NATIONAL STANDARD

Because performance comes down to the wire.

Zinc Galvanized Steel Wire

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

Revision Date: 02/23/2017 Date of Issue: 02/23/2017 Version: 1.0

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: Zinc Galvanized Steel Wire

1.2. Intended Use of the Product

No use is specified.

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

Company

DW - National Standard - Niles, LLC
1631 Lake Street
Niles, MI 49120
(269) 683-8100

1.4. Emergency Telephone Number

Emergency Number : (269) 683-8100

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

Skin Sens. 1	H317
Carc. 1B	H350
Repr. 1A	H360
Lact	H362
STOT RE 1	H372

Full text of hazard classes and H-statements : see section 16

2.2. Label Elements

GHS-US/CA Labeling

Hazard Pictograms (GHS-US/CA) :

GHS07

GHS08

Signal Word (GHS-US/CA) : Danger

Hazard Statements (GHS-US/CA) :
H317 - May cause an allergic skin reaction.
H350 - May cause cancer.
H360 - May damage fertility or the unborn child.
H362 - May cause harm to breast-fed children.
H372 - Causes damage to organs (central nervous system, blood, kidneys) through prolonged or repeated exposure (oral, inhalation).

Precautionary Statements (GHS-US/CA) :
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust or fumes.
P263 - Avoid contact during pregnancy/while nursing.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves, protective clothing, and eye protection.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
P321 - Specific treatment (see section 4 on this SDS).
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.

P362+P364 - Take off contaminated clothing and wash it before reuse.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, provincial, territorial, national, and international regulations.

2.3. Other Hazards

Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath. Molten material may produce fumes that are toxic or irritating. Product itself is not explosive but if dust is generated, dust clouds suspended in air can be explosive. Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

2.4. Unknown Acute Toxicity (GHS-US/CA)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Product Identifier	% *	GHS Ingredient Classification
Iron	(CAS No) 7439-89-6	92	Comb. Dust
Manganese	(CAS No) 7439-96-5	1 - 7.4	Comb. Dust
Nickel	(CAS No) 7440-02-0	0.1 - 6.5	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Acute 3, H402 Comb. Dust
Zinc	(CAS No) 7440-66-6	0.25 - 2	Comb. Dust
Lead	(CAS No) 7439-92-1	0.25 - 2	Carc. 1B, H350 Lact, H362 Repr. 1A, H360 STOT RE 1, H372 Comb. Dust

Full text of H-phrases: see section 16

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: For particulates and dust: Using proper respiratory protection, move the exposed person to fresh air at once. Encourage exposed person to cough, spit out, and blow nose to remove dust. Immediately call a poison center, physician, or emergency medical service.

Skin Contact: For particulates and dust: Brush off loose particles from skin. Remove contaminated clothing. Obtain medical attention if irritation develops or persists. If cuts or injury occur seek medical attention immediately. In molten form: Cool skin rapidly with cold water after contact with molten product. Removal of solidified molten material from skin requires medical assistance.

Eye Contact: For particulates and dust: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention. Seek medical attention if material is embedded in eye. In molten form: Removal of solidified molten material from the eyes requires medical assistance.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: Skin sensitization. May cause cancer. May damage fertility or the unborn child. May cause harm to breast-fed children. Causes damage to organs (central nervous system, blood, kidneys) through prolonged or repeated exposure (oral, inhalation).

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

Skin Contact: May cause an allergic skin reaction. Risk of thermal burns on contact with molten product. Dust generated from material cutting may cause a slight irritation. Slivers may be generated, which could cause cuts. Cuts from the blade itself could cause a serious health hazard.

Eye Contact: Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes. Risk of thermal burns on contact with molten product.

Ingestion: May cause gastro-intestinal blockage if swallowed. May cause irritation of the gastrointestinal tract.

Chronic Symptoms: May cause cancer. May damage fertility or the unborn child. Causes damage to organs (central nervous system, blood, kidneys) through prolonged or repeated exposure (oral, inhalation). For particulates, dust, or fumes from processing: Repeated inhalation of iron oxide dust can cause siderosis a benign condition. Zinc: Prolonged exposure to high concentrations of zinc fumes may cause "zinc shakes", an involuntary twitching of the muscles. Otherwise, zinc is non-toxic. Lead: Exposure can result in lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; encephalopathy; kidney disease; hypertension. Lead can bioaccumulate over time, specifically in the skeleton, leading to potential toxicity. Lead body burdens vary significantly with age, health status, nutritional state, and many other factors. For more information on lead exposure see 29CFR 1910.1025. Manganese: Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Chronic exposure to excessive manganese levels can lead to a variety of psychiatric and motor disturbances, termed manganism. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. Nickel metal powder, when respirable, is a suspected human carcinogen, and is known to cause damage to the lungs through inhalation.

