Section 1: Identification

Product identifier
Product Name • Nickel Alloys Bare Welding Wire
Product Description • CWR-600, CWR-601, CWR-625, CWR-825, CWR-276, CWR-617

Details of the supplier of the safety data sheet
Manufacturer • Central Wire Industries Ltd.
1 North Street
Perth, Ontario K7H 2S2 Canada
http://www.centralwire.com

Manufacturing Locations
US Locations: Lancaster, South Carolina
Canada Locations: Perth, Ontario
United Kingdom Location: Rotherham, South Yorkshire, England

Emergency telephone number
Manufacturer • 613-326-3006

Section 2: Hazard Identification

Classification of the mixture in accordance with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), OSHA Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Controlled Products Regulations.

- This product is generally an article and is considered non-hazardous in its solid form, but is regulated under OSHA for the release of dust and fumes during mechanical processing operations.

<table>
<thead>
<tr>
<th>Skin Sensitization 1B</th>
<th>H317</th>
<th>STOT-SE 3 (Resp. Irritation)</th>
<th>H335</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Irritation 2</td>
<td>H315</td>
<td>STOT-SE 1</td>
<td>H370</td>
</tr>
<tr>
<td>Eye Irritation 2</td>
<td>H320</td>
<td>Respiratory Sensitization 1B</td>
<td>H334</td>
</tr>
<tr>
<td>Carcinogenicity 1B</td>
<td>H350</td>
<td>Combustible Dust</td>
<td></td>
</tr>
<tr>
<td>STOT RE 1</td>
<td>H372</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Label elements

DANGER

Hazard statements • There are no health hazards from nickel alloys bare welding wire in solid form. Exposure to dust and/or fumes from processing such as burning, welding, sawing, brazing and grinding may cause serious health effects.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause respiratory irritation.
May cause cancer.
Causes damage to organs - lungs via inhalation.
Causes damage to organs - lungs through prolonged or repeated exposure via inhalation.
May form combustible dust concentrations in air.

Precautionary statements

Prevention • Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing dusts, fumes and gasses.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves and protective clothing to prevent injury from radiation, sparks and electrical shock. Wear helmet or use face shield with filter lens shade number 12. Shield others by providing screens or flash goggles.
In case of inadequate ventilation wear respiratory protection.

Response • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF exposed or concerned: Get medical advice/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 advice/attention.
IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.

Storage/Disposal • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. Refer to manufacturer/supplier for information on recovery/recycling.

Other hazards
• No additional information available.

Other information

NFPA • Health = 1, Flammability = 0, Special Information = None
HMIS • Health = 1*, Flammability = 0, Reactivity = 0, PPE = E
* Chronic Health Hazard
E = Safety glasses, gloves and respirator if above exposure levels

Section 3 - Composition/Information on Ingredients

Mixtures
Nickel alloys products in their solid state are not considered hazardous. However, operations such as burning, welding, sawing, brazing or grinding may release dust and/or fumes, which may present health hazards. These elements may appear in some or various combinations in any particular grade of stainless steel.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Identifiers</th>
<th>%</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>CAS: 7429-90-5</td>
<td>&lt; 4%</td>
<td>Yes</td>
</tr>
<tr>
<td>Chromium*</td>
<td>CAS: 7440-47-3</td>
<td>&lt; 25%</td>
<td>Yes</td>
</tr>
<tr>
<td>Cobalt</td>
<td>CAS: 7440-48-4</td>
<td>&lt; 15%</td>
<td>Yes</td>
</tr>
<tr>
<td>Copper</td>
<td>CAS: 7440-50-8</td>
<td>&lt; 35%</td>
<td>Yes</td>
</tr>
<tr>
<td>Iron</td>
<td>CAS: 7439-89-6</td>
<td>&lt; 25%</td>
<td>No</td>
</tr>
<tr>
<td>Manganese</td>
<td>CAS: 7439-96-5</td>
<td>&lt; 6%</td>
<td>Yes</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>CAS: 7439-98-7</td>
<td>&lt; 34%</td>
<td>No</td>
</tr>
<tr>
<td>Nickel</td>
<td>CAS: 7440-02-0</td>
<td>&lt; 99%</td>
<td>Yes</td>
</tr>
<tr>
<td>Silicon</td>
<td>CAS: 7440-21-3</td>
<td>&lt; 3%</td>
<td>Yes</td>
</tr>
<tr>
<td>Niobium (Columbium)</td>
<td>CAS: 7440-03-1</td>
<td>&lt; 6%</td>
<td>Yes</td>
</tr>
<tr>
<td>Tungsten</td>
<td>CAS: 7440-33-7</td>
<td>&lt; 5%</td>
<td>Yes</td>
</tr>
<tr>
<td>Vanadium</td>
<td>CAS: 7440-62-2</td>
<td>&lt; 0.5%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Nickel alloy products as provided contain chromium metal in the zero valence state. As such, chromium metal does not present an unusual health hazard. However, operations such as burning, welding, sawing, brazing or grinding may generate airborne concentrations of hexavalent chromium.
Section 4: First-Aid Measures

