

Section 1. Identification

Product name : Lenox® Saw Blades

Material uses : Building and construction work

Manufacturer : Lenox Tools
301 Chestnut Street
East Longmeadow, MA 01028

Emergency telephone number (with hours of operation) : CHEMTREC (U.S. and Canada) 1-800-424-9300
CHEMTREC (Outside the U.S.) +1-703-527-0585

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Lenox saw blades are manufactured from metals into solid, stable and inert blades, and are coated with a water-based paint(s). Under normal sawing conditions, the saw blades are considered to be articles in that they do not release more than very small quantities of hazardous chemicals and do not cause physical or health hazards as defined in the OSHA Hazard Communication Standard. Hazardous chemicals may be released if the blades are welded, cut, grinded, melted or otherwise physically altered. This SDS was prepared to address the potential for exposure to dust and/or fume generated from the saw blade. Beyond the scope of this MSDS, the material being cut may contain hazardous chemicals and therefore needs to be evaluated with effective controls instituted to prevent exposure.

Classification of the substance or mixture : SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2B
RESPIRATORY SENSITIZATION - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 100%

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Causes eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Suspected of causing cancer.
Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. In case of inadequate ventilation wear respiratory protection. Do not breathe dust. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

Section 2. Hazards identification

- Response** : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Storage** : Store locked up.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

| Ingredient name | % | CAS number |
|-----------------|---------|------------|
| cobalt | 10 - 20 | 7440-48-4 |
| tungsten | 5 - 10 | 7440-33-7 |
| silicon | 0.1 - 2 | 7440-21-3 |
| nickel | 0.1 - 2 | 7440-02-0 |
| manganese | 0.1 - 2 | 7439-96-5 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes eye irritation.
- Inhalation** : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
wheezing and breathing difficulties
asthma
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

- Specific hazards arising from the chemical** : No specific fire or explosion hazard.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
metal oxide/oxides

Section 5. Fire-fighting measures

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

| Ingredient name | Exposure limits |
|-----------------|---|
| cobalt | <p>ACGIH TLV (United States, 4/2014). TWA: 0.02 mg/m³, (as Co) 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 0.05 mg/m³, (as Co) 8 hours.</p> <p>NIOSH REL (United States, 10/2013). TWA: 0.05 mg/m³, (as Co) 10 hours. Form: Dust and fumes</p> |
| tungsten | <p>OSHA PEL (United States, 2/2013). TWA: 0.1 mg/m³, (as Co) 8 hours.</p> <p>ACGIH TLV (United States, 4/2014). TWA: 5 mg/m³, (as W) 8 hours. STEL: 10 mg/m³, (as W) 15 minutes.</p> <p>NIOSH REL (United States, 10/2013). TWA: 5 mg/m³, (as W) 10 hours. STEL: 10 mg/m³, (as W) 15 minutes.</p> |
| silicon | <p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust</p> <p>NIOSH REL (United States, 10/2013). TWA: 5 mg/m³ 10 hours. Form: Respirable fraction TWA: 10 mg/m³ 10 hours. Form: Total</p> <p>OSHA PEL (United States, 2/2013). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction</p> |
| nickel | <p>TWA: 15 mg/m³ 8 hours. Form: Total dust</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1 mg/m³, (as Ni) 8 hours.</p> <p>NIOSH REL (United States, 10/2013). TWA: 0.015 mg/m³, (as Ni) 10 hours.</p> <p>ACGIH TLV (United States, 4/2014). TWA: 1.5 mg/m³ 8 hours. Form: Inhalable fraction</p> <p>OSHA PEL (United States, 2/2013). TWA: 1 mg/m³, (as Ni) 8 hours.</p> |
| manganese | <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1 mg/m³, (as Mn) 8 hours. Form: Fume STEL: 3 mg/m³, (as Mn) 15 minutes. Form: Fume</p> <p>NIOSH REL (United States, 10/2013). TWA: 1 mg/m³, (as Mn) 10 hours. Form: Fume STEL: 3 mg/m³, (as Mn) 15 minutes. Form: Fume</p> <p>OSHA PEL (United States, 2/2013). CEIL: 5 mg/m³, (as Mn) Form: Fume</p> <p>ACGIH TLV (United States, 4/2014). TWA: 0.1 mg/m³, (as Mn) 8 hours. Form: Inhalable fraction TWA: 0.02 mg/m³, (as Mn) 8 hours. Form: Respirable fraction</p> |

Appropriate engineering controls

: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Section 8. Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. , ANSI Z87.1 approved eye protection needs to be worn when the potential for eye contact with saw blades, dusts, or fumes exists. At a minimum, side shields on ANSI Z87 safety spectacles must be worn.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Use strong, cut-resistant gloves suitable for handling metals.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. NIOSH approved respirators with P-100 filters should be worn when the potential for exposure to metal particulates is anticipated to be in the range of or above respective occupational exposure limits.

