

Material Safety Data Sheet

Section 1 - Product and Company Identification

Product Name: Carbon, Alloy, Tool Steel, High Speed and Stainless Steel

Supplier: Böhler-Uddeholm Limited, 2595 Meadowvale Blvd., Mississauga, ON L5N 7Y3

Emergency Telephone Number: 1-905-812-9440

Prepared Date / REVISION: Nov 23rd 2011

Section 2 - Composition / Information on Ingredients

	Alloy Element	Weight (%)	LD50 /LC50
1309-37-1	Iron (Fe)	< 99.0	30g/Kg (Rat – Oral)
7429-90-5	*Aluminum (Al)+	< 2.10	N/A
1333-86-4	Carbon (C)	< 3.60	N/A
7440-47-3	*Chromium (Cr)	< 27.3	N/A
7440-48-4	*Cobalt (Co)	< 65.8	9 g/Kg
7440-50-8	*Copper (Cu)	< 3.30	N/A
7439-96-5	*Manganese (Mn)	< 19.3	9 g/Kg (Rat – Oral)
7439-98-7	Molybdenum (Mo)	< 9.50	N/A
7440-02-0	*Nickel (Ni)	< 84.6	>9gn-gkg (Rat – Oral)
7440-21-3	Silicon (Si)	< 3.00	3160 mg/Kg (Rat – Oral)
7440-32-6	Titanium (Ti)	< 3.10	N/A
7440-37-7	Tungsten (W)	< 18.0	N/A
1314-62-1	Vanadium (V)	< 10.1	N/A

Some or various combinations of these components may appear in grades produced. Consult appropriate data sheets or test reports for the specific ordered analysis or contact Böhler-Uddeholm.

Section 3 - Hazards Identification

Emergency Overview

Carbon, Alloy, Tool Steels, High Speed and Stainless Steel products in the form shipped do not present an inhalation, ingestion or contact hazard. However, inhaling dusts, fumes, or mists, exceeding permissible limits, generated during certain manufacturing operations, such as; torch cutting, burning, welding, thermal treatments, sawing, brazing, grinding, polishing or machining, may be hazardous to your health. The above operations should be performed in well-ventilated areas. The major exposure hazard is inhalation.

Primary Routes of Exposure

Inhalation: YES Skin Contact: YES Eye Contact: YES Ingestion: YES

Exposure occurs primarily from inhalation of dust or fumes. However, constituents of these alloys may cause effects directly upon the skin or eyes. Certain constituents may also be harmful if swallowed.

Detailed effects of overexposure, based on element composition of the product:

ALUMINUM dust/fines and fume: Low health risk by inhalation. Generally considered to be biologically inert (milling, cutting, grinding).
Carcinogenicity: N/A NTP: No IARC: No OSHA Regulated: No

CARBON: Elemental carbon, as it exists in this product, is of very low toxicity. Health hazard data presented here is based on exposures to carbon black, not carbon as it is found in this product. Chronic inhalation exposure to carbon black may result in temporary or permanent damage to lungs and heart. Pneumoconiosis has been found in workers engaged in the production of carbon black. Skin conditions such as inflammation of the hair follicles and oral mucosal lesions have also been reported from skin exposure.* (for Carbon Black.)

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Carcinogenicity: N/A **NTP:** No **IARC:** 2B* **OSHA Regulated:** No

CHROMIUM dust and fume: The health hazards associated with exposure to chromium are dependent on its oxidation state. The metal form (chromium as it exists in this product) is of very low toxicity. Welding fume generated from high chromium stainless steel may contain hexavalent chromium. This water-soluble hexavalent form is considerably more toxic. Adverse effects of the hexavalent form on the skin may include ulcerations, dermatitis, and allergic skin reactions. Inhalation of hexavalent chromium compounds can result in ulceration and perforation of the mucous membranes of the nasal septum, irritation of the pharynx and larynx, asthmatic bronchitis, bronchospasm and edema. Respiratory symptoms may include coughing and wheezing, shortness of breath and nasal itch. Eye irritation or inflammation may also result. The NTP lists hexavalent chromium as a known human carcinogen. Chromium metal is listed as not classifiable as to carcinogenicity to humans.

