEL TWA (mg/m³)	0.5 mg/m³ (metal)
Ontario	OEL TWA (mg/m³)	0.5 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	0.5 mg/m³
Québec	VEMP (mg/m³)	0.5 mg/m³
Saskatchewan	OEL STEL (mg/m³)	1.5 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.5 mg/m³
Yukon	OEL STEL (mg/m³)	3.0 mg/m³
Yukon	OEL TWA (mg/m³)	0.1 mg/m³

Nickel (7440-02-0)		
Mexico	OEL TWA (mg/m³)	1 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
USA ACGIH	ACGIH chemical category	Not Suspected as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.015 mg/m³
USA IDLH	US IDLH (mg/m³)	10 mg/m³
Alberta	OEL TWA (mg/m³)	1.5 mg/m³
British Colombia	OEL TWA (mg/m³)	0.05 mg/m³
Manitoba	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
New Brunswick	OEL TWA (mg/m³)	1 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Nova Scotia	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Nunavut	OEL STEL (mg/m³)	2 mg/m³
Nunavut	OEL TWA (mg/m³)	1 mg/m³

Northwest Territories	OEL STEL (mg/m³)	3 mg/m³ (inhalable fraction)
Northwest Territories	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Ontario	OEL TWA (mg/m³)	1 mg/m³ (inhalable)
Prince Edward Island	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Québec	VEMP (mg/m³)	1 mg/m³
Saskatchewan	OEL STEL (mg/m³)	3 mg/m³ (inhalable fraction)
Saskatchewan	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Yukon	OEL STEL (mg/m³)	3 mg/m³
Yukon	OEL TWA (mg/m³)	1 mg/m³

Carbon (7440-44-0)		
Mexico	OEL TWA (mg/m³)	2 mg/m³ (dust)

Aluminum (7429-90-5)		
Mexico	OEL TWA (mg/m³)	10 mg/m³ (dust)
USA ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ (respirable fraction)
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	10 mg/m³ (total dust) 5 mg/m³ (respirable dust)
Alberta	OEL TWA (mg/m³)	10 mg/m³ (dust)
British Colombia	OEL TWA (mg/m³)	1.0 mg/m³ (respirable)
Manitoba	OEL TWA (mg/m³)	1 mg/m³ (respirable fraction)
New Brunswick	OEL TWA (mg/m³)	10 mg/m³ (metal dust)
Newfoundland & Labrador	OEL TWA (mg/m³)	1 mg/m³ (respirable fraction)
Nova Scotia	OEL TWA (mg/m³)	1 mg/m³ (respirable fraction)
Nunavut	OEL STEL (mg/m³)	20 mg/m³
Nunavut	OEL TWA (mg/m³)	10 mg/m³
Northwest Territories	OEL STEL (mg/m³)	20 mg/m³ (metal-dust)
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³ (metal-dust)
Ontario	OEL TWA (mg/m³)	1 mg/m³ (respirable)
Prince Edward Island	OEL TWA (mg/m³)	1 mg/m³ (respirable fraction)
Québec	VEMP (mg/m³)	10 mg/m³
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³ (dust)
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³ (dust)

Copper (7440-50-8)		
Mexico	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Mexico	OEL STEL (mg/m³)	2 mg/m³ (fume) 2 mg/m³ (dust and mist)
USA ACGIH	ACGIH TWA (mg/m³)	0.2 mg/m³ (fume)
USA OSHA	OSHA PEL (TWA) (mg/m³)	0.1 mg/m³ (fume) 1 mg/m³ (dust and mist)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1 mg/m³ (dust and mist) 0.1 mg/m³ (fume)
USA IDLH	US IDLH (mg/m³)	100 mg/m³ (dust, fume and mist)
Alberta	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
British Colombia	OEL TWA (mg/m³)	1 mg/m³ (dust and mist) 0.2 mg/m³ (fume)
Manitoba	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
New Brunswick	OEL TWA (mg/m³)	0.2 mg/m³ (fume)

