

Cored Welding Wire Type 1

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision Date: 05/15/2014 Date of issue: 06/27/2013

Version: 1.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Mixture

Product Name: Cored Welding Wire Type 1

Intended Use of the Product

Use of the Substance/Mixture: Welding wire. For professional use only.

Name, Address, and Telephone of the Responsible Party

Customer

National Standard
3602 N. Perkins Road
Stillwater, OK 74075
405-377-5050

Emergency Telephone Number

Emergency number : 269-683-8100 Mon - Fri 8 AM – 5PM CST (excluding holidays)

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Not classified

Label Elements

GHS-US Labeling

Not applicable

Other Hazards

Other Hazards Not Contributing to the Classification: This product is physiologically inert in its massive form. However, user-generated dust and/or fumes may pose a physiological hazard if inhaled or ingested. Avoid inhalation of metal dusts and fumes. May cause an influenza-like illness. Avoid skin and eye contact with dusts to prevent mechanical irritation. User-generated dust is easily ignited and difficult to extinguish.

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Mixture

| Name | Product identifier | % (w/w) | Classification (GHS-US) |
|---|---------------------|-----------|--|
| Iron | (CAS No) 7439-89-6 | 81 - 87 | Flam. Sol. 1, H228 Self-heat. 1, H251 |
| Titanium dioxide | (CAS No) 13463-67-7 | 7 - 10.5 | Skin Irrit. 2, H315 |
| Silica, amorphous | (CAS No) 7631-86-9 | 1 - 1.5 | Not classified |
| Silicic acid (H4SiO4), zirconium(4+) salt (1:1) | (CAS No) 10101-52-7 | 1 - 1.5 | Skin Irrit. 2, H315 Eye Irrit. 2B, H320 STOT SE 3, H335 |
| Silicon | (CAS No) 7440-21-3 | 0.4 - 1 | Comb. Dust |
| Nickel | (CAS No) 7440-02-0 | 0.3 - 0.5 | Comb. Dust Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 3, H412 |

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: If medical advice is needed, have product container or label at hand.

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

Skin Contact: Cool skin rapidly with cold water after contact with molten product. Removal of solidified molten material from skin requires medical assistance.

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

Ingestion: If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

Most Important Symptoms and Effects Both Acute and Delayed

General: None expected under normal conditions of use. Under normal conditions of use not expected to present a significant hazard. During processing or physical alteration, flakes or powder cause irritation of the respiratory tract, eyes, skin, and are harmful. Molten material may release toxic, and irritating fumes.

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

Skin Contact: Contact with hot, molten metal will cause thermal burns. Arc rays and sparks can burn skin. Mechanical damage via flying particles and chipped slag is possible.

Eye Contact: Risk of thermal burns on contact with molten product. Arc rays and sparks can burn eyes. Mechanical damage via flying particles and chipped slag is possible.

Ingestion: Ingestion is not considered a potential route of exposure.

Chronic Symptoms: This product is intended for use in ARC welding. During this process UV rays irritate the superficial corneal epithelium, causing inhibition of mitosis, production of nuclear fragmentation, and loosening of the epithelial layer. Under experimental conditions in animals, phototoxic effects have been demonstrated at all levels of the cornea, including the stroma and endothelium.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use water when molten material is involved, may react violently or explosively on contact with water.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable.

Explosion Hazard: Product is not explosive.

Reactivity: Stable at ambient temperature and under normal conditions of use.

Advice for Firefighters

Precautionary Measures Fire: Not available

Firefighting Instructions: Do not breathe fumes from fires or vapours from decomposition. Keep upwind.

Protection During Firefighting: Firefighters must use full bunker gear including NIOSH-approved positive-pressure self-contained breathing apparatus to protect against potential hazardous combustion and decomposition products.

Hazardous Combustion Products: Not available

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures Not available

For Non-Emergency Personnel

Protective Equipment: Wear suitable protective clothing, gloves and eye/face protection.

Emergency Procedures: Avoid creating or spreading dust. Eliminate ignition sources.

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For Emergency Personnel

Protective Equipment: Wear suitable protective clothing, gloves and eye/face protection.

Emergency Procedures: Ventilate area. Eliminate ignition sources. Evacuate unnecessary personnel.

Environmental Precautions

Do not allow to enter drains or water courses.

Methods and Material for Containment and Cleaning Up

For Containment: Contain and collect as any solid.

Methods for Cleaning Up: Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal.

Reference to Other Sections

For further information refer to section 8 "Exposure controls/personal protection".