Description of first aid measures

Inhalation • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin • If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Eye • 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 advice/attention.

Ingestion • Low hazard for usual industrial or commercial handling. Get medical attention if symptoms occur.

Most important symptoms and effects, both acute and delayed

• Refer to Section 11 - Toxicological Information.

Section 5: Fire-Fighting Measures

Extinguishing media

Suitable Extinguishing Media • For solid formed alloys, as appropriate for surrounding fire. A fire involving finely divided alloy should be treated as a Class D metal fire. Use DRY sand, graphite powder, dry sodium chloride based extinguishers, G-1 or Met-L-X powder.

Unsuitable Extinguishing Media • Do not use halogenated extinguishing agents or foam.

Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards • Nickel alloys products in the form shipped are not considered combustible. During subsequent processing (cutting, welding, grinding, etc.), the generation of dust in high concentrations may present fire and explosion hazards.

Hazardous Combustion Products • May produce hazardous metal fumes.

Advice for firefighters

• Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions • No data available

Emergency Procedures • Solid Form: Not Applicable. In dusty environment, ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Clean up using methods which avoid dust generation. Compressed air should not be used. During cleanup avoid inhalation and skin and eye contact. Provide local exhaust or dilution ventilation as required.

Environmental precautions

• No data available.

Methods and material for containment and cleaning up

Containment/Clean-up Measures • Use appropriate Personal Protective Equipment (PPE)

Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.

Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid
dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

**Section 7 - Handling and Storage**

**Precautions for safe handling**

**Handling**
- Welding may produce dust, fumes, and gases hazardous to health. Do not breathe (dust or fumes). Do not use in areas without adequate ventilation. Do not eat, drink and smoke in work areas. Use good safety and industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**

**Storage**
- Do not store and transport with oxidizers, acids, etc.

**Special Packaging Materials**
- None for solid stainless steel product.

**Incompatible Materials**
- Oxidizers. Reacts with strong acids to form explosive hydrogen gas and oxides of nitrogen. or Ignition Sources