		1 mg/m³ (dust and mist)
Newfoundland & Labrador	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Nova Scotia	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Nunavut	OEL STEL (mg/m³)	0.6 mg/m³ (fume) 2 mg/m³ (dust and mist)
Nunavut	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Northwest Territories	OEL STEL (mg/m³)	3 mg/m³ (dust and mist) 0.6 mg/m³ (fume)
Northwest Territories	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Ontario	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Prince Edward Island	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Québec	VEMP (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Saskatchewan	OEL STEL (mg/m³)	0.6 mg/m³ (fume) 3 mg/m³ (dust and mist)
Saskatchewan	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Yukon	OEL STEL (mg/m³)	0.2 mg/m³ (fume) 2 mg/m³ (dust and mist)
Yukon	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)

Molybdenum (7439-98-7)		
	Internal TWA (mg/m^3)	5 mg/m³ (Molybdenum (as Mo), Soluble Compounds)
USA ACGIH	ACGIH TWA (mg/m³)	10 mg/m³ (inhalable fraction) 3 mg/m³ (respirable fraction)
USA OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³ (Molybdenum (as Mo), Soluble Compounds) 15 mg/m³ (Molybdenum (as Mo), Insoluble Compounds (Total dust)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	5 mg/m³ (Molybdenum (as Mo), Soluble Compounds)
USA IDLH	US IDLH (mg/m³)	5000 mg/m³
Alberta	OEL TWA (mg/m³)	10 mg/m³ (total) 3 mg/m³ (respirable)
British Colombia	OEL TWA (mg/m³)	3 mg/m³ (respirable) 10 mg/m³ (inhalable)
Manitoba	OEL TWA (mg/m³)	10 mg/m³ (inhalable fraction) 3 mg/m³ (respirable fraction)
Newfoundland & Labrador	OEL TWA (mg/m³)	10 mg/m³ (inhalable fraction) 3 mg/m³ (respirable fraction)
Nova Scotia	OEL TWA (mg/m³)	10 mg/m³ (inhalable fraction) 3 mg/m³ (respirable fraction)
Northwest Territories	OEL STEL (mg/m³)	20 mg/m³ (metal-inhalable fraction) 6 mg/m³ (metal-respirable fraction)
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³ (metal-inhalable fraction) 3 mg/m³ (metal-respirable fraction)
Ontario	OEL TWA (mg/m³)	10 mg/m³ (metal-inhalable) 3 mg/m³ (metal-respirable)
Prince Edward Island	OEL TWA (mg/m³)	10 mg/m³ (inhalable fraction) 3 mg/m³ (respirable fraction)

Saskatchewan	OEL STEL (mg/m³)	20 mg/m³ (inhalable fraction) 6 mg/m³ (respirable fraction)
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³ (inhalable fraction) 3 mg/m³ (respirable fraction)

Phosphorus elemental (7723-14-0)		
Alberta	OEL TWA (mg/m³)	0.1 mg/m³ (yellow)
New Brunswick	OEL TWA (mg/m³)	0.1 mg/m³ (yellow)
New Brunswick	OEL TWA (ppm)	0.02 ppm (yellow)
Québec	VEMP (mg/m³)	0.1 mg/m³ (yellow)

Vanadium (7440-62-2)		
USA OSHA	OSHA PEL (Ceiling) (mg/m³)	0.5 mg/m³ (respirable dust) 0.1 mg/m³ (fume)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1 mg/m³
USA NIOSH	NIOSH REL (STEL) (mg/m³)	3 mg/m³

8.2. Exposure Controls

Appropriate Engineering Controls: Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits. Power equipment should be equipped with proper dust collection devices. Ensure all national/local regulations are observed.

Materials for Protective Clothing: Protective clothing. Gloves. Safety glasses. Dust formation: dust mask. Insufficient ventilation: wear respiratory protection.

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

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

Eye Protection: Chemical goggles or safety glasses.

Skin and Body Protection: Wear suitable protective clothing. Wash contaminated clothing before reuse.

