



Material Safety Data Sheet
Material Name: Welded Wire Reinforcement (WWR)

***** Section 1 – Chemical Product and Company Identification *****

Manufacturer Information

Gerdau Ameristeel
4221 West Boy Scout Blvd.
Suite 600
Tampa, FL 33607

Phone: (800) 876-3626

Emergency # 800-424-9300 (CHEMTREC)

***** Section 2 – Hazards Identification *****

Emergency Overview

Material contains nickel, which is suspected of causing cancer and may cause an allergic skin reaction. Fumes/dusts cause irritation of the eyes and respiratory tract. If exposed or concerned, get medical advice/attention.

Potential Health Effects: Eyes

Fumes/dusts cause eye irritation.

Potential Health Effects: Skin

Material contains nickel, which may cause an allergic skin reaction.

Potential Health Effects: Ingestion

Not considered a route of exposure under anticipated product use conditions.

Potential Health Effects: Inhalation

Inhalation of fumes/dusts may cause irritation of the nose, throat and lungs. Chronic irritation may cause bronchitis, pneumonitis, siderosis, upper respiratory tract irritation, headaches, lack of coordination, and/or metal fume fever.

HMIS Ratings: Health: 1 Fire: 0 HMIS Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

***** Section 3 – Composition/Information on Ingredients *****

CAS #	Component*	Percent
1309-37-1	Iron oxide	97
7439-96-5	Manganese	2
7440-50-8	Copper	1.5
124-38-9	Carbon dioxide	0.9
7440-02-0	Nickel	0.5
7440-21-3	Silicon	0.4
7446-09-5	Sulfur dioxide	0.08
7440-31-5	Tin	0.08
7723-14-0	Phosphorus	0.06
1314-62-1	Vanadium pentoxide	0.05

*Trace amounts of stearate, titanium dioxide, and calcium hydroxide may also be present.

***** Section 4 – First Aid Measures *****

First Aid: Eyes

In case of contact with 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.

First Aid: Skin

If on skin, wash with plenty of soap and water. If skin irritation or rash occurs, get medical advice/attention.

Material Safety Data Sheet

Material Name: Welded Wire Reinforcement (WWR)

First Aid: Ingestion

If the material is swallowed, get immediate medical advice/attention. Do not induce vomiting.

First Aid: Inhalation

If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if victim feels unwell.

***** Section 5 – Fire Fighting Measures *****

General Fire Hazards

See Section 9 for Flammability Properties.

Concentrations of metallic fines in the air could present an explosion hazard.

Hazardous Combustion Products

Above the melting point, iron oxide fumes may be present. Carbon oxides.

Extinguishing Media

For molten metal, use Class D chemical or sand.

Fire Fighting equipment/Instructions

Wear full protective clothing including a NIOSH approved self-contained breathing apparatus. Avoid breathing dust or fume.

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

***** Section 6 – Accidental Release *****

Containment Procedures

None necessary.

Clean-Up Procedures

Fine particles and small chips should be swept up and disposed of properly.

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Special Procedures

User should consult applicable standards for specific process employed to determine any special precautions needed to insure the health and safety of its employees.

***** Section 7 – Handling and Storage *****

Handling Procedures

Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Avoid breathing dust or fume. Avoid contact with skin and eyes. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of workplace. Wash contaminated clothing before reuse.

Storage Procedures

Store locked up.

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

Component Exposure Limits

CAS #	Component	OSHA PEL	NIOSH REL	ACGIH TLV
1309-37-1	Iron oxide	10 mg/m ³ TWA (fume)	5 mg/m ³ TWA (dust and fume, as Fe)	5 mg/m ³ TWA (respirable fraction)
7439-96-5	Manganese	1 mg/m ³ TWA (fume) 3 mg/m ³ STEL (fume) 5 mg/m ³ Ceiling	1 mg/m ³ TWA (fume) 3 mg/m ³ STEL	0.2 mg/m ³ TWA
7440-50-8	Copper	0.1 mg/m ³ TWA	1 mg/m ³ TWA (dust)	0.2 mg/m ³ TWA

Material Safety Data Sheet

Material Name: Welded Wire Reinforcement (WWR)