**Section 8 - Exposure Controls/Personal Protection**

**Control parameters**

**Exposure Limits/Guidelines**
- No data available on product. Individual elements may be emitted during processing.

<table>
<thead>
<tr>
<th>Element</th>
<th>Result</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanadium (7440-62-2)</td>
<td>TWAs</td>
<td>Not established</td>
<td>1 mg/m³ TWA (listed under Ferrovanadium dust)</td>
<td>Not established</td>
</tr>
<tr>
<td>Aluminum (7429-90-5)</td>
<td>TWAs</td>
<td>1 mg/m³ TWA (respirable fraction)</td>
<td>10 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable dust)</td>
<td>15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)</td>
</tr>
<tr>
<td>Silicon (7440-21-3)</td>
<td>TWAs</td>
<td>Not established</td>
<td>10 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable dust)</td>
<td>15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)</td>
</tr>
<tr>
<td>Tungsten (7440-33-7)</td>
<td>TWAs</td>
<td>5 mg/m³ TWA</td>
<td>5 mg/m³ TWA</td>
<td>Not established</td>
</tr>
<tr>
<td>Manganese (7439-96-5)</td>
<td>TWAs</td>
<td>0.02 mg/m³ TWA (respirable fraction); 0.1 mg/m³ TWA (inhalable fraction)</td>
<td>1 mg/m³ TWA (fume)</td>
<td>Not established</td>
</tr>
<tr>
<td>Molybdenum (7439-98-7)</td>
<td>TWAs</td>
<td>10 mg/m³ TWA (inhalable fraction); 3 mg/m³ TWA (respirable fraction)</td>
<td>Not established</td>
<td>Not established</td>
</tr>
<tr>
<td>Chromium (7440-47-3)</td>
<td>TWAs</td>
<td>0.5 mg/m³ TWA</td>
<td>0.5 mg/m³ TWA</td>
<td>1 mg/m³ TWA</td>
</tr>
<tr>
<td>Cobalt (7440-48-4)</td>
<td>TWAs</td>
<td>0.02 mg/m³ TWA</td>
<td>0.05 mg/m³ TWA (dust and fume)</td>
<td>0.1 mg/m³ TWA (dust and fume)</td>
</tr>
<tr>
<td>Nickel (7440-02-0)</td>
<td>TWAs</td>
<td>1.5 mg/m³ TWA (inhalable fraction)</td>
<td>0.015 mg/m³ TWA</td>
<td>1 mg/m³ TWA</td>
</tr>
</tbody>
</table>

**Exposure controls**

**Engineering Measures/Controls**
- Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values. Use only appropriately classified electrical equipment.

**Personal Protective Equipment**

**Pictograms**
- 🏖️ 🍷 🎩

**Respiratory**
- Use of a NIOSH/MSHA approved fume respirator is recommended where airborne concentrations exceed appropriate PELs and TLVs.

**Eye/Face**
- Wear helmet or use face shield with filter lens shade number 12 or darker for open arc
processes. No specific lens shade recommendation for submerged arc processes. Shield others by providing screens or flash goggles.

**Hands**
- Wear protective gloves - suitable for protection against physical injury and skin contact during handling and processing.

**Skin/Body**
- Wear protective clothing - such as arm protectors, aprons, which help to prevent injury from radiation, sparks and electrical shock. See Z.49.1.

**General Industrial Hygiene Considerations**
- Practice good housekeeping and do not eat, drink or smoke when using the product.
- Maintain, clean, and fit test respirators in accordance with OSHA regulations. Provide readily accessible eyewash stations. Determine the composition and quantity of fume and gases to which workers are exposed by taking an air sample inside the welder’s helmet if worn or in the worker’s breathing zone. Improve ventilation if exposures are not below limits.

**Environmental Exposure Controls**
- No data available

---

**Section 9 - Physical and Chemical Properties**

### Information on Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Physical Form</th>
<th>Solid</th>
<th>Appearance/Description</th>
<th>Solid wire of various grades.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Color</strong></td>
<td></td>
<td>Silver-gray metallic</td>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td><strong>Taste</strong></td>
<td>No data available</td>
<td>Particulate Type</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td><strong>Particulate Size</strong></td>
<td>No data available</td>
<td>Aerosol Type</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>No data available</td>
<td>Physical and Chemical Properties</td>
<td>No data available</td>
<td></td>
</tr>
</tbody>
</table>