Respiratory Protection: 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: Wear suitable thermal protective clothing.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	:	Solid
Appearance	:	Metallic Gray
Odor	:	Odorless
Odor Threshold	:	Not available
pH	:	Not available
Evaporation Rate	:	Not available
Melting Point	:	~ 1510 °C (2750 °F)
Freezing Point	:	Not available
Boiling Point	:	Not available
Flash Point	:	Not available
Auto-ignition Temperature	:	Not available
Decomposition Temperature	:	Not available
Flammability (solid, gas)	:	Non-flammable, non-combustible
Lower Flammable Limit	:	Not available

Upper Flammable Limit	:	Not available
Vapor Pressure	:	Not available
Relative Vapor Density at 20°C	:	Not available
Specific Gravity	:	1-8
Solubility	:	Water: Insoluble
Partition Coefficient: N-Octanol/Water	:	Not available
Viscosity	:	Not available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: Hazardous reactions will not occur under normal conditions.

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: Avoid creating or spreading dust. Sparks, heat, open flame and other sources of ignition. Dust, chips, or ribbons can be ignited more easily, by an ignition source, by improper machining, or by spontaneous combustion if finely divided and damp.

10.5. Incompatible Materials: When molten: water. Strong acids, strong bases, strong oxidizers. Alkalis. Metal oxides. Moisture. Corrosive substances in contact with metals may produce flammable hydrogen gas.

10.6. Hazardous Decomposition Products: With acids, aluminum metals, or ammonium salts may react to form toxic vapors. May form solid compounds releasing heat. Metal oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries after Inhalation: Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

Symptoms/Injuries after Skin Contact: May cause an allergic skin reaction. Dust from physical alteration of this product causes skin irritation. 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.

Symptoms/Injuries after Eye Contact: Dust may cause mechanical irritation to eyes, nose, throat, and lungs.

Symptoms/Injuries after Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: In massive form, no hazard exists. If physically altered to present slivers, ribbons, dusts or fumes from molten material: Aluminum: Inhalation of finely divided aluminum powder may cause pulmonary fibrosis. 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. 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. 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. 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. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. . 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. Silicon: Can cause chronic bronchitis and narrowing of the airways. Repeated inhalation of iron oxide dust can cause siderosis a benign condition. Inhalation of iron oxide fumes undergoing decomposition may cause irritation and flu-like symptoms; otherwise iron oxide is not hazardous. . Vanadium: May cause gastrointestinal discomfort, renal damage, nervous system depression and irritation of the respiratory passages. May also cause cardiac palpitations and asthma.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Manganese (7439-96-5)	
LD50 Oral Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5.14 mg/l/4h
Silicon (7440-21-3)	
LD50 Oral Rat	3160 mg/kg
Chromium (7440-47-3)	
LD50 Oral Rat	> 5000 mg/kg
LC50 Inhalation Rat	> 5.41 mg/l/4h
Nickel (7440-02-0)	
LD50 Oral Rat	> 9000 mg/kg
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
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)
Niobium (7440-03-1)	
LD50 Oral Rat	> 10 g/kg
Chromium (7440-47-3)	
IARC Group	3
Nickel (7440-02-0)	
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 This product in its massive form does not pose an aquatic toxicity hazard. If product is melted or altered and powder, dust, fines, shavings, or small particles are generated this product is considered very toxic to aquatic life, and very toxic to aquatic life with long lasting effects.

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

Copper (7440-50-8)	
LC50 Fish 1	0.0068 (0.0068 - 0.0156) mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Other Aquatic Organisms 1	0.0426 (0.0426 - 0.0535) mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])
LC50 Fish 2	0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Other Aquatic Organisms 2	0.031 (0.031 - 0.054) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])

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])

12.2. Persistence and Degradability

Low Carbon Steel	
Persistence and Degradability	Not established.

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

12.3. Bioaccumulative Potential

Low Carbon Steel	
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

Waste Treatment Methods: Recycle product or dispose properly.