Section 9. Physical and chemical properties

Appearance

Physical state : Solid.
Color : Not available.
Odor : Not available.
Odor threshold : Not available.
pH : Not available.
Melting point : Not available.
Boiling point : Not available.
Flash point : Not available.
Burning time : Not available.
Burning rate : Not available.
Evaporation rate : Not available.
Flammability (solid, gas) : Not available.

Section 9. Physical and chemical properties

| | |
|---|------------------|
| Lower and upper explosive (flammable) limits | : Not available. |
| Vapor pressure | : Not available. |
| Vapor density | : Not available. |
| Relative density | : 8 |
| Solubility | : Not available. |
| Solubility in water | : Not available. |
| Partition coefficient: n-octanol/water | : Not available. |
| Auto-ignition temperature | : Not available. |
| Decomposition temperature | : Not available. |
| SADT | : Not available. |
| Viscosity | : Not available. |

Section 10. Stability and reactivity

| | |
|---|--|
| Reactivity | : No specific test data related to reactivity available for this product or its ingredients. |
| Chemical stability | : The product is stable. |
| Possibility of hazardous reactions | : Under normal conditions of storage and use, hazardous reactions will not occur. |
| Conditions to avoid | : No specific data. |
| Incompatible materials | : Oxidizers; strong acids |
| Hazardous decomposition products | : Metallic oxides. Metal fumes from welding, burning, or melting operations. |

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|-----------|---------|------------|----------|
| silicon | LD50 Oral | Rat | 3160 mg/kg | - |
| manganese | LD50 Oral | Rat | 9 g/kg | - |

Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|-------------------------|----------------------|---------|-------|-------------------------|-------------|
| tungsten | Eyes - Mild irritant | Rabbit | - | 24 hours 500 milligrams | - |
| | Skin - Mild irritant | Rabbit | - | 24 hours 500 milligrams | - |
| silicon manganese | Eyes - Mild irritant | Rabbit | - | 3 milligrams | - |
| | Eyes - Mild irritant | Rabbit | - | 24 hours 500 milligrams | - |
| | Skin - Mild irritant | Rabbit | - | 24 hours 500 milligrams | - |

Sensitization

No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Section 11. Toxicological information

Carcinogenicity

Classification

| Product/ingredient name | OSHA | IARC | NTP |
|-------------------------|------|------|--|
| cobalt | - | 2B | - |
| nickel | - | 2B | Reasonably anticipated to be a human carcinogen. |

Reproductive toxicity

No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

No known significant effects or critical hazards.

Specific target organ toxicity (repeated exposure)

| Name | Category | Route of exposure | Target organs |
|--------|------------|-------------------|----------------|
| nickel | Category 1 | Not determined | Not determined |

Aspiration hazard

No known significant effects or critical hazards.

Information on the likely routes of exposure : Not available.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Causes eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Potential delayed effects : May cause an allergic skin reaction.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure.

Potential chronic health effects

General : Causes damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

| Route | ATE value |
|-------|------------|
| Oral | 6320 mg/kg |

Section 12. Ecological information

Toxicity

| Product/ingredient name | Result | Species | Exposure |
|-------------------------|------------------------------------|--|----------|
| cobalt | Acute LC50 4400 µg/l | Daphnia - Daphnia magna | 48 hours |
| nickel | Acute LC50 3.4 mg/l Fresh water | Fish - Pimephales promelas | 96 hours |
| | Acute EC50 2 ppm Marine water | Algae - Macrocystis pyrifera - Young | 4 days |
| manganese | Acute EC50 450 µg/l Fresh water | Aquatic plants - Lemna minor | 4 days |
| | Acute EC50 1000 µg/l Marine water | Daphnia - Daphnia magna | 48 hours |
| | Acute IC50 0.31 mg/l Marine water | Crustaceans - Americamysis bahia - Juvenile (Fledgling, Hatchling, Weanling) | 48 hours |
| | Acute LC50 47.5 ng/L Fresh water | Fish - Heteropneustes fossilis | 96 hours |
| | Chronic NOEC 100 mg/l Marine water | Algae - Glenodinium halli | 72 hours |
| | Chronic NOEC 3.5 µg/l Fresh water | Fish - Cyprinus carpio | 4 weeks |
| | Acute EC50 31000 µg/l Fresh water | Aquatic plants - Lemna minor | 4 days |
| | Acute LC50 29000 µg/l | Daphnia - Daphnia magna | 48 hours |
| | Acute LC50 28 mg/l Fresh water | Fish - Pimephales promelas | 96 hours |

Persistence and degradability

No known significant effects or critical hazards.