Carcinogenicity: N/A **NTP:** No **IARC:** 3 **OSHA Regulated:** No

Hexavalent chromium (Chrome VI) (Health Effects That May Be Formed During Processing) Can cause irritation of eyes, skin and respiratory tract. Skin contact: Can cause irritant dermatitis, allergic reactions and skin ulcers. Chronic overexposures: Can cause perforation of the nasal septum, respiratory sensitization, asthma, fluid in the lungs (pulmonary edema), lung damage, kidney damage, lung cancer, nasal cancer and cancer of the gastrointestinal tract. IARC/NTP: Listed as "known to be a human carcinogen" by the NTP. Listed as carcinogenic to humans by IARC (Group 1)*.

Carcinogenicity: Yes **NTP:** 1 **IARC:** 1 **OSHA Regulated:** No

COBALT: Inhalation of cobalt metal fumes and dust causes irritation of the nose and throat. Cobalt dust may cause an asthma-like disease with symptoms ranging from cough, chronic bronchitis, shortness of breath and labored breathing, to decreased pulmonary function, nodular scarring of the lung tissue, permanent disability and death. Exposure to cobalt may cause weight loss, dermatitis (inflammation of the skin) and respiratory hypersensitivity.

Carcinogenicity: N/A **NTP:** No **IARC:** A3 **OSHA Regulated:** No

COPPER: Industrial exposure to copper fumes, dusts and/or mists results in metal fume fever, nausea, irritation of upper respiratory tract, and irritation of nasal mucous membranes. Chronic poisoning could aggravate individuals who suffer from Wilson's disease, a genetic condition characterized by liver cirrhosis, brain damage, nerve damage, kidney disease, and copper deposition in the cornea (eye). Chronic overexposures: Can cause reduction in the number of red blood cells (anemia), skin abnormalities (pigmentation changes) and hair discoloration.

Carcinogenicity: N/A **NTP:** No **IARC:** No **OSHA Regulated:** No

IRON: Iron oxide can be generated during arc welding of this product. Chronic inhalation of excessive concentrations of iron oxide fumes and dusts may result in development of a benign pneumoconiosis, called siderosis, which is observable as an X-ray change. No physical impairment of lung function has been associated with siderosis. Inhalation of excessive concentrations of iron oxide may enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens. Acute exposure to the eyes may result in mild conjunctivitis.

Carcinogenicity: N/A **NTP:** No **IARC:** No **OSHA Regulated:** No

MANGANESE: Manganese oxide fumes can act as minor irritants to the eyes and respiratory tract and metal fume fever. Both acute and chronic exposures may adversely affect the central nervous system (manganism), pneumonitis (inflammation of lung tissue), and may cause fibrosis (scarring of lung tissue). and reproductive disorders (impotence) in males. Early symptoms may include weakness in lower extremities, sleepiness, salivation, nervousness, clumsiness, tremor, speech disturbances, mask like facial expression, hypersomnia, anorexia, dry throat, cough, chest tightness, dyspnea, flu-like fever, low back pain, vomiting, malaise, kidney damage and apathy. Bronchitis, pneumonitis, lack of coordination; resembling Parkinson's disease (apathy, weakness, etc.). The central nervous system is the chief site of the injury, and there may be adverse blood and kidney effects. Chronic manganese poisoning is not a fatal disease although it is extremely disabling. Some individuals may be hyper susceptible to manganese. Freshly formed manganese fume has caused fever and chills similar to metal fume fever.

Carcinogenicity: N/A **NTP:** No **IARC:** No **OSHA Regulated:** No

MOLYBDENUM: Dust of metallic molybdenum has caused difficulty breathing, general weakness, dizziness, chest pain, expectoration, fatigue, headache, anorexia, and joint and muscle pain. Molybdenum has caused anemia and poor growth in experimental animals. Molybdenum may also cause pneumoconiosis and irritation to the lungs and eyes. In rats, dusts of metallic molybdenum have caused growth, depression and thickening of intraalveolar septa, which contained connective tissue fibers.