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations

SECTION 14: TRANSPORT INFORMATION

14.1. In Accordance with DOT Not regulated for transport

14.2. In Accordance with IMDG Not regulated for transport

14.3. In Accordance with IATA Not regulated for transport

14.4. In Accordance with TDG Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Iron (7439-89-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

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	1.0 %

Silicon (7440-21-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

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	
SARA Section 313 - Emission Reporting	1.0 %

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	
RQ (Reportable Quantity, Section 304 of EPA's List of Lists):	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	

Aluminum (7429-90-5)	
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	1.0 % (dust or fume only)

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	
SARA Section 313 - Emission Reporting	1.0 %

Molybdenum (7439-98-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

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	
SARA Section 302 Threshold Planning Quantity (TPQ)	100 (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	1.0 % (yellow or white)

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	1.0 % (except when contained in an alloy)

Niobium (7440-03-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Titanium (7440-32-6)
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.

Iron (7439-89-6)
U.S. - Colorado - Primary Drinking Water Regulations - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Florida - Drinking Water Standards - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Georgia - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Massachusetts - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Missouri - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Nevada - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)

U.S. - New Hampshire - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - New Jersey - Secondary Drinking Water Standards - Recommended Upper Limits (RULs)
U.S. - New Jersey - Water Quality - Ground Water Quality Criteria
U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs)
U.S. - New Mexico - Water Quality - Standards for Ground Water of 10,000 mg/L TDS Concentration or Less
U.S. - California - Safer Consumer Products - Initial List of Candidate Chemicals and Chemical Groups
U.S. - Pennsylvania - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Rhode Island - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Water and Aquatic Organisms
U.S. - South Carolina - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Texas - Drinking Water Standards - Secondary Constituent Levels (SCLs)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Utah - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Virginia - Water Quality Standards - Public Water Supply Effluent Limits
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Fresh Water

Manganese (7439-96-5)

U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Chronic
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Colorado - Primary Drinking Water Regulations - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Florida - Drinking Water Standards - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Georgia - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - Ceilings
U.S. - Illinois - Toxic Air Contaminant Carcinogens
U.S. - Illinois - Toxic Air Contaminants
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Massachusetts - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Massachusetts - Drinking Water Guidelines
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - STELs
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Groundwater Health Risk Limits
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - STELs
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - Missouri - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Nevada - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - New Hampshire - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Secondary Drinking Water Standards - Recommended Upper Limits (RULs)
U.S. - New Jersey - Special Health Hazards Substances List

U.S. - New Jersey - Water Quality - Ground Water Quality Criteria
U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs)
U.S. - New Mexico - Water Quality - Standards for Ground Water of 10,000 mg/L TDS Concentration or Less
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - North Carolina - Control of Toxic Air Pollutants
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Oregon - Permissible Exposure Limits - Ceilings
U.S. - California - Safer Consumer Products - Initial List of Candidate Chemicals and Chemical Groups
U.S. - Pennsylvania - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 24-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - Annual
U.S. - South Carolina - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Tennessee - Occupational Exposure Limits - STELs
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Drinking Water Standards - Secondary Constituent Levels (SCLs)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Utah - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Vermont - Permissible Exposure Limits - Ceilings
U.S. - Vermont - Permissible Exposure Limits - STELs
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Virginia - Water Quality Standards - Public Water Supply Effluent Limits
U.S. - Washington - Permissible Exposure Limits - Ceilings
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

Silicon (7440-21-3)

U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - Oregon - Permissible Exposure Limits - TWAs
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs

Chromium (7440-47-3)

U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Colorado - Hazardous Wastes - Maximum Concentration for the Toxicity Characteristics