Bioaccumulative potential

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|-------------------------|--------------------|-------|-----------|
| cobalt | - | 15600 | high |
| silicon | 57 to 77 | - | high |

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

| | DOT Classification | TDG Classification | Mexico Classification | IMDG | IATA |
|--------------------------------|---|--|--|--|--|
| UN number | UN3077 | UN3077 | UN3077 | UN3077 | UN3077 |
| UN proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Nickel) RQ (Nickel) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Aluminium powder (stabilized), iron). Marine pollutant | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (iron, Aluminium powder (stabilized)) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (iron, Aluminium powder (stabilized)). Marine pollutant | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (iron, Aluminium powder (stabilized)) |

Section 14. Transport information

| | | | | | |
|-----------------------------------|--|---|---|--|---|
| | | | | (iron, Aluminium powder (stabilized)) | |
| Transport hazard class(es) | 9  | 9  | 9  | 9  | 9  |
| Packing group | III | III | III | III | III |
| Environmental hazards | Yes. | Yes. | Yes. | Yes. | Yes. |
| Additional information | <p>Reportable quantity 5050.5 lbs / 2292.9 kg</p> <p>The classification of the product is due solely to the presence of one or more US DOT-listed 'Hazardous substances' that are subject to reportable quantity requirements and only applies to shipments of packages greater than, or equal to, the product reportable quantity. Package sizes less than the product reportable quantity are not regulated as hazardous materials.</p> | <p>The product is not regulated as a dangerous good when transported by road or rail.</p> | <p>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> | <p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> | <p>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> |

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b):** All components are listed or exempted.

SARA 311/312

Classification : Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Section 15. Regulatory information

| Name | % | Fire hazard | Sudden release of pressure | Reactive | Immediate (acute) health hazard | Delayed (chronic) health hazard |
|-----------|---------|-------------|----------------------------|----------|---------------------------------|---------------------------------|
| cobalt | 10 - 20 | No. | No. | No. | Yes. | Yes. |
| tungsten | 5 - 10 | No. | No. | No. | Yes. | No. |
| silicon | 0.1 - 2 | No. | No. | No. | Yes. | No. |
| nickel | 0.1 - 2 | No. | No. | No. | Yes. | Yes. |
| manganese | 0.1 - 2 | No. | No. | No. | Yes. | No. |

SARA 313

| | Product name | CAS number | % |
|--|-------------------------------|-------------------------------|-----------|
| Form R - Reporting requirements | Aluminium powder (stabilized) | 7429-90-5 | 20 - 40 |
| | cobalt | 7440-48-4 | 10 - 20 |
| | chromium | 7440-47-3 | 2 - 5 |
| | vanadium | 7440-62-2 | 2 - 5 |
| | manganese | 7439-96-5 | 0.1 - 2 |
| | Nickel | 7440-02-0 | 0.1 - 2 |
| | Supplier notification | Aluminium powder (stabilized) | 7429-90-5 |
| cobalt | | 7440-48-4 | 10 - 20 |
| chromium | | 7440-47-3 | 2 - 5 |
| vanadium | | 7440-62-2 | 2 - 5 |
| manganese | | 7439-96-5 | 0.1 - 2 |
| Nickel | | 7440-02-0 | 0.1 - 2 |

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

| Ingredient name | Cancer | Reproductive | No significant risk level | Maximum acceptable dosage level |
|-----------------|--------|--------------|---------------------------|---------------------------------|
| cobalt | Yes. | No. | No. | No. |
| Nickel | Yes. | No. | No. | No. |

Canada

WHMIS (Canada) : Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI : The following components are listed: Aluminum (fume or dust only); Cobalt (and its compounds); Chromium (and its compounds); Vanadium (and its compounds); Manganese (and its compounds); Nickel (and its compounds)

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date of revision : 4/2/2015.
Date of previous issue : No previous validation.
Version : 1
Prepared by : Product Safety.

Section 16. Other information

Key to abbreviations

: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations

▣ Indicates information that has changed from previously issued version.