**Boiling Point**
- No data available

**Decomposition Temperature**
- No data available

**Heat of Decomposition**
- No data available

**pH**
- No data available

**Specific Gravity/Relative Density**
- No data available

**Density**
- No data available

**Water Solubility**
- Insoluble

**Solvent Solubility**
- No data available

**Viscosity**
- No data available

**Explosive Properties**
- No data available

**Oxidizing Properties:**
- No data available

**Vapor Pressure**
- No data available

**Evaporation Rate**
- No data available

**VOC (Vol.)**
- No data available

**Volatile (Vol.)**
- No data available

**Flash Point**
- No data available

**UEL**
- No data available

**LEL**
- No data available

**Autoignition**
- No data available

**Self-Accelerating Decomposition Temperature (SADT)**
- No data available

**Heat of Combustion (ΔHc)**
- No data available

**Burning Time**
- No data available

**Flame Height**
- No data available

**Ignition Distance**
- No data available

**Flame Extension**
- No data available

**Flame Duration**
- No data available

**Flammability (solid, gas)**
- Not Applicable.

**Environmental**

**Half-Life**
- No data available

**Octanol/Water Partition coefficient**
- No data available

**Coefficient of water/oil distribution**
- No data available

**Bioaccumulation Factor**
- No data available

**Bioconcentration Factor**
- No data available

**Biochemical Oxygen Demand (BOD/BOD5)**
- No data available

**Chemical Oxygen Demand**
- No data available

**Persistence**
- No data available

**Degradation**
- No data available
Section 10: Stability and Reactivity

Reactivity
- No dangerous reaction known under conditions of normal use.

Chemical stability
- Stable

Possibility of hazardous reactions
- Hazardous polymerization will not occur.

Conditions to avoid
- Incompatible materials.

Incompatible materials
- Oxidizers, strong acids

Hazardous decomposition products
- There is no simple classification of welding fumes and gases. The composition and quantity of fumes and gases are dependent upon the metal being welded, the process, procedure and welding consumables used. When an electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. Reasonably expected gaseous products would include complex oxides of iron, aluminum, manganese, nickel, chromium, titanium, carbon oxides, nitrogen oxides, and ozone. The fume limit for chromium, nickel, vanadium, and/or manganese may be reached before the general welding fume limit of 5 mg/m³ is reached.

Section 11 - Toxicological Information

Information on toxicological effects

Other Material Information
- Toxicological impacts expected to be minimal for products in purchased form. Individual component information is provided below if available.

<table>
<thead>
<tr>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aluminum (&lt; 3.5%)</strong></td>
</tr>
<tr>
<td><strong>Chromium (&lt; 30%)</strong></td>
</tr>
<tr>
<td><strong>Copper (&lt; 34%)</strong></td>
</tr>
<tr>
<td><strong>Manganese (&lt; 10%)</strong></td>
</tr>
<tr>
<td><strong>Molybdenum (&lt; 18%)</strong></td>
</tr>
<tr>
<td><strong>Nickel (&lt; 80%)</strong></td>
</tr>
</tbody>
</table>
Niobium (<6%) 7440-33-7  
**Acute Toxicity:** Ingestion/Oral LDLo • >10 g/kg

Silicon (< 4.5%) 7440-21-3  
**Acute Toxicity:** Ingestion/Oral LD50 • 3160 mg/kg;  
**Irritation:** Eye-Rabbit • 3 mg • Mild irritation

Tungsten (< 6.5%) 7440-33-7  
**Irritation:** Eye-Rabbit • 500 mg 24 Hour(s) • Mild irritation;  
Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation

### GHS Properties

<table>
<thead>
<tr>
<th>Category</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>OSHA HCS 2012•Acute Toxicity - Dermal - Not relevant; Acute Toxicity - Inhalation - No data available; Acute Toxicity - Oral - Not relevant</td>
</tr>
<tr>
<td>Aspiration Hazard</td>
<td>OSHA HCS 2012•Data lacking</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>OSHA HCS 2012•Carcinogenicity 1</td>
</tr>
<tr>
<td>Germ Cell Mutagenicity</td>
<td>OSHA HCS 2012•No data available</td>
</tr>
<tr>
<td>Skin corrosion/Irritation</td>
<td>OSHA HCS 2012•Skin Irritation 2</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>OSHA HCS 2012•Skin Sensitizer 1B</td>
</tr>
<tr>
<td>STOT-RE</td>
<td>OSHA HCS 2012•Specific Target Organ Toxicity Repeated Exposure 1</td>
</tr>
<tr>
<td>STOT-SE</td>
<td>OSHA HCS 2012•Specific Target Organ Toxicity Single Exposure 1; Specific Target Organ Toxicity Single Exposure 3; Respiratory Tract Irritation</td>
</tr>
<tr>
<td>Toxicity for Reproduction</td>
<td>OSHA HCS 2012•Data lacking</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>OSHA HCS 2012•Respiratory Sensitizer 1B</td>
</tr>
<tr>
<td>Serious eye damage/Irritation</td>
<td>OSHA HCS 2012•Eye Irritation 2</td>
</tr>
</tbody>
</table>