Carcinogenicity: N/A **NTP:** No **IARC:** No **OSHA Regulated:** No

NICKEL: Nickel fumes are respiratory irritants and have been a known cause of asthma, pneumonia, pulmonary edema and pulmonary fibrosis in welders using nickel alloys. Airborne nickel contaminated dusts are regarded as capable of producing lung cancer. The risk is higher for workers at primary nickel smelters and refineries than for workers exposed to nickel alloys. Skin contact may cause an allergic rash. Nickel itch is the dermatitis resulting from sensitization to nickel. Itching can occur up to 7 days before skin eruption occurs. The primary skin eruption is reddening, or infection of the hair follicles, which may be followed by skin ulceration. Nickel sensitivity, once acquired, is apparently not lost.

Carcinogenicity: Yes **NTP:** 1 **IARC:** 1 **OSHA Regulated:** No

OIL COATING: Some products are supplied with an oil coating or have residual oil from the manufacturing process. Prolonged or repeated skin contact with oil may result in skin irritation, dermatitis, or both. If the product is heated well above the ambient temperatures or machined, **oil vapor or mist** may be generated. Symptoms of inhalation overexposure can be a burning sensation in mouth, throat and stomach, vomiting, diarrhea and belching; fever, rapid heart beat, or cyanosis (aspiration of liquid). Chronic exposure may cause asthma, bronchitis, respiratory tract irritation and neurological effects such as headaches, dizziness, drowsiness and central nervous system depression. Mineral Oils, Untreated and mildly-treated oils are listed by IARC as Carcinogenic to humans. Listed as Carcinogenic to Humans by the IARC.

Carcinogenicity: N/A **NTP:** No **IARC:** No **OSHA Regulated:** No

OZONE: Welding, plasma arc cutting, and arc spray metalizing can generate ozone. Ozone can cause irritation of eyes, nose and upper respiratory tract. Acute overexposures: Can cause shortness of breath, tightness of chest, headache, cough, nausea and narrowing of airways. Effects are reversible on cessation of exposure. Acute overexposures (high concentrations): Can cause respiratory distress, respiratory tract

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damage, bleeding and fluid in the lungs (pulmonary edema). Effects can be delayed up to 1-2 hours. Additional information: Studies with experimental animals by inhalation have found genetic damage, reproductive harm, blood cell damage, lung damage and death.

Carcinogenicity: N/A **NTP:** No **IARC:** No **OSHA Regulated:** No

SILICON: No chronic debilitating symptoms indicated. Chronic exposure to **inert dusts of silicon** can cause chronic bronchitis and narrowing of the airways. Accumulation in lungs may be responsible for benign pneumoniosis, but is not considered to be responsible for pulmonary functional impairment or respiratory symptoms. In tracheal administration of silicon in rabbits produced significant pulmonary lesions.

Carcinogenicity: N/A **NTP:** No **IARC:** No **OSHA Regulated:** No

TITANIUM: Elemental titanium is an inert material. Titanium dioxide may be generated in welding fumes from this product. At extremely high concentrations titanium dioxide has induced lung cancer in rats. Titanium dioxide dust is a mild pulmonary, eye and skin irritant. Rats exposed to titanium dioxide developed small focal areas of emphysema, which were attributable to large deposits of dust. Excessive exposure in humans may result in slight changes in the lungs. The dusts of titanium dioxide can be placed in the nuisance category. (* for Titanium Dioxide)

Carcinogenicity: N/A **NTP:** No **IARC:** 3* **OSHA Regulated:** No

TUNGSTEN: Chronic exposure to tungsten dust has been reported to cause pulmonary fibrosis, characterized by cough, labored breathing, and wheezing. Dermatitis (inflammation of the skin), primarily on the sides of the neck, inner forearm, and the backs of the hands, was also reported. Dusts of tungsten pose a hazard considered to be somewhat greater than that of nuisance dust.

Carcinogenicity: N/A **NTP:** No **IARC:** No **OSHA Regulated:** No

VANADIUM: The health hazards associated with exposure to vanadium are dependant on its oxidation state. This product contains elemental vanadium. Elemental vanadium could be oxidized to vanadium pentoxide during welding. The pentoxide form is more toxic than the elemental form. Chronic exposure to vanadium pentoxide dust and fumes may cause severe irritation of the eyes, skin, upper respiratory tract, persistent inflammation of the trachea and bronchi, pulmonary edema, and systemic poisoning. Signs and symptoms of overexposure include; conjunctivitis, nasopharyngitis, cough, labored breathing, rapid heart beat, lung changes, chronic bronchitis, skin pallor, greenish-black tongue and an allergic skin rash.