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations. The mixture must not be used for other uses than those specified in section 1 without having first obtained written handling instructions. It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations. The information in this safety data sheet must be regarded as a description of the safety requirements relating to the mixture and not as a guarantee of the properties thereof.

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Material uses : Building and construction work

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East Longmeadow, MA 01028

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CHEMTREC (Outside the U.S.) +1-703-527-0585

Section 2. Hazards identification

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RESPIRATORY SENSITIZATION - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 100%

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Causes eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Suspected of causing cancer.
Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. In case of inadequate ventilation wear respiratory protection. Do not breathe dust. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

Section 2. Hazards identification

- Response** : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Storage** : Store locked up.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

| Ingredient name | % | CAS number |
|-----------------|---------|------------|
| cobalt | 10 - 20 | 7440-48-4 |
| tungsten | 5 - 10 | 7440-33-7 |
| silicon | 0.1 - 2 | 7440-21-3 |
| nickel | 0.1 - 2 | 7440-02-0 |
| manganese | 0.1 - 2 | 7439-96-5 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes eye irritation.
- Inhalation** : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
wheezing and breathing difficulties
asthma
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

- Specific hazards arising from the chemical** : No specific fire or explosion hazard.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
metal oxide/oxides

Section 5. Fire-fighting measures

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

[Control parameters](#)

[Occupational exposure limits](#)

| Ingredient name | Exposure limits |
|-----------------|---|
| cobalt | <p>ACGIH TLV (United States, 4/2014). TWA: 0.02 mg/m³, (as Co) 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 0.05 mg/m³, (as Co) 8 hours.</p> <p>NIOSH REL (United States, 10/2013). TWA: 0.05 mg/m³, (as Co) 10 hours. Form: Dust and fumes</p> |
| tungsten | <p>OSHA PEL (United States, 2/2013). TWA: 0.1 mg/m³, (as Co) 8 hours.</p> <p>ACGIH TLV (United States, 4/2014). TWA: 5 mg/m³, (as W) 8 hours. STEL: 10 mg/m³, (as W) 15 minutes.</p> <p>NIOSH REL (United States, 10/2013). TWA: 5 mg/m³, (as W) 10 hours. STEL: 10 mg/m³, (as W) 15 minutes.</p> |
| silicon | <p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust</p> <p>NIOSH REL (United States, 10/2013). TWA: 5 mg/m³ 10 hours. Form: Respirable fraction TWA: 10 mg/m³ 10 hours. Form: Total</p> <p>OSHA PEL (United States, 2/2013). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction</p> |
| nickel | <p>TWA: 15 mg/m³ 8 hours. Form: Total dust</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1 mg/m³, (as Ni) 8 hours.</p> <p>NIOSH REL (United States, 10/2013). TWA: 0.015 mg/m³, (as Ni) 10 hours.</p> <p>ACGIH TLV (United States, 4/2014). TWA: 1.5 mg/m³ 8 hours. Form: Inhalable fraction</p> <p>OSHA PEL (United States, 2/2013). TWA: 1 mg/m³, (as Ni) 8 hours.</p> |
| manganese | <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1 mg/m³, (as Mn) 8 hours. Form: Fume STEL: 3 mg/m³, (as Mn) 15 minutes. Form: Fume</p> <p>NIOSH REL (United States, 10/2013). TWA: 1 mg/m³, (as Mn) 10 hours. Form: Fume STEL: 3 mg/m³, (as Mn) 15 minutes. Form: Fume</p> <p>OSHA PEL (United States, 2/2013). CEIL: 5 mg/m³, (as Mn) Form: Fume</p> <p>ACGIH TLV (United States, 4/2014). TWA: 0.1 mg/m³, (as Mn) 8 hours. Form: Inhalable fraction TWA: 0.02 mg/m³, (as Mn) 8 hours. Form: Respirable fraction</p> |

[Appropriate engineering controls](#)

: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Section 8. Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. , ANSI Z87.1 approved eye protection needs to be worn when the potential for eye contact with saw blades, dusts, or fumes exists. At a minimum, side shields on ANSI Z87 safety spectacles must be worn.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Use strong, cut-resistant gloves suitable for handling metals.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. NIOSH approved respirators with P-100 filters should be worn when the potential for exposure to metal particulates is anticipated to be in the range of or above respective occupational exposure limits.

Section 9. Physical and chemical properties

Appearance

Physical state : Solid.
Color : Not available.
Odor : Not available.
Odor threshold : Not available.
pH : Not available.
Melting point : Not available.
Boiling point : Not available.
Flash point : Not available.
Burning time : Not available.
Burning rate : Not available.
Evaporation rate : Not available.
Flammability (solid, gas) : Not available.