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Do not handle until all safety precautions have been read and understood.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Always wash your hands immediately after handling this product, and once again before leaving the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke in areas where product is used. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Store in original container. Store in a dry, cool place. Store in a well-ventilated place. Keep container tightly closed. Keep away from heat and flame. Protect from moisture.

Storage Area: Store away from heat.

Special Rules on Packaging: Keep container closed when not in use.

Specific End Use(s)

Welding wire.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

| Nickel (7440-02-0) | | |
|-------------------------|--------------------------------------|-------------------------|
| Mexico | OEL TWA (mg/m ³) | 1 mg/m ³ |
| USA ACGIH | ACGIH TWA (mg/m ³) | 1.5 mg/m ³ |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 1 mg/m ³ |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 0.015 mg/m ³ |
| USA IDLH | US IDLH (mg/m ³) | 10 mg/m ³ |
| Alberta | OEL TWA (mg/m ³) | 1.5 mg/m ³ |
| British Columbia | OEL TWA (mg/m ³) | 0.05 mg/m ³ |
| Manitoba | OEL TWA (mg/m ³) | 1.5 mg/m ³ |
| New Brunswick | OEL TWA (mg/m ³) | 1 mg/m ³ |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 1.5 mg/m ³ |
| Nova Scotia | OEL TWA (mg/m ³) | 1.5 mg/m ³ |
| Nunavut | OEL STEL (mg/m ³) | 2 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 1 mg/m ³ |
| Northwest Territories | OEL STEL (mg/m ³) | 2 mg/m ³ |
| Northwest Territories | OEL TWA (mg/m ³) | 1 mg/m ³ |
| Ontario | OEL TWA (mg/m ³) | 1 mg/m ³ |
| Prince Edward Island | OEL TWA (mg/m ³) | 1.5 mg/m ³ |
| Québec | VEMP (mg/m ³) | 1 mg/m ³ |
| Saskatchewan | OEL STEL (mg/m ³) | 3 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 1.5 mg/m ³ |
| Yukon | OEL STEL (mg/m ³) | 3 mg/m ³ |
| Yukon | OEL TWA (mg/m ³) | 1 mg/m ³ |
| Manganese (7439-96-5) | | |
| Mexico | OEL TWA (mg/m ³) | 1 mg/m ³ |

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| | | |
|-------------------------|---|-----------------------|
| Mexico | OEL STEL (mg/m ³) | 3 mg/m ³ |
| USA ACGIH | ACGIH TWA (mg/m ³) | 0.1 mg/m ³ |
| USA OSHA | OSHA PEL (Ceiling) (mg/m ³) | 5 mg/m ³ |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 1 mg/m ³ |
| USA NIOSH | NIOSH REL (STEL) (mg/m ³) | 3 mg/m ³ |
| USA IDLH | US IDLH (mg/m ³) | 500 mg/m ³ |
| Alberta | OEL TWA (mg/m ³) | 0.2 mg/m ³ |
| British Columbia | OEL TWA (mg/m ³) | 0.2 mg/m ³ |
| Manitoba | OEL TWA (mg/m ³) | 0.1 mg/m ³ |
| New Brunswick | OEL TWA (mg/m ³) | 0.2 mg/m ³ |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 0.1 mg/m ³ |
| Nova Scotia | OEL TWA (mg/m ³) | 0.1 mg/m ³ |
| Nunavut | OEL Ceiling (mg/m ³) | 5 mg/m ³ |
| Nunavut | OEL STEL (mg/m ³) | 3 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 1 mg/m ³ |
| Northwest Territories | OEL Ceiling (mg/m ³) | 5 mg/m ³ |
| Northwest Territories | OEL STEL (mg/m ³) | 3 mg/m ³ |
| Northwest Territories | OEL TWA (mg/m ³) | 1 mg/m ³ |
| Ontario | OEL TWA (mg/m ³) | 0.2 mg/m ³ |
| Prince Edward Island | OEL TWA (mg/m ³) | 0.1 mg/m ³ |
| Québec | VEMP (mg/m ³) | 0.2 mg/m ³ |
| Saskatchewan | OEL STEL (mg/m ³) | 0.6 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 0.2 mg/m ³ |
| Yukon | OEL Ceiling (mg/m ³) | 5 mg/m ³ |

