

# **SEVERSTAL WARREN**

Severstal Warren, Inc.  
999 Pine Ave., SE  
Warren, Ohio 44483  
Phone: (330) 841-8219

For additional information  
Contact:  
Severstal Warren, Inc.  
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Phone: (330) 841-8248

## **Material Safety Data Sheet**

### **Severstal Warren, Inc.**

<b>1. <u>Chemical Product and Company Identification</u></b>
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Product Name ..... **Galvanized Steel**  
Product Code..... **Galvanized Steel (See table for Grades)**

Culvert - ASTM A929 or AASHTO M218	CS, FS, DS, DDS, SS, SNA GRADES (SK)	HSLAS, HSLAS-F ,UHSS SNA GRADES (XK, XF)
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Chemical Family.....N/A  
Chemical Name.....N/A  
Formula.....N/A

**Manufacturer:**  
Severstal Warren, Inc.  
999 Pine Avenue, SE  
Warren, Ohio 44483-6528

**Telephone Numbers:**  
Information.....(330) 841-8219  
Emergency (330) 841-8248

## 2. Hazardous Ingredients

Concentrations for ingredients are expressed as % by weight.

Ingredient / CAS #	ASTM A929 , AASHTO M218	CS, FS, DS, DDS, SS, SNA GRADES (SK)	HSLAS, HSLAS-F ,UHSS SNA GRADES (XK, XF)
Iron 7439-89-6	80-98	88-99	88-96
Carbon 7440-44-0	0.10 maximum	0.40 maximum	0.15 maximum
Manganese 7439-96-5	0.60 maximum	1.70 maximum	2.00 maximum
Phosphorous 7723-14-0	0.025 maximum	0.040 maximum	0.040 maximum
Sulfur 7704-34-9	0.025 maximum	0.050 maximum	0.050 maximum
Silicon 7440-21-3	0.10 maximum	0.50 maximum	0.50 maximum
Aluminum 7429-90-5	0.12 maximum	0.15 maximum	0.15 maximum
Boron 7440-42-8	0.010 maximum (2)	0.010 maximum (2)	0.010 maximum (2)
Calcium 7440-70-2		0.010 maximum	0.010 maximum
Columbium 7440-03-1		0.02 maximum (3)	0.15 maximum
Copper 7440-50-8		0.99 maximum (1)	0.99 maximum (1)
Titanium 7440-32-6		0.25 maximum (3)	0.25 maximum
Vanadium 7440-62-2		0.02 maximum	0.15 maximum
Zirconium 7440-67-7		0.02 maximum	0.02 maximum
Zinc 7440-66-6	1.0-18.0 (4)	0.09-18.0 (4)	0.09-18.0 (4)
PVC 93050-82-9	0.3-1.5 (5)		

1. If specified
2. If Boron Stabilized
3. If Columbium-Titanium Stabilized
4. Applied as metallic coating
5. Applied as PVC coating if specified

The chemistries are provided for industrial hygiene and environmental purposes and are not intended to represent product specification. This information has been completed from data believed to be reliable. Elements such as arsenic, boron, calcium, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, tin, titanium, vanadium, and zirconium may be present in trace amounts. Steel products may be coated with petroleum oils to meet customer specifications. Information relative to specific coatings may be obtained from Severstal Warren, Inc. Steel products as shipped do not present an exposure hazard.

NOTE: Use gloves when handling this product to prevent skin irritation

### 3. Physical Characteristics

<b>Physical Form</b> .....	Solid
<b>Color</b> .....	Brown-Grey
<b>Odor</b> .....	None
<b>Boiling Point</b> .....	Not Applicable
<b>Melting Point</b> .....	2400-2800 F
<b>pH</b> .....	Not Applicable
<b>Solubility in Water</b> .....	Insoluble
<b>Specific Gravity</b> .....	7.5-8.5
<b>Vapor Pressure</b> .....	Not Applicable
<b>Vapor Density</b> .....	Not Applicable

### 4. Fire and Explosion Data

Steel products in the solid state present no fire or explosion hazard, However, the particulate generated may present a dust explosion hazard.