Section 9. Physical and chemical properties

| | |
|---|------------------|
| Lower and upper explosive (flammable) limits | : Not available. |
| Vapor pressure | : Not available. |
| Vapor density | : Not available. |
| Relative density | : 8 |
| Solubility | : Not available. |
| Solubility in water | : Not available. |
| Partition coefficient: n-octanol/water | : Not available. |
| Auto-ignition temperature | : Not available. |
| Decomposition temperature | : Not available. |
| SADT | : Not available. |
| Viscosity | : Not available. |

Section 10. Stability and reactivity

| | |
|---|--|
| Reactivity | : No specific test data related to reactivity available for this product or its ingredients. |
| Chemical stability | : The product is stable. |
| Possibility of hazardous reactions | : Under normal conditions of storage and use, hazardous reactions will not occur. |
| Conditions to avoid | : No specific data. |
| Incompatible materials | : Oxidizers; strong acids |
| Hazardous decomposition products | : Metallic oxides. Metal fumes from welding, burning, or melting operations. |

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|-----------|---------|------------|----------|
| silicon | LD50 Oral | Rat | 3160 mg/kg | - |
| manganese | LD50 Oral | Rat | 9 g/kg | - |

Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|-------------------------|----------------------|---------|-------|-------------------------|-------------|
| tungsten | Eyes - Mild irritant | Rabbit | - | 24 hours 500 milligrams | - |
| | Skin - Mild irritant | Rabbit | - | 24 hours 500 milligrams | - |
| silicon manganese | Eyes - Mild irritant | Rabbit | - | 3 milligrams | - |
| | Eyes - Mild irritant | Rabbit | - | 24 hours 500 milligrams | - |
| | Skin - Mild irritant | Rabbit | - | 24 hours 500 milligrams | - |

Sensitization

No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Section 11. Toxicological information

Carcinogenicity

Classification

| Product/ingredient name | OSHA | IARC | NTP |
|-------------------------|------|------|--|
| cobalt | - | 2B | - |
| nickel | - | 2B | Reasonably anticipated to be a human carcinogen. |

Reproductive toxicity

No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

No known significant effects or critical hazards.

Specific target organ toxicity (repeated exposure)

| Name | Category | Route of exposure | Target organs |
|--------|------------|-------------------|----------------|
| nickel | Category 1 | Not determined | Not determined |

Aspiration hazard

No known significant effects or critical hazards.

Information on the likely routes of exposure : Not available.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Causes eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Potential delayed effects : May cause an allergic skin reaction.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure.

Potential chronic health effects

General : Causes damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

| Route | ATE value |
|-------|------------|
| Oral | 6320 mg/kg |

Section 12. Ecological information

Toxicity

| Product/ingredient name | Result | Species | Exposure |
|-------------------------|------------------------------------|--|----------|
| cobalt | Acute LC50 4400 µg/l | Daphnia - Daphnia magna | 48 hours |
| nickel | Acute LC50 3.4 mg/l Fresh water | Fish - Pimephales promelas | 96 hours |
| | Acute EC50 2 ppm Marine water | Algae - Macrocystis pyrifera - Young | 4 days |
| manganese | Acute EC50 450 µg/l Fresh water | Aquatic plants - Lemna minor | 4 days |
| | Acute EC50 1000 µg/l Marine water | Daphnia - Daphnia magna | 48 hours |
| | Acute IC50 0.31 mg/l Marine water | Crustaceans - Americamysis bahia - Juvenile (Fledgling, Hatchling, Weanling) | 48 hours |
| | Acute LC50 47.5 ng/L Fresh water | Fish - Heteropneustes fossilis | 96 hours |
| | Chronic NOEC 100 mg/l Marine water | Algae - Glenodinium halli | 72 hours |
| | Chronic NOEC 3.5 µg/l Fresh water | Fish - Cyprinus carpio | 4 weeks |
| | Acute EC50 31000 µg/l Fresh water | Aquatic plants - Lemna minor | 4 days |
| | Acute LC50 29000 µg/l | Daphnia - Daphnia magna | 48 hours |
| | Acute LC50 28 mg/l Fresh water | Fish - Pimephales promelas | 96 hours |

Persistence and degradability

No known significant effects or critical hazards.

Bioaccumulative potential

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|-------------------------|--------------------|-------|-----------|
| cobalt | - | 15600 | high |
| silicon | 57 to 77 | - | high |

Other adverse effects : No known significant effects or critical hazards.