Silicon (7440-21-3)

| | | |
|-----------------------|--------------------------------------|--|
| Mexico | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Mexico | OEL STEL (mg/m ³) | 20 mg/m ³ |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 5 mg/m ³ |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 5 mg/m ³ |
| British Columbia | OEL TWA (mg/m ³) | 3 mg/m ³ |
| New Brunswick | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 10 mg/m ³ (total mass) |
| Northwest Territories | OEL TWA (mg/m ³) | 10 mg/m ³ (total mass) |
| Ontario | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Québec | VEMP (mg/m ³) | 10 mg/m ³ (containing no Asbestos and <1% Crystalline silica) |
| Saskatchewan | OEL STEL (mg/m ³) | 20 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Yukon | OEL STEL (mg/m ³) | 20 mg/m ³ |
| Yukon | OEL TWA (mg/m ³) | 10 mg/m ³ |

Titanium dioxide (13463-67-7)

| | | |
|-------------------------|-------------------------------------|------------------------|
| Mexico | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Mexico | OEL STEL (mg/m ³) | 20 mg/m ³ |
| USA ACGIH | ACGIH TWA (mg/m ³) | 10 mg/m ³ |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 15 mg/m ³ |
| USA IDLH | US IDLH (mg/m ³) | 5000 mg/m ³ |
| Alberta | OEL TWA (mg/m ³) | 10 mg/m ³ |
| British Columbia | OEL TWA (mg/m ³) | 3 mg/m ³ |
| Manitoba | OEL TWA (mg/m ³) | 10 mg/m ³ |
| New Brunswick | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 10 mg/m ³ |

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| | | |
|-----------------------|-------------------------------|--|
| Nova Scotia | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 10 mg/m ³ (total mass) |
| Northwest Territories | OEL TWA (mg/m ³) | 10 mg/m ³ (total mass) |
| Ontario | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Prince Edward Island | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Québec | VEMP (mg/m ³) | 10 mg/m ³ (containing no Asbestos and <1% Crystalline silica) |
| Saskatchewan | OEL STEL (mg/m ³) | 20 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Yukon | OEL STEL (mg/m ³) | 20 mg/m ³ |
| Yukon | OEL TWA (mg/m ³) | 10 mg/m ³ |

Sodium fluoride (7681-49-4)

| | | |
|-----------|--------------------------------------|-----------------------|
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 2.5 mg/m ³ |
| USA IDLH | US IDLH (mg/m ³) | 250 mg/m ³ |

Silica, amorphous (7631-86-9)

| | | |
|-----------------------|--------------------------------------|---|
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 6 mg/m ³ |
| USA IDLH | US IDLH (mg/m ³) | 3000 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 0.15 mg/m ³ (regulated under Silica flour, total mass) |
| Northwest Territories | OEL TWA (mg/m ³) | 0.15 mg/m ³ (total mass, regulated under Silica flour) |
| Yukon | OEL TWA (mg/m ³) | 2 mg/m ³ |

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas.

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



Materials for Protective Clothing: Not available

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

Eye Protection: Welders should wear goggles or safety glasses with sideshields that comply with ANSI Z87.1 under welding helmets and always wear goggles or other suitable eye protection when gas welding or oxygen cutting.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

| | |
|--|-------------------------|
| Physical State | : Solid |
| Appearance | : Wire |
| Odor | : Odorless |
| Odor Threshold | : Not available |
| pH | : Not available |
| Relative Evaporation Rate (butylacetate=1) | : Not available |
| Melting Point | : > 1500 °C (> 2700 °F) |
| Freezing Point | : Not available |
| Boiling Point | : Not available |
| Flash Point | : Not available |
| Auto-ignition Temperature | : Not available |
| Decomposition Temperature | : Not available |
| Flammability (solid, gas) | : Not available |

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| | |
|---|---|
| Lower Flammable Limit | : Not available |
| Upper Flammable Limit | : Not available |
| Vapor Pressure | : Negligible |
| Relative Vapor Density at 20 °C | : Not available |
| Relative Density | : Not available |
| Density | : > 7 g/cc |
| Specific Gravity | : Not available |
| Solubility | : Water: Insoluble |
| Partition coefficient: n-octanol/water | : Not available |
| Viscosity | : Not available |
| Explosion Data – Sensitivity to Mechanical Impact | : Not expected to present an explosion hazard due to mechanical impact. |
| Explosion Data – Sensitivity to Static Discharge | : Not expected to present an explosion hazard due to static discharge. |

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Stable at ambient temperature and under normal conditions of use.

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Protect from moisture.

Incompatible Materials: Incompatible with: strong acids.