### Target Organs

- Skin/Dermal, Lungs, Central Nervous System (CNS), Liver/Hepatotoxin, Kidney/Nephrotoxin, Metal Fume Fever, Nasal Cavity

### Route(s) of entry/exposure

- Dermal contact with and/or inhalation of dust or fumes during welding, cutting, grinding, burning, and other operations. Overexposure to dusts and/or fume generated during processing can pose health hazards as defined below:

### Medical Conditions Aggravated by Exposure

- May aggravate asthma or other respiratory disorders. May aggravate skin disorders.

### Potential Health Effects

#### Inhalation

**Acute (Immediate)**
- May cause respiratory irritation. May cause sensitization. May cause metal fume fever.

**Chronic (Delayed)**
- Prolonged inhalation of dust or fume may cause lung, central nervous system, liver, kidney and nasal cavity damage.

#### Skin

**Acute (Immediate)**
- Causes skin irritation. May cause skin sensitization. Symptoms include redness, and skin rash.

**Chronic (Delayed)**
- Repeated and prolonged exposure may cause irritation. Repeated and prolonged exposure may cause sensitization.

#### Eye

**Acute (Immediate)**
- Exposure to dust and fumes may cause irritation. Exposure to fumes and dusts may cause sensitization and conjunctivitis.

**Chronic (Delayed)**
- Repeated and prolonged exposure to dust and fumes may cause irritation. Repeated and prolonged exposure to dusts and fumes may cause sensitization and conjunctivitis.

#### Ingestion

**Acute (Immediate)**
- Low hazard for usual industrial or commercial handling. Gastrointestinal disturbances including nausea and vomiting may result from ingestion of dusts.

**Chronic (Delayed)**
- Low hazard for usual industrial or commercial handling. Repeated and prolonged exposure may cause gastrointestinal disturbances including nausea and vomiting.
Carcinogenic Effects • No carcinogenic effects resulting from exposure to stainless steels have been reported, either in epidemiological studies or in tests with animals. Stainless steel does contain carcinogenic components above the cut-off threshold amount of 0.1% (nickel and cobalt) and therefore stainless steel (as dusts and fumes) must be classified as a carcinogen.

<table>
<thead>
<tr>
<th>Carcinogenic Effects</th>
<th>CAS</th>
<th>IARC</th>
<th>NTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium 7440-47-3</td>
<td>Group 3-Not Classifiable</td>
<td>Not Listed</td>
<td></td>
</tr>
<tr>
<td>Chromium as hexavalent chromium 18540-29-9</td>
<td>Group 1 - Carcinogenic</td>
<td>Known Human Carcinogen</td>
<td></td>
</tr>
<tr>
<td>Cobalt 7440-48-4</td>
<td>Group 2B-Possible Carcinogen</td>
<td>Not Listed</td>
<td></td>
</tr>
<tr>
<td>Nickel 7440-02-0</td>
<td>Group 2B-Possible Carcinogen</td>
<td>Reasonably Anticipated to be Human Carcinogen</td>
<td></td>
</tr>
<tr>
<td>Nickel as Nickel Compounds NDA</td>
<td>Group 1-Carcinogenic</td>
<td>Known Human Carcinogen</td>
<td></td>
</tr>
</tbody>
</table>

Section 12 - Ecological Information

Toxicity
• No information available at this time. As with all foreign substances do not allow to enter the storm drainage systems.

Persistence and degradability
• No data available

Bioaccumulative potential
• No data available

Mobility in Soil
• No data available

Section 13 - Disposal Considerations

Waste treatment methods
Product waste • Product as shipped is not considered hazardous and should be recycled. Product dusts from processing may be classified as hazardous waste, as defined in 40 CFR 261 as well as state and/or local regulation. Solid waste generated from product processing should be classified by a competent environmental professional and disposed, processed or recycled in accordance with federal, state and local regulation.