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

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Does not burn. Use extinguishing media appropriate for surrounding fire. Use Class D extinguishing agents on dusts, fines or molten metal. Use coarse water spray on chips and turnings.

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

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable. Small chips, turnings, dust and fines from processing may be readily ignitable.

Explosion Hazard: Product itself is not explosive but if dust is generated, dust clouds suspended in air can be explosive.

Reactivity: Hazardous reactions will not occur under normal conditions. Dust and other forms of product formed from processing might react with water producing a flammable/explosive environment, especially in confined spaces. Molten material will react violently with water. May react violently with incompatible materials, increasing risk of fire or explosion.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

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

Hazardous Combustion Products: Iron oxides. Oxides of zinc. Oxides of lead. Oxides of manganese. Oxides of nickel. May form nickel carbonyl under certain conditions of temperature and pressure when metallic nickel is exposed to gases that contain carbon monoxide.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not get in eyes, on skin, or on clothing. For particulates and dust: Avoid generating dust. Do not breathe dust or fumes. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Remove ignition sources.

6.1.1. For Non-Emergency Personnel

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

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2. Environmental Precautions

Prevent entry of dusts, chips and ribbon to sewers and public waters. Notify authorities if any material enters sewers or public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Cool molten material to limit spreading. Recover the product by vacuuming, shoveling or sweeping. Avoid generation of dust during clean-up of spills. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Dust generated from processing may present a dust explosion hazard. Dust, chips, or ribbons can be ignited more easily, by an ignition source, by improper machining, or by spontaneous combustion if finely divided and damp. Welders are exposed to a range of fumes and gases. Fume particles contain a wide variety of oxides and salts of metals and other compounds, which are produced mainly from electrodes, filler wire and flux materials. Fumes from the welding of stainless-steel and other alloys contain nickel compounds and chromium [VI] and [III]. Ozone is formed during most electric arc welding, and exposures can be high in comparison to the exposure limit, particularly during metal inert gas welding of aluminum. Oxides of nitrogen are found during manual metal arc welding and particularly during gas welding. Welders who weld painted mild steel can also be exposed to a range of organic compounds produced by pyrolysis. Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not get in eyes, on skin, or on clothing. Do not breathe dust or fumes. Avoid contact during pregnancy/while nursing.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Incompatible Materials: Strong oxidizers. Calcium hypochlorite. Mineral acids.

7.3. Specific End Use(s)

No use is specified.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Lead (7439-92-1)		
Mexico	OEL TWA (mg/m³)	0.15 mg/m³ (dust and fume)
USA ACGIH	ACGIH TWA (mg/m³)	0.05 mg/m³
USA ACGIH	ACGIH chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans
USA ACGIH	Biological Exposure Indices (BEI)	30 µg/100ml Parameter: Lead - Medium: blood - Sampling time: not critical (Note: Women of child bearing potential, whose blood Pb exceeds 10 µg/dL, are at risk of delivering a child with a blood Pb over the current Centers for Disease Control guideline of 10 µg/dL. If the blood Pb of such children remains elevated, they may be at increased