Hazardous Decomposition Products: Under conditions of fire this material may produce: Metal oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data:

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|---------------------------|---------------|
| ATE (oral) | 500.000 mg/kg |

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

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

Symptoms/Injuries After Skin Contact: Contact with hot, molten metal will cause thermal burns. Arc rays and sparks can burn skin. Mechanical damage via flying particles and chipped slag is possible.

Symptoms/Injuries After Eye Contact: Risk of thermal burns on contact with molten product. Arc rays and sparks can burn eyes. Mechanical damage via flying particles and chipped slag is possible.

Symptoms/Injuries After Ingestion: Ingestion is not considered a potential route of exposure.

Chronic Symptoms: This product is intended for use in ARC welding. During this process UV rays irritate the superficial corneal epithelium, causing inhibition of mitosis, production of nuclear fragmentation, and loosening of the epithelial layer. Under experimental conditions in animals, phototoxic effects have been demonstrated at all levels of the cornea, including the stroma and endothelium.

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Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

| | |
|--|--|
| Nickel (7440-02-0) | |
| LD50 Oral Rat | > 9000 mg/kg |
| Titanium dioxide (13463-67-7) | |
| LD50 Oral Rat | > 10000 mg/kg |
| Silica, amorphous (7631-86-9) | |
| LD50 Oral Rat | > 5000 mg/kg |
| LD50 Dermal Rabbit | > 2000 mg/kg |
| LC50 Inhalation Rat (mg/l) | > 2.2 mg/l (Exposure time: 1 h) |
| Nickel (7440-02-0) | |
| IARC Group | 2B |
| National Toxicity Program (NTP) Status | Reasonably anticipated to be Human Carcinogen. |
| Titanium dioxide (13463-67-7) | |
| IARC Group | 2B |
| Silica, amorphous (7631-86-9) | |
| IARC Group | 3 |

SECTION 12: ECOLOGICAL INFORMATION

Toxicity Not classified

| | |
|--------------------------------------|--|
| Nickel (7440-02-0) | |
| LC50 Fish 1 | 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio) |
| EC50 Daphnia 1 | 100 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| EC50 Other Aquatic Organisms 1 | 0.18 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata) |
| LC 50 Fish 2 | 1.3 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static]) |
| EC50 Daphnia 2 | 1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static]) |
| EC50 Other Aquatic Organisms 2 | 0.174 (0.174 - 0.311) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static]) |
| Silica, amorphous (7631-86-9) | |
| LC50 Fish 1 | 5000 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static]) |
| EC50 Daphnia 1 | 7600 mg/l (Exposure time: 48 h - Species: Ceriodaphnia dubia) |
| EC50 Other Aquatic Organisms 1 | 440 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata) |

Persistence and Degradability Not available

Bioaccumulative Potential

| | |
|--------------------------------------|-------------------------------|
| Silica, amorphous (7631-86-9) | |
| BCF fish 1 | (no bioaccumulation expected) |

Mobility in Soil Not available

Other Adverse Effects Not available

SECTION 13: DISPOSAL CONSIDERATIONS

Sewage Disposal Recommendations: Do not dispose of waste into sewer.

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

Additional Information: Recycle where possible and/or dispose of spent material such as metals & metal-bearing waste and submerged arc welding (SAW) flux/slag appropriately.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT Not regulated for transport

14.2 In Accordance with IMDG Not regulated for transport

14.3 In Accordance with IATA Not regulated for transport

14.4 In Accordance with TDG Not regulated for transport

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SECTION 15: REGULATORY INFORMATION

US Federal Regulations

| | |
|---|--|
| Iron (7439-89-6) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Nickel (7440-02-0) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Listed on SARA Section 313 (Specific toxic chemical listings) | |
| RQ (Reportable Quantity, Section 304 of EPA's List of Lists): | 100 lb (only applicable if particles are < 100 µm) |
| SARA Section 313 - Emission Reporting | 0.1 % |
| Silicon (7440-21-3) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Titanium dioxide (13463-67-7) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Silicic acid (H4SiO4), zirconium(4+) salt (1:1) (10101-52-7) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Silica, amorphous (7631-86-9) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |

US State Regulations

| | |
|--|---|
| Cored Welding Wire Type 1() | |
| U.S. - California - Proposition 65 - Carcinogens List | WARNING: This product contains chemicals known to the State of California to cause cancer. |
| State or local regulations | WARNING! This product contains one or more substances known to the State of California to cause: Cancer |
| Nickel (7440-02-0) | |
| U.S. - California - Proposition 65 - Carcinogens List | WARNING: This product contains chemicals known to the State of California to cause cancer. |
| Titanium dioxide (13463-67-7) | |
| U.S. - California - Proposition 65 - Carcinogens List | WARNING: This product contains chemicals known to the State of California to cause cancer. |
| Iron (7439-89-6) | |
| U.S. - Colorado - Primary Drinking Water Regulations - Secondary Maximum Contaminant Levels (SMCLs) | |
| U.S. - Florida - Drinking Water Standards - Secondary Maximum Contaminant Levels (SMCLs) | |
| U.S. - Georgia - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs) | |
| U.S. - Massachusetts - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs) | |
| U.S. - Missouri - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs) | |
| U.S. - Nevada - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs) | |
| U.S. - New Hampshire - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs) | |
| U.S. - New Jersey - Secondary Drinking Water Standards - Recommended Upper Limits (RULs) | |
| U.S. - New Jersey - Water Quality - Ground Water Quality Criteria | |
| U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs) | |
| U.S. - New Mexico - Water Quality - Standards for Ground Water of 10,000 mg/L TDS Concentration or Less | |
| U.S. - Pennsylvania - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs) | |
| U.S. - Rhode Island - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria | |
| U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Water and Aquatic Organisms | |
| U.S. - South Carolina - Secondary Maximum Contaminant Levels (SMCLs) | |
| U.S. - Texas - Drinking Water Standards - Secondary Constituent Levels (SCLs) | |
| U.S. - Texas - Effects Screening Levels - Long Term | |
| U.S. - Texas - Effects Screening Levels - Short Term | |
| U.S. - Utah - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs) | |

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U.S. - Virginia - Water Quality Standards - Public Water Supply Effluent Limits
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Fresh Water

Nickel (7440-02-0)

U.S. - California - Priority Toxic Pollutants - Freshwater Criteria
U.S. - California - Priority Toxic Pollutants - Human Health Criteria
U.S. - California - Priority Toxic Pollutants - Saltwater Criteria
U.S. - California - SCAQMD - Toxic Air Contaminants - Carcinogens
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Acute
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Chronic
U.S. - California - SDAPCD - Toxic Air Contaminants - Carcinogenic Impacts Must Be Calculated
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Connecticut - Drinking Water Quality Standards - Maximum Contaminant Levels
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Connecticut - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Acute Saltwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Chronic Saltwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Consumption of Organisms Only
U.S. - Connecticut - Water Quality Standards - Consumption of Water and Organisms
U.S. - Connecticut - Water Quality Standards - Health Designations
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Florida - Drinking Water Standards - Inorganic Contaminants - Maximum Contaminant Levels (MCLs)
U.S. - Georgia - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Idaho - Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Illinois - Toxic Air Contaminant Carcinogens
U.S. - Illinois - Toxic Air Contaminants
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Maine - Chemicals of High Concern
U.S. - Maryland - Surface Water Quality Standards - Acute Freshwater Aquatic Life
U.S. - Maryland - Surface Water Quality Standards - Acute Saltwater Aquatic Life Criteria
U.S. - Maryland - Surface Water Quality Standards - Chronic Freshwater Aquatic Life
U.S. - Maryland - Surface Water Quality Standards - Chronic Saltwater Aquatic Life Criteria
U.S. - Maryland - Surface Water Quality Standards - Consumption of Organisms Only
U.S. - Maryland - Surface Water Quality Standards - Consumption of Water and Organisms
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Drinking Water Guidelines
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TEELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Hazardous Substance List

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U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - Nebraska - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - New Hampshire - Prohibited Volatile Organic Compounds
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New Mexico - Water Quality - Standards for Ground Water of 10,000 mg/L TDS Concentration or Less
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Priority Chemical Avoidance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Carolina - Control of Toxic Air Pollutants
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - North Dakota - Water Quality Standards - Aquatic Life Acute Value for Classes I, IA, II, III
U.S. - North Dakota - Water Quality Standards - Aquatic Life Chronic Value for Classes I, IA, II, III
U.S. - North Dakota - Water Quality Standards - Human Health Value for Class III
U.S. - North Dakota - Water Quality Standards - Human Health Value for Classes I, IA, II
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - Pennsylvania - Beneficial Use of Sewage Sludge by Land Application - Pollutant Ceiling Limits
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 1-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 24-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - Annual
U.S. - Rhode Island - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Acute Saltwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Saltwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Aquatic Organisms Only
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Water and Aquatic Organisms
U.S. - South Carolina - Toxic Air Pollutants - Maximum Allowable Concentrations
U.S. - South Carolina - Toxic Air Pollutants - Pollutant Categories
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Utah - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Vermont - Hazardous Waste - Hazardous Constituents
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Virginia - Water Quality Standards - Acute Freshwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Acute Saltwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Chronic Freshwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Chronic Saltwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Public Water Supply Effluent Limits
U.S. - Virginia - Water Quality Standards - Surface Waters Not Used for the Public Water Supply Effluent Limits
U.S. - Washington - Dangerous Waste - Dangerous Waste Constituents List
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater

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U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet
U.S. - Alaska - Water Quality Standards - Acute Aquatic Life Criteria for Fresh Water
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Fresh Water
U.S. - Alaska - Water Quality Standards - Acute Aquatic Life Criteria for Marine Water
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Marine Water
U.S. - Arkansas - Surface Water Quality Standards - Chronic Aquatic Life Criteria
U.S. - Arkansas - Surface Water Quality Standards - Acute Aquatic Life Criteria

Silicon (7440-21-3)

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

Titanium dioxide (13463-67-7)

U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Illinois - Toxic Air Contaminant Carcinogens
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Oregon - Permissible Exposure Limits - TWAs
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs

Silica, amorphous (7631-86-9)

U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)

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RTK - U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Oregon - Permissible Exposure Limits - Mineral Dusts
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

Canadian Regulations

Cored Welding Wire Type 1

| | |
|----------------------|---|
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
|----------------------|---|

Iron (7439-89-6)

Listed on the Canadian DSL (Domestic Substances List) inventory.

| | |
|----------------------|--------------------------------------|
| WHMIS Classification | Class B Division 4 - Flammable Solid |
|----------------------|--------------------------------------|

Nickel (7440-02-0)

Listed on the Canadian DSL (Domestic Substances List) inventory.

Listed on the Canadian Ingredient Disclosure List

| | |
|----------------------|---|
| WHMIS Classification | Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects |
|----------------------|---|

Silicon (7440-21-3)

Listed on the Canadian DSL (Domestic Substances List) inventory.

| | |
|----------------------|--------------------------------------|
| WHMIS Classification | Class B Division 4 - Flammable Solid |
|----------------------|--------------------------------------|

Titanium dioxide (13463-67-7)

Listed on the Canadian DSL (Domestic Substances List) inventory.

| | |
|----------------------|--|
| WHMIS Classification | Class D Division 2 Subdivision A - Very toxic material causing other toxic effects |
|----------------------|--|

Silicic acid (H₄SiO₄), zirconium(4+) salt (1:1) (10101-52-7)

Listed on the Canadian DSL (Domestic Substances List) inventory.

Silica, amorphous (7631-86-9)

Listed on the Canadian DSL (Domestic Substances List) inventory.

Listed on the Canadian Ingredient Disclosure List

| | |
|----------------------|---|
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
|----------------------|---|

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

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

Revision date : 05/15/2014

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

| | |
|----------------------|--|
| Aquatic Acute 1 | Hazardous to the aquatic environment - Acute Hazard Category 1 |
| Aquatic Chronic 3 | Hazardous to the aquatic environment - Chronic Hazard Category 3 |
| Carc. 2 | Carcinogenicity Category 2 |
| Carc. Not classified | Carcinogenicity Not classified |
| Comb. Dust | Combustible Dust |
| Eye Irrit. 2B | Serious eye damage/eye irritation Category 2B |
| Flam. Sol. 1 | Flammable solids Category 1 |

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| | |
|---------------|--|
| Self-heat. 1 | Self-heating substances and mixtures Category 1 |
| Skin Irrit. 2 | Skin corrosion/irritation Category 2 |
| Skin Sens. 1 | Skin sensitization Category 1 |
| STOT RE 1 | Specific target organ toxicity (repeated exposure) Category 1 |
| STOT SE 3 | Specific target organ toxicity (single exposure) Category 3 |
| H228 | Flammable solid |
| | May form combustible dust concentrations in air |
| H251 | Self-heating: may catch fire |
| H315 | Causes skin irritation |
| H317 | May cause an allergic skin reaction |
| H320 | Causes eye irritation |
| H335 | May cause respiratory irritation |
| H351 | Suspected of causing cancer |
| H372 | Causes damage to organs through prolonged or repeated exposure |
| H400 | Very toxic to aquatic life |
| H412 | Harmful to aquatic life with long lasting effects |

Party Responsible for the Preparation of This Document

National Standard T 405-377-5050

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

North America GHS US 2012 & WHMIS 2