U.S. - Colorado - Primary Drinking Water Regulations - Maximum Contaminant Level Goals (MCLGs)
U.S. - Colorado - Primary Drinking Water Regulations - Maximum Contaminant Levels (MCLs)
U.S. - Connecticut - Drinking Water Quality Standards - Groundwater Sources
U.S. - Connecticut - Drinking Water Quality Standards - Maximum Contaminant Levels
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Florida - Drinking Water Standards - Inorganic Contaminants - Maximum Contaminant Levels (MCLs)
U.S. - Georgia - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Illinois - Toxic Air Contaminants
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Maryland - Surface Water Quality Standards - Consumption of Water and Organisms
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - Missouri - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Nebraska - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Nebraska - Maximum Concentration of Contaminants for the Toxicity Characteristic
U.S. - New Hampshire - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
U.S. - New Jersey - Primary Drinking Water Standards - Maximum Contaminant Levels - MCLs
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New Jersey - Water Quality - Ground Water Quality Criteria
U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs)
U.S. - New Mexico - Water Quality - Standards for Ground Water of 10,000 mg/L TDS Concentration or Less
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - North Dakota - Hazardous Wastes - Maximum Concentration for the Toxicity Characteristic
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - California - Safer Consumer Products - Initial List of Candidate Chemicals and Chemical Groups
U.S. - Pennsylvania - Drinking Water - Maximum Contaminant Levels (MCLs)
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

RTK - U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - South Carolina - Maximum Contaminant Levels (MCLs)
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Drinking Water Standards - Maximum Contaminant Levels (MCLs)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Utah - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Vermont - Hazardous Waste - Hazardous Constituents
U.S. - Vermont - Hazardous Waste - Maximum Contaminant Concentration for Toxicity
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Dangerous Waste - Dangerous Waste Constituents List
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - West Virginia - Water Quality - Groundwater Standards - Ceiling Concentrations
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

Nickel (7440-02-0)

U.S. - California - Priority Toxic Pollutants - Freshwater Criteria
U.S. - California - Priority Toxic Pollutants - Human Health Criteria
U.S. - California - Priority Toxic Pollutants - Saltwater Criteria
U.S. - California - SCAQMD - Toxic Air Contaminants - Carcinogens
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Acute
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Chronic
U.S. - California - SDAPCD - Toxic Air Contaminants - Carcinogenic Impacts Must Be Calculated
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Connecticut - Drinking Water Quality Standards - Maximum Contaminant Levels
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Connecticut - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Acute Saltwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Chronic Saltwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Consumption of Organisms Only
U.S. - Connecticut - Water Quality Standards - Consumption of Water and Organisms
U.S. - Connecticut - Water Quality Standards - Health Designations
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Florida - Drinking Water Standards - Inorganic Contaminants - Maximum Contaminant Levels (MCLs)
U.S. - Georgia - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Idaho - Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Illinois - Toxic Air Contaminant Carcinogens
U.S. - Illinois - Toxic Air Contaminants
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Maine - Chemicals of High Concern
U.S. - Maryland - Surface Water Quality Standards - Acute Freshwater Aquatic Life
U.S. - Maryland - Surface Water Quality Standards - Acute Saltwater Aquatic Life Criteria
U.S. - Maryland - Surface Water Quality Standards - Chronic Freshwater Aquatic Life
U.S. - Maryland - Surface Water Quality Standards - Chronic Saltwater Aquatic Life Criteria
U.S. - Maryland - Surface Water Quality Standards - Consumption of Organisms Only

U.S. - Maryland - Surface Water Quality Standards - Consumption of Water and Organisms
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Drinking Water Guidelines
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - Nebraska - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - New Hampshire - Prohibited Volatile Organic Compounds
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New Mexico - Water Quality - Standards for Ground Water of 10,000 mg/L TDS Concentration or Less
U.S. - New York - Priority Chemical Avoidance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Carolina - Control of Toxic Air Pollutants
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - North Dakota - Water Quality Standards - Aquatic Life Acute Value for Classes I, IA, II, III
U.S. - North Dakota - Water Quality Standards - Aquatic Life Chronic Value for Classes I, IA, II, III
U.S. - North Dakota - Water Quality Standards - Human Health Value for Class III
U.S. - North Dakota - Water Quality Standards - Human Health Value for Classes I, IA, II
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - California - Safer Consumer Products - Initial List of Candidate Chemicals and Chemical Groups
U.S. - Pennsylvania - Beneficial Use of Sewage Sludge by Land Application - Pollutant Ceiling Limits
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 1-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 24-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - Annual
U.S. - Rhode Island - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Acute Saltwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Saltwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Aquatic Organisms Only
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Water and Aquatic Organisms
U.S. - South Carolina - Toxic Air Pollutants - Maximum Allowable Concentrations
U.S. - South Carolina - Toxic Air Pollutants - Pollutant Categories
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term