Packaging waste • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN proper shipping name</th>
<th>Transport hazard class(es)</th>
<th>Packing group</th>
<th>Environmental hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT</td>
<td>NDA</td>
<td>NDA</td>
<td>NDA</td>
<td>NDA</td>
</tr>
<tr>
<td>TDG</td>
<td>NDA</td>
<td>NDA</td>
<td>NDA</td>
<td>NDA</td>
</tr>
<tr>
<td>IMO/IMDG</td>
<td>NDA</td>
<td>NDA</td>
<td>NDA</td>
<td>NDA</td>
</tr>
</tbody>
</table>

Special precautions for user
• No special precautions.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
• Not Applicable.

Other information
Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications • Acute, Chronic. SARA Hazard Classifications pertain to product as dust and fume.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>Canada DSL</th>
<th>TSCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Chromium</td>
<td>7440-47-3</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Cobalt</td>
<td>7440-48-4</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td>7440-50-8</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td>7439-89-6</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Manganese</td>
<td>7439-96-5</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Molybdenum</td>
<td>7439-98-7</td>
<td>Yes</td>
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<td>Nickel</td>
<td>7440-02-0</td>
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<td>Silicon</td>
<td>7440-21-3</td>
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<td>Niobium</td>
<td>7440-33-7</td>
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<td>Tantalum</td>
<td>7440-25-7</td>
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<tr>
<td>Tungsten</td>
<td>7440-33-7</td>
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<tr>
<td>Vanadium</td>
<td>7440-62-2</td>
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Canada

Labor

Canada - WHMIS - Classifications of Substances
• Nickel Alloys Bare Welding Wire and ingredients (unless listed below)
  • Copper
  • Chromium
  • Manganese
  • Tantalum
  • Cobalt
  • Aluminum
  • Molybdenum
  • Nickel
  • Silicon
  • Tungsten
  • Vanadium
  • Iron

Canada - WHMIS - Ingredient Disclosure List
• Nickel Alloys Bare Welding Wire and ingredients (unless listed below)
  • Copper
  • Chromium
  • Manganese
  • Tantalum
  • Cobalt
  • Aluminum
  • Molybdenum

DOT • Not regulated as a hazardous material.
TDG • Not regulated as a dangerous good.
•Nickel 7440-02-0 0.1 %
•Tungsten 7440-33-7 1 %
•Vanadium 7440-62-2 1 %

United States

Environment

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities
•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)

Not Listed
5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

•Copper 7440-50-8
1.0 % de minimis concentration (powder)

•Chromium 7440-47-3
1.0 % de minimis concentration (dust or fume only)

•Nickel 7440-02-0
0.1 % de minimis concentration (except when contained in an alloy)

•Cobalt 7440-48-4
1.0 % de minimis concentration (dust or fume only)

•Aluminum 7429-90-5
1.0 % de minimis concentration

•Vanadium 7440-62-2
1.0 % de minimis concentration

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs
•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)

Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs
•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)

Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting
•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)

Not Listed

•Copper 7440-50-8
1.0 % de minimis concentration

•Chromium 7440-47-3
1.0 % de minimis concentration

•Manganese 7439-96-5
1.0 % de minimis concentration

•Cobalt 7440-48-4
0.1 % de minimis concentration

•Aluminum 7429-90-5
1.0 % de minimis concentration (dust or fume only)

•Nickel 7440-02-0
0.1 % de minimis concentration

•Vanadium 7440-62-2
1.0 % de minimis concentration

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List
•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)

Not Listed

carcinogen, initial date 7/1/92 (powder)

•Cobalt 7440-48-4
carcinogen, initial date 10/1/89

•Nickel 7440-02-0
Section 16 - Other Information

For additional information, please refer to the following sources:

**USA**
- American Conference of Governmental Hygienists (ACGIH), Threshold Limit Values and Biological Exposure Indices, 6500 Glenway Ave., Cincinnati, Ohio, 45211, USA.
- NFPA 51B “Standard for Fire Prevention during Welding, Cutting and other Hot Work” published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169.

**Canada**
- CSA Standard CAN/CSA-W117.2-01 “Safety in Welding, Cutting and Allied Processes”.

**UK**
- WMA Publication 236 and 237, “Hazards from Welding Fume”, “The arc welder at work, some general aspects of health and safety”.

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