Carcinogenicity: N/A **NTP:** No **IARC:** No **OSHA Regulated:** No

WELDING FUMES: are the fumes that result from various welding operations. The primary components are oxides of the metals involved such as zinc, iron, chromium, aluminum, or nickel. Symptoms of acute exposure can result eye, nose, and throat irritation, fever, chills, headache, nausea, shortness of breath, muscle pain, and a metallic taste in the mouth. Chronic exposure can result in respiratory effects including coughing, wheezing, and decreased pulmonary function. **IARC:** Listed as possibly carcinogenic to humans by IARC (Group 2B).

Additional Information: In one study, occupational asthma was associated with exposures to fumes from aluminum welding.

Carcinogenicity: See above **NTP:** No **IARC:** 2B **OSHA Regulated:** No

IARC Classification Definitions

- Group 1: Carcinogenic to Humans. There is sufficient evidence that a causal relationship existed between exposure to the agent and human cancer.
- Group 2A: Probably Carcinogenic to Humans. There is limited sufficient evidence in experimental animals.
- Group 2B: Possibly Carcinogenic to Humans.
- Group 3: Not classified as to carcinogenicity to humans.
- Group 4: Probably not Carcinogenic to humans.

NTP (National Toxicology Program) Classifications:

- 1: Known to be carcinogenic; sufficient evidence from human studies.
- 2: Reasonably anticipated to be a carcinogen; limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

Section 4 - First Aid Measures

Inhalation: Breathing difficulty caused by inhalation of dust or fume requires removal to fresh air. If unconscious or severely injured, check for clear airway, breathing and presence of pulse. Perform CPR if there is no pulse or respiration. Consult a physician.

Ingestion: Swallowing metal powder or dust can be treated by having the affected person swallow large quantities of water and attempting to induce vomiting if conscious. Obtain medical assistance at once. Never give anything by mouth to an unconscious individual.

Eye Contact: Flush eyes with plenty of water or saline for at least 15 minutes to remove the particulate, take care to rinse under eyelids. Consult a physician for further medical attention.

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Skin Contact: Skin cuts and abrasions can be treated by standard first aid (i.e., cleansing, disinfecting and covering the wound). Skin contamination with dust or power can be removed by thoroughly washing with soap and water for at least 15 minutes. If irritation persists, obtain medical assistance. Material accidentally implanted or injected under the skin must be removed.

Section 5 - Fire Fighting Measures

Flash Point: N/A **Flammable:** NO **Upper Flammable Limit:** N/A **Lower Flammable Limit:** NA

This product does not present fire or explosion hazards as shipped (solid form). However, may be a potential hazard under the following conditions:

- Fire/Explosion:** - Dust or fines dispersed in the air can be explosive. Even a minor dust cloud can explode violently. Prevent formation.
- Dust or fines in contact with certain metal oxides (e.g., rust). A thermite reaction, with considerable heat generation, can be initiated by a weak ignition source.
 - Molten metal in contact with water/moisture or other metal oxides (e.g., rust, copper oxide). Moisture entrapped by molten metal can be explosive. Finely divided metals (e.g., powders or wire) may have enough surface oxide to produce thermite reactions/explosions.

Extinguishing Media: Use Class D extinguishing agents on dusts, fines or molten metal. **DO NOT USE:** Halogenated agents on small chips, dusts or fines, or water around molten metal.

Fire Fighting Equipment/Instructions: Fire fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

Section 6 - Accidental Release Measures

N/A

Section 7 - Handling and Storage

Handling Procedures and Equipment: This product must be handled according to the size, shape and quantity of the material involved. Powders should be moved or transported to minimize spill or release potential. Minimize activities, which may generate dusts, mists or fumes. Keep all areas ventilated. Use suitable equipment and protection to move material, as specified in section 8. Particulate may enter the body through cuts, abrasions or other wounds on the surface of the skin. Wear gloves when handling parts with loose surface particulate or sharp edges

Storage Requirements: In solid form, this material poses no special storage requirements. Store metal and metal powder in a dry area. Fine metal powder should be kept away from flames and sources of ignition.