U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Utah - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Vermont - Hazardous Waste - Hazardous Constituents
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Virginia - Water Quality Standards - Acute Freshwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Acute Saltwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Chronic Freshwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Chronic Saltwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Public Water Supply Effluent Limits
U.S. - Virginia - Water Quality Standards - Surface Waters Not Used for the Public Water Supply Effluent Limits
U.S. - Washington - Dangerous Waste - Dangerous Waste Constituents List
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet
U.S. - Alaska - Water Quality Standards - Acute Aquatic Life Criteria for Fresh Water
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Fresh Water
U.S. - Alaska - Water Quality Standards - Acute Aquatic Life Criteria for Marine Water
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Marine Water
U.S. - Arkansas - Surface Water Quality Standards - Chronic Aquatic Life Criteria
U.S. - Arkansas - Surface Water Quality Standards - Acute Aquatic Life Criteria

Carbon (7440-44-0)

U.S. - Idaho - Occupational Exposure Limits - TWAs

Aluminum (7429-90-5)

U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Colorado - Primary Drinking Water Regulations - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Connecticut - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Florida - Drinking Water Standards - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Georgia - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Massachusetts - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - Missouri - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Nevada - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - New Hampshire - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Secondary Drinking Water Standards - Recommended Upper Limits (RULs)

U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New Jersey - Water Quality - Ground Water Quality Criteria
U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs)
U.S. - New Mexico - Water Quality - Standards for Ground Water of 10,000 mg/L TDS Concentration or Less
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - California - Safer Consumer Products - Initial List of Candidate Chemicals and Chemical Groups
U.S. - Pennsylvania - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - South Carolina - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Drinking Water Standards - Secondary Constituent Levels (SCLs)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Utah - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Alaska - Water Quality Standards - Acute Aquatic Life Criteria for Fresh Water
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Fresh Water

Copper (7440-50-8)

U.S. - California - Priority Toxic Pollutants - Freshwater Criteria
U.S. - California - Priority Toxic Pollutants - Human Health Criteria
U.S. - California - Priority Toxic Pollutants - Saltwater Criteria
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Acute
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Colorado - Primary Drinking Water Regulations - Maximum Contaminant Level Goals (MCLGs)
U.S. - Colorado - Primary Drinking Water Regulations - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Connecticut - Drinking Water Quality Standards - Groundwater Sources
U.S. - Connecticut - Drinking Water Quality Standards - Maximum Contaminant Levels
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Connecticut - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Acute Saltwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Chronic Saltwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Consumption of Water and Organisms
U.S. - Connecticut - Water Quality Standards - Health Designations
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Florida - Drinking Water Standards - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Georgia - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Illinois - Toxic Air Contaminants
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maryland - Surface Water Quality Standards - Acute Freshwater Aquatic Life
U.S. - Maryland - Surface Water Quality Standards - Acute Saltwater Aquatic Life Criteria
U.S. - Maryland - Surface Water Quality Standards - Chronic Freshwater Aquatic Life

U.S. - Maryland - Surface Water Quality Standards - Chronic Saltwater Aquatic Life Criteria
U.S. - Maryland - Surface Water Quality Standards - Consumption of Water and Organisms
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Massachusetts - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - Missouri - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Missouri - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Nevada - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - New Hampshire - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
U.S. - New Jersey - Primary Drinking Water Standards - Action Levels - ALs
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Water Quality - Ground Water Quality Criteria
U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs)
U.S. - New Mexico - Water Quality - Standards for Ground Water of 10,000 mg/L TDS Concentration or Less
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - North Dakota - Water Quality Standards - Aquatic Life Acute Value for Classes I, IA, II, III
U.S. - North Dakota - Water Quality Standards - Aquatic Life Chronic Value for Classes I, IA, II, III
U.S. - North Dakota - Water Quality Standards - Human Health Value for Classes I, IA, II
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - California - Safer Consumer Products - Initial List of Candidate Chemicals and Chemical Groups
U.S. - Pennsylvania - Beneficial Use of Sewage Sludge by Land Application - Pollutant Ceiling Limits
U.S. - Pennsylvania - Drinking Water - Maximum Contaminant Levels (MCLs)
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 1-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - Annual
U.S. - Rhode Island - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Acute Saltwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Saltwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Water and Aquatic Organisms
U.S. - South Carolina - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Drinking Water Standards - Secondary Constituent Levels (SCLs)