		risk of cognitive deficits. The blood Pb of these children should be closely monitored and appropriate steps should be taken to minimize the child's exposure to environmental lead.)
USA OSHA	OSHA PEL (TWA) (mg/m³)	50 µg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.050 mg/m³
USA IDLH	US IDLH (mg/m³)	100 mg/m³
Alberta	OEL TWA (mg/m³)	0.05 mg/m³
British Columbia	OEL TWA (mg/m³)	0.05 mg/m³
Manitoba	OEL TWA (mg/m³)	0.05 mg/m³
New Brunswick	OEL TWA (mg/m³)	0.05 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.05 mg/m³
Nova Scotia	OEL TWA (mg/m³)	0.05 mg/m³
Nunavut	OEL STEL (mg/m³)	0.15 mg/m³
Nunavut	OEL TWA (mg/m³)	0.05 mg/m³
Northwest Territories	OEL STEL (mg/m³)	0.15 mg/m³
Northwest Territories	OEL TWA (mg/m³)	0.05 mg/m³
Ontario	OEL TWA (mg/m³)	0.05 mg/m³ (designated substances regulation) 0.05 mg/m³ (applies to workplaces to which the designated substances regulation does not apply)
Prince Edward Island	OEL TWA (mg/m³)	0.05 mg/m³
Québec	VEMP (mg/m³)	0.05 mg/m³
Saskatchewan	OEL STEL (mg/m³)	0.15 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.05 mg/m³
Yukon	OEL STEL (mg/m³)	0.45 mg/m³ (dust and fume)
Yukon	OEL TWA (mg/m³)	0.15 mg/m³ (dust and fume)
Manganese (7439-96-5)		
Mexico	OEL TWA (mg/m³)	0.2 mg/m³ 1 mg/m³ (fume)
Mexico	OEL STEL (mg/m³)	3 mg/m³ (fume)
USA ACGIH	ACGIH TWA (mg/m³)	0.02 mg/m³ (respirable particulate matter) 0.1 mg/m³ (inhalable particulate matter)
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (Ceiling) (mg/m³)	5 mg/m³ (fume)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1 mg/m³ (fume)
USA NIOSH	NIOSH REL (STEL) (mg/m³)	3 mg/m³
USA IDLH	US IDLH (mg/m³)	500 mg/m³
Alberta	OEL TWA (mg/m³)	0.2 mg/m³
British Columbia	OEL TWA (mg/m³)	0.2 mg/m³
Manitoba	OEL TWA (mg/m³)	0.02 mg/m³ (respirable particulate matter) 0.1 mg/m³ (inhalable particulate matter)
New Brunswick	OEL TWA (mg/m³)	0.2 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.02 mg/m³ (respirable particulate matter) 0.1 mg/m³ (inhalable particulate matter)
Nova Scotia	OEL TWA (mg/m³)	0.02 mg/m³ (respirable particulate matter) 0.1 mg/m³ (inhalable particulate matter)
Nunavut	OEL STEL (mg/m³)	0.6 mg/m³
Nunavut	OEL TWA (mg/m³)	0.2 mg/m³
Northwest Territories	OEL STEL (mg/m³)	0.6 mg/m³
Northwest Territories	OEL TWA (mg/m³)	0.2 mg/m³
Ontario	OEL TWA (mg/m³)	0.2 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	0.02 mg/m³ (respirable particulate matter)

		0.1 mg/m³ (inhalable particulate matter)
Québec	VEMP (mg/m³)	0.2 mg/m³ (total dust and fume)
Saskatchewan	OEL STEL (mg/m³)	0.6 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.2 mg/m³
Yukon	OEL Ceiling (mg/m³)	5 mg/m³
Nickel (7440-02-0)		
Mexico	OEL TWA (mg/m³)	1 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	1.5 mg/m³ (inhalable particulate matter)
USA ACGIH	ACGIH chemical category	Not Suspected as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.015 mg/m³
USA IDLH	US IDLH (mg/m³)	10 mg/m³
Alberta	OEL TWA (mg/m³)	1.5 mg/m³
British Columbia	OEL TWA (mg/m³)	0.05 mg/m³
Manitoba	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable particulate matter)
New Brunswick	OEL TWA (mg/m³)	1 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable particulate matter)
Nova Scotia	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable particulate matter)
Nunavut	OEL STEL (mg/m³)	3 mg/m³ (inhalable fraction)
Nunavut	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Northwest Territories	OEL STEL (mg/m³)	3 mg/m³ (inhalable fraction)
Northwest Territories	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Ontario	OEL TWA (mg/m³)	1 mg/m³ (inhalable)
Prince Edward Island	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable particulate matter)
Québec	VEMP (mg/m³)	1 mg/m³
Saskatchewan	OEL STEL (mg/m³)	3 mg/m³ (inhalable fraction)
Saskatchewan	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Yukon	OEL STEL (mg/m³)	3 mg/m³
Yukon	OEL TWA (mg/m³)	1 mg/m³
Iron oxide (Fe_2O_3) (1309-37-1)		
Mexico	OEL TWA (mg/m³)	5 mg/m³
Mexico	OEL STEL (mg/m³)	10 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	5 mg/m³ (respirable particulate matter)
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m³)	10 mg/m³ (fume) 15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	5 mg/m³ (dust and fume)
USA IDLH	US IDLH (mg/m³)	2500 mg/m³ (dust and fume)
Alberta	OEL TWA (mg/m³)	5 mg/m³ (respirable)
British Columbia	OEL STEL (mg/m³)	10 mg/m³ (fume)
British Columbia	OEL TWA (mg/m³)	10 mg/m³ (total particulate matter containing no Asbestos and <1% Crystalline silica-total particulate) 3 mg/m³ (particulate matter containing no Asbestos and <1% Crystalline silica-respirable particulate) 5 mg/m³ (dust and fume)
Manitoba	OEL TWA (mg/m³)	5 mg/m³ (respirable particulate matter)
New Brunswick	OEL TWA (mg/m³)	5 mg/m³ (particulate matter containing no Asbestos and <1% Crystalline silica, dust and fume) 10 mg/m³ (regulated under Rouge-particulate matter containing no Asbestos and <1% Crystalline silica)
Newfoundland & Labrador	OEL TWA (mg/m³)	5 mg/m³ (respirable particulate matter)