		(dust, fume, mists, as Cu)	and mist)	(fume) 1 mg/m ³ TWA (dust and mist, as Cu)
124-38-9	Carbon dioxide	10000 ppm TWA; 18000 mg/m ³ TWA 30000 ppm STEL; 54000 mg/m ³ STEL	5000 ppm TWA; 9000 mg/m ³ TWA 30000 ppm STEL; 54000 mg/m ³ STEL	5000 ppm TWA 30000 ppm STEL
7440-02-0	Nickel	1 mg/m ³ TWA	0.015 mg/m ³ TWA	1.5 mg/m ³ (inhalable fraction)
7440-21-3	Silicon	10 mg/m ³ TWA (total dust); 5 mg/m ³ TWA (respirable fraction)	10 mg/m ³ TWA (total dust); 5 mg/m ³ TWA (respirable dust)	NEL
7446-09-5	Sulfur dioxide	2 ppm TWA; 5 mg/m ³ TWA 5 ppm STEL; 15 mg/m ³ STEL	2 ppm TWA; 5 mg/m ³ TWA 5 ppm STEL; 13 mg/m ³ STEL	2 ppm TWA 5 ppm STEL
7440-31-5	Tin	2 mg/m ³ TWA	2 mg/m ³ TWA	2 mg/m ³ TWA
7723-14-0	Phosphorus	0.1 mg/m ³ TWA	0.1 mg/m ³ TWA	NEL
1314-62-1	Vanadium pentoxide	NEL	0.05 mg/m ³ Ceiling (15 min., dust and fume, as V)	0.05 mg/m ³ TWA (dust or fume, respirable fraction)

Engineering Controls

Use only outdoors or in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses; chemical goggles for fumes/dusts which may arise from thermal processing, cutting, grinding, or welding.

Personal Protective Equipment: Skin

Wear protective gloves.

Personal Protective Equipment: Respiratory

If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended.

*** Section 9 – Physical & Chemical Properties ***

Appearance: Grey metallic	Octanol/H2O Coeff.: Not Applicable
Physical State: Solid	Flash Point Method: Not Applicable
Vapor Pressure: Not Applicable	Lower Flammability Limit (LFL): Not Applicable
Boiling Point: 3000 °C (5432 °F)	Auto Ignition: Not Applicable
Solubility (H2O): Not Applicable	Flash Point: Not Applicable
Evaporation Rate: Not Applicable	Upper Flammability Limit (UFL): Not Applicable
Odor: Metallic or odorless	Burning Rate: Not Applicable
pH: Not Applicable	
Vapor Density: Not Applicable	
Melting Point: 1535 °C (2795 °F)	
Specific Gravity: 7.6-7.8	
VOC: Not Applicable	

*** Section 10 – Chemical Stability & Reactivity Information ***

Chemical Stability

Material Safety Data Sheet

Material Name: Welded Wire Reinforcement (WWR)

This is a stable material.

Chemical Stability: Conditions to Avoid

None

Incompatibility

Strong Acids; Strong Oxidizers.

Hazardous Decomposition

Metal fumes if heated. Above the melting point, iron oxide fumes may be present.

Possibility of Hazardous Reactions

Will not occur.

* * * Section 11 – Toxicological Information * * *

Acute Dose Effects

A: General Product Information

Operations or fire which supply sufficient energy to the product (i.e. welding, high speed grinding or melting) can release dust or fumes which may make components of the product biologically available. Exposure to dusts or fumes from some metals including iron, zinc, manganese, chromium, cobalt and copper can produce a condition known as metal fume fever. Iron dust can irritate the eyes and respiratory tract by mechanical action. Acute iron poisoning may involve hemorrhagic vomiting and diarrhea, abdominal pain, acidosis, coagulaopathy, shock, coma and convulsions followed by hepatic and renal failure and perhaps cardiovascular collapse. Chronic inhalation of iron has resulted in mottling of the lungs, a condition referred to as siderosis.

Systemic effects from ingestion of nickel include capillary damage, kidney damage, myocardial weakness and central nervous system depression. Allergic skin sensitization reactions are the most frequent effect of exposure to nickel compounds. Exposure to nickel compounds may also result in allergic lung sensitization. Exposure to copper fume or dust can cause respiratory tract irritation, hemolytic anemia and allergic contact dermatitis.

B: Component Analysis – LD50/LC50

Iron oxide (1309-37-1)

Oral LD50 Rat: >10000 mg/kg

Manganese (7439-96-5)

Oral LD50 Rat: 9 g/kg

Nickel (7440-02-0)

Oral LD50 Rat: >9000 mg/kg

Silicon (7440-21-3)

Oral LD50 Rat: 3160 mg/kg

Sulfur dioxide (7446-09-5)

Inhalation LC50 Rat: 2500 ppm/1H

Phosphorus (7723-14-0)

Inhalation LC50 Rat: 4.3 mg/L/1H

Oral LD50 Rat: 3.03 mg/kg

Dermal LD50 Rat: 100 mg/kg

Vanadium pentoxide (1314-62-1)

Inhalation LC50 Rat: 2.21 mg/L/1H

Oral LD50 Rat: 10 mg/kg

Dermal LD50 Rat: >2500 mg/kg

Material Safety Data Sheet

Material Name: Welded Wire Reinforcement (WWR)

Carcinogenicity

A: General Product Information

The carcinogenic effect of nickel has been well documented in occupationally exposed nickel refinery workers. Lung and nasal cancers were the predominant forms of cancer in the exposed workers.