U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Utah - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Virginia - Water Quality Standards - Acute Freshwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Acute Saltwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Chronic Freshwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Chronic Saltwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Public Water Supply Effluent Limits
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - West Virginia - Water Quality - Groundwater Standards - Ceiling Concentrations
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet
U.S. - Alaska - Water Quality Standards - Acute Aquatic Life Criteria for Fresh Water
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Fresh Water
U.S. - Alaska - Water Quality Standards - Acute Aquatic Life Criteria for Marine Water
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Marine Water
U.S. - Arkansas - Surface Water Quality Standards - Chronic Aquatic Life Criteria
U.S. - Arkansas - Surface Water Quality Standards - Acute Aquatic Life Criteria

Molybdenum (7439-98-7)

U.S. - Idaho - Occupational Exposure Limits - TWAs
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Hazardous Substance List
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Water Quality - Ground Water Quality Criteria
U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs)
U.S. - New Mexico - Water Quality - Standards for Ground Water of 10,000 mg/L TDS Concentration or Less
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - California - Safer Consumer Products - Initial List of Candidate Chemicals and Chemical Groups
U.S. - Pennsylvania - Beneficial Use of Sewage Sludge by Land Application - Pollutant Ceiling Limits
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 24-Hour
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

Phosphorus elemental (7723-14-0)

U.S. - California - Precursor Chemicals
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Illinois - Toxic Air Contaminants

U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Minnesota - Chemicals of High Concern
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New Mexico - Precursor Chemicals
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Part 326 - Restricted Pesticides
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - Ohio - Extremely Hazardous Substances - Threshold Quantities
U.S. - Oregon - Precursor Chemicals
U.S. - California - Safer Consumer Products - Initial List of Candidate Chemicals and Chemical Groups
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - South Carolina - Toxic Air Pollutants - Maximum Allowable Concentrations
U.S. - South Carolina - Toxic Air Pollutants - Pollutant Categories
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Virginia - Water Quality Standards - Chronic Saltwater Aquatic Life
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Marine Water

Vanadium (7440-62-2)

U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Minnesota - Groundwater Health Risk Limits
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - California - Safer Consumer Products - Initial List of Candidate Chemicals and Chemical Groups
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 1-Hour

U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

Niobium (7440-03-1)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

Titanium (7440-32-6)
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

15.3. Canadian Regulations

Iron (7439-89-6)
Listed on the Canadian DSL (Domestic Substances List)

Manganese (7439-96-5)
Listed on the Canadian DSL (Domestic Substances List)

Silicon (7440-21-3)
Listed on the Canadian DSL (Domestic Substances List)

Chromium (7440-47-3)
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)

Aluminum (7429-90-5)
Listed on the Canadian DSL (Domestic Substances List)

Copper (7440-50-8)
Listed on the Canadian DSL (Domestic Substances List)

Molybdenum (7439-98-7)
Listed on the Canadian DSL (Domestic Substances List)

Phosphorus elemental (7723-14-0)
Listed on the Canadian DSL (Domestic Substances List)

Vanadium (7440-62-2)
Listed on the Canadian DSL (Domestic Substances List)

Niobium (7440-03-1)
Listed on the Canadian DSL (Domestic Substances List)

Titanium (7440-32-6)
Listed on the Canadian DSL (Domestic Substances List)

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

Revision Date : 02/29/2016

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).

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

NA GHS SDS 2015