Nova Scotia	OEL TWA (mg/m³)	5 mg/m³ (respirable particulate matter)
Nunavut	OEL STEL (mg/m³)	10 mg/m³ (dust and fume) 20 mg/m³ (regulated under Rouge)
Nunavut	OEL TWA (mg/m³)	5 mg/m³ (dust and fume) 10 mg/m³ (regulated under Rouge)
Northwest Territories	OEL STEL (mg/m³)	10 mg/m³ (dust and fume) 20 mg/m³ (regulated under Rouge)
Northwest Territories	OEL TWA (mg/m³)	5 mg/m³ (dust and fume) 10 mg/m³ (regulated under Rouge)
Ontario	OEL TWA (mg/m³)	5 mg/m³ (respirable)
Prince Edward Island	OEL TWA (mg/m³)	5 mg/m³ (respirable particulate matter)
Québec	VEMP (mg/m³)	5 mg/m³ (dust and fume) 10 mg/m³ (containing no Asbestos and <1% Crystalline silica, regulated under Rouge-total dust)
Saskatchewan	OEL STEL (mg/m³)	10 mg/m³ (dust and fume) 20 mg/m³ (regulated under Rouge)
Saskatchewan	OEL TWA (mg/m³)	5 mg/m³ (dust and fume) 10 mg/m³ (regulated under Rouge)
Yukon	OEL STEL (mg/m³)	10 mg/m³ (fume) 20 mg/m³ (regulated under Rouge)
Yukon	OEL TWA (mg/m³)	5 mg/m³ (fume) 30 mppcf (regulated under Rouge) 10 mg/m³ (regulated under Rouge)

Zinc oxide (ZnO) (1314-13-2)		
Mexico	OEL TWA (mg/m³)	5 mg/m³ (fume) 10 mg/m³ (dust)
Mexico	OEL STEL (mg/m³)	10 mg/m³ (fume)
USA ACGIH	ACGIH TWA (mg/m³)	2 mg/m³ (respirable particulate matter)
USA ACGIH	ACGIH STEL (mg/m³)	10 mg/m³ (respirable particulate matter)
USA OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³ (fume) 15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	5 mg/m³ (dust and fume)
USA NIOSH	NIOSH REL (STEL) (mg/m³)	10 mg/m³ (fume)
USA NIOSH	NIOSH REL (ceiling) (mg/m³)	15 mg/m³ (dust)
USA IDLH	US IDLH (mg/m³)	500 mg/m³
Alberta	OEL STEL (mg/m³)	10 mg/m³ (respirable)
Alberta	OEL TWA (mg/m³)	2 mg/m³ (respirable)
British Columbia	OEL STEL (mg/m³)	10 mg/m³ (respirable)
British Columbia	OEL TWA (mg/m³)	2 mg/m³ (respirable)
Manitoba	OEL STEL (mg/m³)	10 mg/m³ (respirable particulate matter)
Manitoba	OEL TWA (mg/m³)	2 mg/m³ (respirable particulate matter)
New Brunswick	OEL STEL (mg/m³)	10 mg/m³ (fume)
New Brunswick	OEL TWA (mg/m³)	10 mg/m³ (particulate matter containing no Asbestos and <1% Crystalline silica, dust) 5 mg/m³ (fume)
Newfoundland & Labrador	OEL STEL (mg/m³)	10 mg/m³ (respirable particulate matter)
Newfoundland & Labrador	OEL TWA (mg/m³)	2 mg/m³ (respirable particulate matter)
Nova Scotia	OEL STEL (mg/m³)	10 mg/m³ (respirable particulate matter)
Nova Scotia	OEL TWA (mg/m³)	2 mg/m³ (respirable particulate matter)
Nunavut	OEL STEL (mg/m³)	10 mg/m³ (dust and fume; respirable fraction)
Nunavut	OEL TWA (mg/m³)	2 mg/m³ (dust and fume; respirable fraction)