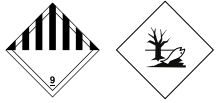
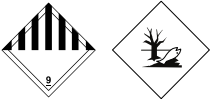
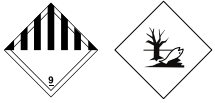
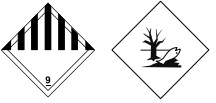
Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

| | DOT Classification | TDG Classification | Mexico Classification | IMDG | IATA |
|--------------------------------|---|--|--|--|--|
| UN number | UN3077 | UN3077 | UN3077 | UN3077 | UN3077 |
| UN proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Nickel) RQ (Nickel) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Aluminium powder (stabilized), iron). Marine pollutant | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (iron, Aluminium powder (stabilized)) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (iron, Aluminium powder (stabilized)). Marine pollutant | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (iron, Aluminium powder (stabilized)) |

Section 14. Transport information

| | | | | | |
|-----------------------------------|--|---|---|--|---|
| | | | | (iron, Aluminium powder (stabilized)) | |
| Transport hazard class(es) | 9  | 9  | 9  | 9  | 9  |
| Packing group | III | III | III | III | III |
| Environmental hazards | Yes. | Yes. | Yes. | Yes. | Yes. |
| Additional information | <p>Reportable quantity 5050.5 lbs / 2292.9 kg</p> <p>The classification of the product is due solely to the presence of one or more US DOT-listed 'Hazardous substances' that are subject to reportable quantity requirements and only applies to shipments of packages greater than, or equal to, the product reportable quantity. Package sizes less than the product reportable quantity are not regulated as hazardous materials.</p> | <p>The product is not regulated as a dangerous good when transported by road or rail.</p> | <p>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> | <p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> | <p>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> |

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b):** All components are listed or exempted.

SARA 311/312

Classification : Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Section 15. Regulatory information

| Name | % | Fire hazard | Sudden release of pressure | Reactive | Immediate (acute) health hazard | Delayed (chronic) health hazard |
|-----------|---------|-------------|----------------------------|----------|---------------------------------|---------------------------------|
| cobalt | 10 - 20 | No. | No. | No. | Yes. | Yes. |
| tungsten | 5 - 10 | No. | No. | No. | Yes. | No. |
| silicon | 0.1 - 2 | No. | No. | No. | Yes. | No. |
| nickel | 0.1 - 2 | No. | No. | No. | Yes. | Yes. |
| manganese | 0.1 - 2 | No. | No. | No. | Yes. | No. |

SARA 313

| | Product name | CAS number | % |
|--|-------------------------------|-------------------------------|-----------|
| Form R - Reporting requirements | Aluminium powder (stabilized) | 7429-90-5 | 20 - 40 |
| | cobalt | 7440-48-4 | 10 - 20 |
| | chromium | 7440-47-3 | 2 - 5 |
| | vanadium | 7440-62-2 | 2 - 5 |
| | manganese | 7439-96-5 | 0.1 - 2 |
| | Nickel | 7440-02-0 | 0.1 - 2 |
| | Supplier notification | Aluminium powder (stabilized) | 7429-90-5 |
| cobalt | | 7440-48-4 | 10 - 20 |
| chromium | | 7440-47-3 | 2 - 5 |
| vanadium | | 7440-62-2 | 2 - 5 |
| manganese | | 7439-96-5 | 0.1 - 2 |
| Nickel | | 7440-02-0 | 0.1 - 2 |

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

| Ingredient name | Cancer | Reproductive | No significant risk level | Maximum acceptable dosage level |
|-----------------|--------|--------------|---------------------------|---------------------------------|
| cobalt | Yes. | No. | No. | No. |
| Nickel | Yes. | No. | No. | No. |

Canada

WHMIS (Canada) : Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI : The following components are listed: Aluminum (fume or dust only); Cobalt (and its compounds); Chromium (and its compounds); Vanadium (and its compounds); Manganese (and its compounds); Nickel (and its compounds)

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date of revision : 4/2/2015.
Date of previous issue : No previous validation.
Version : 1
Prepared by : Product Safety.

Section 16. Other information

Key to abbreviations

: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations

▣ Indicates information that has changed from previously issued version.

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations. The mixture must not be used for other uses than those specified in section 1 without having first obtained written handling instructions. It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations. The information in this safety data sheet must be regarded as a description of the safety requirements relating to the mixture and not as a guarantee of the properties thereof.