### 5. Reactivity

<b>Stability</b> .....	Stable
<b>Hazardous Polymerization</b> .....	Does not occur
<b>Incompatibilities</b> .....	None
<b>Hazardous Decomposition/Byproducts</b> .....	None

### 6. Accidental Release Measures

**Spill or Leak Procedures**.....Product is a solid material as shipped, no potential for spill or leak.  
**Waste Disposal**.....Follow Federal, state, and local regulations.

### 7. Exposure Controls / Personal Protection

**Protective Equipment**.....The appropriate protective equipment (eye, face, hand) should be worn when burning, welding, brazing, grinding, or machining this product.

**Respiratory Protection**.....Use NIOSH/MSHA approved dust/mist respirators when generating particulates or fumes in accordance with 29CFR 1910.134.

**Ventilation**.....If your operation generates particulates when processing this product, local and general ventilation may be necessary to control employee exposures to within applicable limits.

## 8. Health Hazard Data

### Routes of Entry: Inhalation

### Symptoms of Overexposure:

**Iron (Iron Oxide):** Prolonged or repeated exposure to high concentrations may cause lung changes considered to be a benign pneumoconiosis (siderosis). Inhalation of iron oxide may cause irritation of eyes, nose, and throat, and metal fume fever.

**Carbon:** Primarily a nuisance dust. May cause mild irritation to the eyes and mucous membranes.

**Manganese:** Exposure may cause irritation of the eyes, nose, and throat, metallic taste in mouth, and metal fume fever. Advanced exposure symptoms may include weakness, sleepiness, nervousness, lack of coordination, uncontrollable laughter, mental confusion, speech disturbances, and aggressiveness. Manganese exposure may cause bronchitis, pneumonitis and central nervous system disturbances.

**Silicon:** Primarily a nuisance dust. May cause mild irritation to the eyes and mucous membranes.

**Aluminum:** Generally considered to be a nuisance particulate. May cause irritation to the upper respiratory tract, skin and eyes. Inhalation of fine particles may cause a pulmonary fibrosis known as Shaver's disease. Symptoms may include dyspnea, cough and fatigue. May be implicated in Alzheimer's disease.

**Boron:** May cause irritation of the eye, nose, and skin. Affects the central nervous, circulatory, and digestive systems. May cause circulatory depression, vomiting and diarrhea, followed by shock and coma. Body temperature may become subnormal and a erythematous rash may cover the entire body.

**Calcium Oxide:** Irritation of the eyes, nose, throat, and skin. May also cause severe skin burns, bronchitis and pneumonia. Repeated or prolonged exposures may result in dermatitis, ulceration and perforation of the nasal septum.

**Copper:** Irritation of the eyes, nose, throat and a metallic taste in the mouth. Exposures to high concentration may cause metal fume fever. Symptoms may include metallic taste in the mouth, dryness and irritation of the throat, cough, feeling of weakness, fatigue with fever, chills and profuse sweating. Symptoms generally occur 12-14 hours after exposure.

**Titanium:** Primarily a nuisance dust. May cause mild irritation to the eyes and mucous membranes.

**Vanadium:** Irritation of the respiratory tract and conjunctivae. Excessive exposure may result in skin pallor, greenish discoloration of the tongue, eczematous skin lesions, cough, bronchitis and chest pains. Long term exposure may cause pulmonary edema, pneumonia, chronic bronchitis, anemia, albuminuria and nervous complaints.

**Zirconium:** Generally considered to be of a low order of toxicity. Inhalation of zirconium dusts and fumes has caused no respiratory changes in humans. Animal studies suggest the possibility of interstitial pneumonitis, peribronchial abscesses, peribronchiolar granuloma and lobular pneumonia.

**Zinc:** Syndrome of metal fume fever. Symptoms may include metallic taste in mouth, dryness and irritation of throat, cough, feeling of weakness, fatigue with fever, chills, and profuse sweating. Symptoms generally occur 12-14 hours after exposure. May cause a dermatitis condition known as oxide pox.