Section 8 - Exposure Controls / Personal Protection

No permissible exposure limits (PEL) or threshold limit values (TVL) exist for steels. The following values are applicable to component elements:

Alloy Element	Cas Number	OSHA PEL (mg/m ³)	ACGIH TLV (mg/m ³)
Iron (Fe)	1309-37-1	10 (As Iron Oxide fume)	5.00 (As Iron Oxide fume)
*Aluminum (Al)+	7429-90-5	15 TWA (total dust) 5 TWA (respirable fraction)	10 TWA (metal dust)
Carbon (C)	7440-44-0 1333-86-4 (Carbon Black)	3.5 TWA (as carbon black)	3.5 TWA (as carbon black)
*Chromium (Cr)	7440-47-3	1 TWA	0.5 TWA
*Cobalt (Co)	7440-48-4	1.0 TWA (metal, dust, & fume)	0.02 TWA
*Copper (Cu)	7440-50-8	0.1 TWA (fume) 1 TWA (dust & mist)	0.2 TWA (fume) 1 TWA (dust & mist)
*Manganese (Mn)	7439-96-5	5 Ceiling (fume)	0.2 TWA (fume)
Molybdenum (Mo)	7439-98-7	15 TWA (Mo, insoluble compounds) 5 TWA (Mo, soluble compounds)	10 TWA (Mo, insoluble compounds) 5 TWA (Mo, soluble compounds)

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*Nickel (Ni)	7440-02-0	1 TWA (soluble compounds(as Ni))	0.1 TWA (soluble compounds (as Ni)) 1.0 TWA (insoluble)
Oil Coating	8012-95-1	5 TWA (oil mist, mineral)	5 TWA (oil mist, mineral)
Ozone	10028-15-6	0.1 ppm TWA 0.2 TWA	0.05 ppm TWA (Heavy work) 0.08 ppm TWA (Moderate work) 0.10 ppm TWA (Light work) 0.2 ppm TWA (Heavy, Moderate, and Light workloads <=2hrs)
Silicon (Si)	7440-21-3	5 TWA (respirable fraction)	10 TWA (total dust)
Titanium (Ti)	7440-32-6 13463-67-7 (Titanium Dioxide)	15 TWA (titanium dioxide)	10 TWA (titanium dioxide)
Tungsten (W)	7440-37-7	5 TWA (insoluble compounds) 1 TWA (soluble compounds)	5 TWA (insoluble compounds) 1 TWA (soluble)
Vanadium (V)	7440-62-2 1314-62-1 (Vanadium Pentoxide)	0.5 TWA (ceiling, respirable dust) 0.1 TWA (ceiling, fume)	0.05 TWA (dust) 0.05 TWA (fume)
Welding Fumes	None	None	5 TWA

TWA = Time weighted Average (8hr work day and 40hr week)

Engineering Controls:

Consult a Professional Industrial Hygienist and /or Qualified Safety professional to determine whether work processes are within the permissible exposure limits.

Use adequate ventilation to meet exposure limits listed in Section 8.

Personal Protective Equipment

Respiratory Protection:

Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in Section 8.

Eye Protection:

Approved safety glasses/goggles should be worn during operations creating eye hazards. A welder's helmet or face shield should be worn when welding or burning.

Skin Protection:

Wear impervious gloves and barrier creams to reduce the risk of skin abrasions and skin sensitization and dermatitis. Approved steel toe shoes with metatarsal guards should be worn for foot protection. Use appropriate protective clothing, such as welding aprons when welding or burning.

Other Protection:

As required depending on Operation and applicable safety codes.

Section 9 - Physical & Chemical Properties

Physical State: Solid	Odor & Appearance: Odorless, grey-metallic luster, except when painted
Odor Threshold: N/A	Specific Gravity: 7.5 – 8.5
Vapor Density: N/A	Vapor Pressure: N/A
Evaporation Rate: N/A	Boiling Point: N/A
Freezing Point: N/A	pH Level: N/A
Melting Point: 2400- 2850 °F	Solubility in Water: Insoluble

Section 10 - Stability & Reactivity

Chemical Stability:

Stable

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Incompatibility with other substances:

Reacts with strong acids and oxidizers

Reactivity (Conditions to avoid):

Avoid exposure to generated dusts or fume

Molten metal will react violently with water.