B: Component Carcinogenicity

Iron oxide (1309-37-1)

ACGIH: A4 – Not Classifiable as a Human Carcinogen

IARC: Supplement 7 [1987], Monograph 1 [1972] (Group 3 (not classifiable))

Nickel (7440-02-0)

ACGIH: A5 – Not Suspected as a Human Carcinogen

NIOSH: Potential Occupational Carcinogen

NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)

IARC: Monograph 49 [1990], Supplement 7 [1987] (Group 2B (possibly carcinogenic to humans))

Sulfur dioxide (7446-09-5)

ACGIH: A4 – Not Classifiable as a Human Carcinogen

IARC: Monograph 54 [1992] (Group 3 (not classifiable))

Vanadium pentoxide (1314-62-1)

ACGIH: A4 – Not Classifiable as a Human Carcinogen

IARC: Monograph 86 [2006] (Group 2B (possibly carcinogenic to humans))

Teratogenicity

Manganese, copper and nickel have been reported to have adverse reproductive effects in experimental animals. Copper and nickel have been shown to be fetotoxic in experimental animals.

Neurological Effects

Chronic overexposure to manganese compounds may result in CNS effects such as weakness, sleepiness, emotional instability and spastic gait. These effects can be permanent.

Other Toxicological Information

Under normal conditions of handling, the likelihood of inhaling or ingesting amounts necessary for these effects to occur is very small.

*** Section 12 – Ecological Information ***

Ecotoxicity

A: General Product Information

No information available for the product.

B: Component Analysis – Ecotoxicity – Aquatic Toxicity

Copper (7440-50-8)

Test & Species

96 Hr LC50 Pimephales promelas	23 µg/L
96 Hr LC50 Oncorhynchus mykiss	13.8 µg/L
96 Hr LC50 Lepomis macrochirus	236 µg/L
72 Hr EC50 Scenedesmus subspicatus	120 µg/L
96 Hr EC50 Water flea	10 µg/L
96 Hr EC50 Water flea	200 µg/L

Nickel (7440-02-0)

Test & Species

Material Safety Data Sheet

Material Name: Welded Wire Reinforcement (WWR)

96 Hr LC50 Oncorhynchus mykiss	31.7 mg/L [adult]
96 Hr LC50 Pimephales promelas	3.1 mg/L
96 Hr LC50 Brachydanio rerio	>100 mg/L
72 Hr EC50 freshwater algae (4 species)	0.1 mg/L
72 Hr EC50 Selenastrum capricornutum	0.18 mg/L
96 Hr EC50 Water flea	510 mg/L

Phosphorus (7723-14-0)

Test & Species

96 Hr LC50 Lepomis macrochirus	0.0024 mg/L [flow-through]
96 Hr LC50 Brachydanio rerio	>100 mg/L [static]
48 Hr EC50 Daphnia magna	0.111 mg/L

*** Section 13 – Disposal Considerations ***

US EPA Waste Number & Descriptions

Disposal Instructions

All wastes must be handled in accordance with local, state and federal regulations.
See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*** Section 14 – Transportation Information ***

US DOT Information

Not Regulated

TDG Information

Not Regulated

*** Section 15 – Regulatory Information ***

US Federal Regulations

A: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Manganese (7439-96-5)

SARA 313: 1.0% de minimis concentration

Copper (7440-50-8)

SARA 313: 1.0% de minimis concentration

CERCLA: 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 larger than 100 micrometers); 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 larger than 100 micrometers)

Nickel (7440-02-0)

SARA 313: 0.1% de minimis concentration

CERCLA: 100 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 larger than 100 micrometers); 45.4 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 larger than 100 micrometers)

Sulfur dioxide (7446-09-5)

SARA 302: 500 lb TPQ

Material Safety Data Sheet

Material Name: Welded Wire Reinforcement (WWR)

Component Analysis – Inventory

Component	CAS #	TSCA	CAN	EEC
Iron oxide	1309-37-1	Yes	DSL	EINECS
Manganese	7439-96-5	Yes	DSL	EINECS
Copper	7440-50-8	Yes	DSL	EINECS
Carbon dioxide	124-38-9	Yes	DSL	EINECS
Nickel	7440-02-0	Yes	DSL	EINECS
Silicon	7440-21-3	Yes	DSL	EINECS
Sulfur dioxide	7446-09-5	Yes	DSL	EINECS
Tin	7440-31-5	Yes	DSL	EINECS
Phosphorus	7723-14-0	Yes	DSL	EINECS
Vanadium pentoxide	1314-62-1	Yes	DSL	EINECS

*** Section 16 – Other Information ***

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; EPA = Environmental Protection Agency; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; NFPA = National Fire Protection Association; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substance Control Act; TWA = Time Weighted Average.

End of Sheet