**PVC:** Decomposition of PVC by heat may result in the release of vinyl chloride vapor and other irritants. May cause skin and mucous membrane irritation. Exposure may cause liver injury, nausea and central nervous system depression. Vinyl chloride has been found to be a human carcinogen.

**Coating Oils:** Steel coated with an oil may result in a mild skin irritation upon prolonged and repeated contact.

**Carcinogenicity:** Nickel, and chromium and some of their compounds are listed as carcinogens or potential carcinogens.

**Medical Conditions Aggravated by Exposure:** Current respiratory conditions can be aggravated by exposure.

**Exposure limits:**

Exposure Limits		
Name	OSHA PEL / STEL	ACGIH TLV / STEL
Iron	10 mg/m <sup>3</sup>	5 mg.m <sup>3</sup>
Carbon	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Manganese	0.2 mg/m <sup>3</sup>	5 mg/m <sup>3</sup> ceiling
Phosphorous	0.1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>
Sulfur	15.0 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Silicon	15 mg/m <sup>3</sup> total particulate 5 mg/m <sup>3</sup> respirable particulate	10 mg/m <sup>3</sup>
Aluminum	15 mg/m <sup>3</sup> Total fraction 5 mg/m <sup>3</sup> respirable fraction	10 mg/m <sup>3</sup>
Boron	15 mg/m <sup>3</sup> (as total dust)	10 mg/m <sup>3</sup>
Calcium	5 mg/m <sup>3</sup> (as calcium oxide)	2 mg/m <sup>3</sup> (as calcium oxide)
Copper	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>
Titanium	15 mg/m <sup>3</sup> (as titanium dioxide)	10 mg/m <sup>3</sup> (as titanium dioxide)
Vanadium	NE	NE
Zirconium	5 mg/m <sup>3</sup> (as Zr)	5 mg/m <sup>3</sup> (as Zr)
Zinc	15 mg/m <sup>3</sup> (as zinc oxide)	15 mg/m <sup>3</sup> (as zinc oxide)
PVC	NE	NE

- OSHA – U.S. Department of Labor Occupational Safety and Health Administration
- ACGIH – American Conference of Governmental Industrial Hygienists
- PEL – OSHA Permissible Exposure Limit (8-hour Time Weighted Average)
- STEL – OSHA and ACGIH Short term Exposure limit (15 minute exposure)
- TLV – ACGIH Threshold Limit Value (8-hour Time Weighted Average)
- Ceiling Limit – OSHA and ACGIH instantaneous exposure limit
- NE – No Exposure Limit Established

**9. First Aid Measures**

**Eyes:**...Flush eyes thoroughly with clean, lukewarm water for 15 minutes. Seek medical attention.

**Skin:**...Wash affected area with soap and water.

**Inhalation:**...Remove to fresh air. Restore/support breathing as necessary. Seek medical attention.

**Notes to Physician:** Respiratory disorders may be aggravated by exposure to metallic and/or organic/inorganic coating dusts or fumes. If steel contains lead consult OSHA Lead Standard 1910.1025.

**10. SPECIAL PRECAUTIONS**

None

**11. S.A.R.A. Information**

Manganese, Vanadium, Copper, and Zinc compounds in this product are subject to the reporting requirements of section 313 of the Title III of the S.A.R.A. Act of 1986 and CFR 40 372.

**12. Ecological Information**

No ecological concerns identified.

**14. Disposal Considerations**

Dispose of waste in accordance with federal, state, provincial, and local regulations. Material can be disposed of in a regular manner.

**14. Transportation Information**

No special transportation classifications

**15. Regulatory Information**

**WHIMMS Classification (Canada):**

Not classified, labeling required summarizing handling requirements.

**OSHA Status:**

This product may contain compounds whose exposures are regulated under the Department of Labor Occupational Health and Safety Administrations code of federal regulations concerning general industry activities and construction activities.

**US EPA Status:**

This product is not listed on TSCA 8(b) inventory.

This product is not listed on the TSCA export notification 12(b) list.

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- MSDS prepared October 2002
- Re-approved May 2008
- Update company name September 2008