Reaction with aluminum fines and dusts requires only very weak ignition sources for initiation. Molten aluminum can react violently with iron oxide without external ignition source.

Hazardous Decomposition Products:

Metallic oxides, refer to section 8 for PEL's

Section 11 - Toxicological Information

Effects of Exposure:

Acute: Irritation of eyes, nose or throat, metallic taste in mouth, or metal fume fever. Possible dermatitis. Also, high concentrations of fumes and dusts of iron-oxide, manganese, and copper may result in metal fume fever. Typical symptoms consist of a metallic taste in the mouth, dryness and irritation of the throat, chills and fever, and usually last from 12 to 48 hours. Greater details noted next to each element, see Section 3, Hazards Identification.

Chronic: Chronic and prolonged inhalation of high concentrations of fumes or dust of the following elements may lead to the conditions listed opposite the element in Section 3, Hazards Identification.

Irritancy of Product:

- **on the skin:** Can cause skin irritation.
- **on the eye:** Can cause irritation to the eyes.
- **Inhalation:** Can cause upper respiratory tract irritation.

Skin Sensitization: See Section 3, Hazards Identification.

Respiratory Sensitization: See Section 3, Hazards Identification.

Carcinogenicity: No classification on product as delivered, however, some of the elements that make up the material have been classified, See Section 3, Hazards Identification for Carcinogenic references.

Reproductive Toxicity: NA

Teratogenicity: N/A

Embryotoxicity: N/A

Mutagenicity: N/A

Section 12 - Ecological Information

Aquatic Toxicity:

This product as delivered has no information available; however information is available for the specific element composition.

Cas No.	Alloy Element	LC50 (96 Hr)	EC50 (72 Hr)
7440-50-8	*Copper (Cu)	fathead minnow: 23 µg/L rainbow trout: 13.8 µg/L bluegill: 236 µg/L water flea: 10 µg/L water flea: 200 µg/L	freshwater algae (Scenedesmus subspicatus): 120 µg/L
7440-02-0	*Nickel (Ni)	rainbow trout (adults):31.7 mg/L fathead minnow: 3.1 mg/L water flea: 510 µg/L	freshwater algae (4 species): 0.1 mg/L

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Section 13 - Disposal Considerations

Waste Disposal:

Recycle scrap materials through scrap dealers and brokers. Dispose of non-recyclable materials in accordance with local, state/provincial, and federal regulations.

Section 14 - Transportation Information

Special Shipping Information:

No special Department of transportation (DOT) regulations pertaining to this product.

Section 15 - Regulatory Information

WHMIS Classification:

No information available for this product. All components of this product are listed on the Canadian Disclosure List.

OSHA:

Air contaminants, 29 CFR 1910.1000
Hazard Communication Standard, 29 CFR 1910.1200

SARA:

* **SARA Title III, Section 313, Toxic Chemical.** These chemicals are subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and 40 CFR 372. Please note if you repackage or otherwise redistribute this product to industrial customers, a notice similar to this one must be sent to those customers.

+ Regulated, under Section 313, as fume or dust.

You may obtain additional information by calling the EPA SARA Title III Hotline at 1-800-535-0202 (or 703 412 9810).

TSCA:

All components of this product are listed on the Toxic Substance Control Act inventory

Section 16 - Other Information

MSDS History:

Supersedes: Oct 18, 2005
Revision: Nov 20, 2008
Revision: Nov 23, 2011

Key-Legend:

ACGIH	American Conference of Governmental Industrial Hygienists
CAS	Chemical Abstract Service
DOT	Department of Transportation
DSL	Domestic Substances List (Canada)
EPA	Environmental Protection Act
IARC	International Agency for Research on Cancer
LC ₅₀	Lethal concentration (50 percent kill)
LD ₅₀	Lethal dose (50 percent kill)
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TSCA	Toxic Substance Control Act
TWA	Time Weighted Average
WHMIS	Workplace Hazardous Materials Information System

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g, gm	gram
kg	kilogram
mg	milligram
ppm	parts per million
ug	microgram

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This document has been prepared solely for the intent of compliance with the provisions of Subpart 2 of Part 1910 of title 29 of the Code of Federal Regulations, paragraph 1910.1200.