Northwest Territories	OEL STEL (mg/m³)	10 mg/m³ (dust and fume; respirable fraction)
Northwest Territories	OEL TWA (mg/m³)	2 mg/m³ (dust and fume; respirable fraction)
Ontario	OEL STEL (mg/m³)	10 mg/m³ (respirable)
Ontario	OEL TWA (mg/m³)	2 mg/m³ (respirable)
Prince Edward Island	OEL STEL (mg/m³)	10 mg/m³ (respirable particulate matter)
Prince Edward Island	OEL TWA (mg/m³)	2 mg/m³ (respirable particulate matter)
Québec	VECD (mg/m³)	10 mg/m³ (fume)
Québec	VEMP (mg/m³)	10 mg/m³ (containing no Asbestos and <1% Crystalline silica-total dust) 5 mg/m³ (fume)
Saskatchewan	OEL STEL (mg/m³)	10 mg/m³ (dust and fume, respirable fraction)
Saskatchewan	OEL TWA (mg/m³)	2 mg/m³ (dust and fume, respirable fraction)
Yukon	OEL STEL (mg/m³)	10 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	5 mg/m³ (fume) 30 mppcf (dust) 10 mg/m³ (dust)

8.2. Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountain capability should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. The following applies to the product if it is cut, sanded or altered in such a way that excessive and/or significant particulates and/or dusts may be generated: Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits. Power equipment should be equipped with proper dust collection devices. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. For particulates and dust: Insufficient ventilation: wear respiratory protection.

Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear protective gloves.

Eye Protection: Chemical safety goggles. Wear goggles with suitable filter lenses when use is cutting/welding.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

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

Consumer Exposure Controls: Avoid contact during pregnancy/while nursing.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	:	Solid
Appearance	:	Shaped as wire of various diameters
Odor	:	Not available
Odor Threshold	:	Not available
pH	:	Not available
Evaporation Rate	:	Not available
Melting Point	:	2700 °F (1482.22 °C)
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
Lower Flammable Limit	:	Not available
Upper Flammable Limit	:	Not available
Vapor Pressure	:	Not available
Relative Vapor Density at 20°C	:	Not available
Relative Density	:	Not available
Specific Gravity / Density	:	489.6 lb/ft³
Specific Gravity	:	Not available
Solubility	:	Not available
Partition Coefficient: N-Octanol/Water	:	Not available
Viscosity	:	Not available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: Hazardous reactions will not occur under normal conditions. Dust and other forms of product formed from processing might react with water producing a flammable/explosive environment, especially in confined spaces. Molten material will react violently with water. May react violently with incompatible materials, increasing risk of fire or explosion.

10.2. Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4. Conditions to Avoid: Direct sunlight, extremely high or low temperatures, and incompatible materials. Generation of airborne dust.

10.5. Incompatible Materials: Strong oxidizers. Calcium hypochlorite. Mineral acids.

10.6. Hazardous Decomposition Products: None expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: May cause an allergic skin reaction.

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer.

Specific Target Organ Toxicity (Repeated Exposure): Causes damage to organs through prolonged or repeated exposure.

Reproductive Toxicity: May damage fertility or the unborn child. May cause harm to breast-fed children.

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

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

Symptoms/Injuries After Skin Contact: May cause an allergic skin reaction. Risk of thermal burns on contact with molten product. Dust generated from material cutting may cause a slight irritation. Slivers may be generated, which could cause cuts. Cuts from the blade itself could cause a serious health hazard.

Symptoms/Injuries After Eye Contact: Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes. Risk of thermal burns on contact with molten product.

Symptoms/Injuries After Ingestion: May cause gastro-intestinal blockage if swallowed. May cause irritation of the gastrointestinal tract.

Chronic Symptoms: May cause cancer. May damage fertility or the unborn child. Causes damage to organs (central nervous system, blood, kidneys) through prolonged or repeated exposure (oral, inhalation). For particulates, dust, or fumes from processing: Repeated inhalation of iron oxide dust can cause siderosis a benign condition. Zinc: Prolonged exposure to high concentrations of zinc fumes may cause "zinc shakes", an involuntary twitching of the muscles. Otherwise, zinc is non-toxic. Lead: Exposure can result in lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; encephalopathy; kidney disease; hypertension. Lead can bioaccumulate over time, specifically in the skeleton, leading to potential toxicity. Lead body burdens vary significantly with age, health status, nutritional state, and many other factors. For more information on lead exposure see 29CFR 1910.1025. Manganese: Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Chronic exposure to excessive manganese levels can lead to a variety of psychiatric and motor disturbances, termed manganism. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. Nickel metal powder, when respirable, is a suspected human carcinogen, and is known to cause damage to the lungs through inhalation.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Iron (7439-89-6)	
LD50 Oral Rat	98.6 g/kg

Manganese (7439-96-5)	
LD50 Oral Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5.14 mg/l/4h

Nickel (7440-02-0)	
LD50 Oral Rat	> 9000 mg/kg

Lead (7439-92-1)	
IARC Group	2A
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.

Nickel (7440-02-0)	
IARC Group	2B
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: This product contains components that are environmentally hazardous and small chips and dust from processing may be toxic to aquatic life.

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

Nickel (7440-02-0)	
LC50 Fish 1	100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
EC50 Daphnia 1	> 100 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 Fish 2	15.3 mg/l
EC50 Daphnia 2	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

12.2. Persistence and Degradability

Zinc Galvanized Steel Wire	
Persistence and Degradability	Not established.

12.3. Bioaccumulative Potential

Zinc Galvanized Steel Wire	
Bioaccumulative Potential	Not established.

12.4. Mobility in Soil

Not available

12.5. Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, provincial, territorial, national, and international regulations.

Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with DOT Not regulated for transport

14.2. In Accordance with IMDG Not regulated for transport

14.3. In Accordance with IATA Not regulated for transport

14.4. In Accordance with TDG Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Zinc Galvanized Steel Wire	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

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

Zinc (7440-66-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	454 kg no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
SARA Section 313 - Emission Reporting	1.0 % (dust or fume only)

Lead (7439-92-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	10 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
SARA Section 313 - Emission Reporting	0.1 %

Manganese (7439-96-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 %

Nickel (7440-02-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	100 lb (only applicable if particles are < 100 µm)
SARA Section 313 - Emission Reporting	0.1 %

15.2. US State Regulations

Lead (7439-92-1)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
U.S. - California - Proposition 65 - Developmental Toxicity	WARNING: This product contains chemicals known to the State of California to cause birth defects.
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	WARNING: This product contains chemicals known to the State of California to cause (Female) reproductive harm.

U.S. - California - Proposition 65 - Reproductive Toxicity - Male	WARNING: This product contains chemicals known to the State of California to cause (Male) reproductive harm.

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.

Zinc (7440-66-6)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Lead (7439-92-1)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Manganese (7439-96-5)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Nickel (7440-02-0)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances
U.S. - Pennsylvania - RTK (Right to Know) List

15.1. Canadian Regulations

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

Zinc (7440-66-6)
Listed on the Canadian DSL (Domestic Substances List)

Lead (7439-92-1)
Listed on the Canadian DSL (Domestic Substances List)

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

Nickel (7440-02-0)
Listed on the Canadian DSL (Domestic Substances List)

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

Revision Date : 02/23/2017

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR).

GHS Full Text Phrases:

Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Carc. 1B	Carcinogenicity Category 1B
Carc. 2	Carcinogenicity Category 2
Comb. Dust	Combustible Dust
Lact	Reproductive toxicity (Lact.)
Repr. 1A	Reproductive toxicity Category 1A

Skin Sens. 1	Skin sensitization Category 1
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
H317	May cause an allergic skin reaction
H350	May cause cancer
H351	Suspected of causing cancer
H360	May damage fertility or the unborn child
H362	May cause harm to breast-fed children
H372	Causes damage to organs through prolonged or repeated exposure
H402	Harmful to aquatic life

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

NA GHS SDS 2015 (Can, US, Mex)