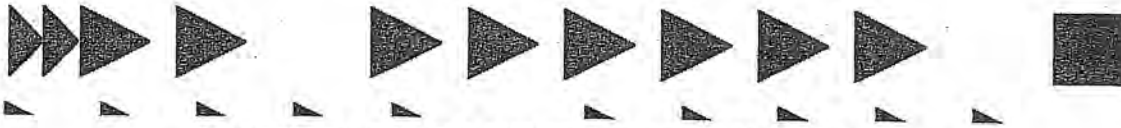




STRUCTURAL



# MATERIAL SAFETY DATA SHEET

## I. PRODUCT IDENTIFICATION

<b>Manufacturer:</b>	Steel Dynamics, Inc.	<b>Telephone:</b>	
<b>Address:</b>	2601 County Road 700 East Columbia City, Indiana 46725	<b>Emergency &amp; Information:</b>	(260) 625 – 8100 Safety Department
		<b>Product Name:</b>	Hot Rolled Carbon Steel
		<b>Common Name(s):</b>	Steel
		<b>Use/Description:</b>	Structural Steel Rail Steel

## II. INGREDIENTS AND RECOMMENDED OCCUPATIONAL EXPOSURE LIMITS

Note: Steel Products Under Normal Conditions Do Not Present An Inhalation, Ingestion or Contact Health Hazard (See Section VI)

Chemical Name	CAS Number	Weight %	Exposure Limits	
			OSHA PEL	ACGIH TLV
<b>Base Metal:</b>				
Iron	1309-37-1	Balance	10mg/m <sup>3</sup> Dust & Fume	5mg/m <sup>3</sup>
<b>Alloying Elements:</b>				
Calcium	1317-65-3	< 0.015	15mg/m <sup>3</sup> Dust	10mg/m <sup>3</sup>
Carbon	7440-44-0	.01 / .85	15mg/m <sup>3</sup> Dust 5mg/m <sup>3</sup> Respirable	10mg/m <sup>3</sup>
*Manganese	7439-96-5	.50 / 1.50	5mg/m <sup>3</sup> (STEL) Fume	1mg/m <sup>3</sup> Fume 3mg/m <sup>3</sup> (STEL)
Niobium		0 / .05	N/A	N/A
Nitrogen	7727-37-9	0 / .015	N/A	N/A
Phosphorus	7723-14-0	0 / .15	.1mg/m <sup>3</sup>	.1mg/m <sup>3</sup>
Silicon	7440-21-3	.10 / .60	10mg/m <sup>3</sup> Total Dust 5mg/m <sup>3</sup> Respirable Fume	10mg/m <sup>3</sup> Fume
Vanadium	1314-62-1	0 / .1	.5mg/m <sup>3</sup> Dust (Ceiling) .05mg/m <sup>3</sup> Fume	.05mg/m <sup>3</sup>
<b>Trace Elements:</b>				
Aluminum	7429-90-5	< .01	15mg/m <sup>3</sup> Dust 5mg/m <sup>3</sup> Respirable	10mg/m <sup>3</sup> Dust 5mg/m <sup>3</sup> Fume
*Antimony	7440-36-6	< .02	5mg/m <sup>3</sup>	.5mg/m <sup>3</sup>
*Chromium	7440-47-3	0 / .35	1mg/m <sup>3</sup> Chromium Metal	.5/m <sup>3</sup>
*Copper	7440-50-8	0 / .60	.1mg/m <sup>3</sup> Fume 1mg/m <sup>3</sup> Dust/Mist (Cu)	.2/m <sup>3</sup> Fume 1mg/m <sup>3</sup>
*Lead	7439-92-1	< .015	.05mg/m <sup>3</sup>	.05mg/m <sup>3</sup>
Molybdenum	7439-98-7	0 / .15	5mg/m <sup>3</sup> Soluble	10mg/m <sup>3</sup>
*Nickel	7440-02-0	0 / .45	1mg/m <sup>3</sup>	1mg/m <sup>3</sup>
Sulfur	7704-34-9	0 / .045	15mg/m <sup>3</sup> Dust 5mg/m <sup>3</sup> Respirable	10mg/m <sup>3</sup>
Tin	7440-31-5	< .015	2mg/m <sup>3</sup>	2mg/m <sup>3</sup>
Titanium	13463-67-7	< .05	15mg/m <sup>3</sup>	10mg/m <sup>3</sup>
Zinc	7440-66-6	< .01	10mg/m <sup>3</sup>	10mg/m <sup>3</sup> Fume

The above listing is a summary of the elements contained with the steel manufactured by Steel Dynamics, Inc.. Various grades of steel will contain different combinations of elements.

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**Note:** In its manufactured and shipped state is considered non-hazardous. Processing, however, may generate fumes and particulate matter.

\* Designated Toxic Chemicals contained in this product are subject to the reporting requirements of Section 313 of the *Emergency Planning And Community Right To Know Act of 1986 (40 CFR)*.

\* If this product is re-distributed, this notification must be supplied.

### III. PHYSICAL DATA

**Melting Point:** 2750 °F

**Appearance:**  
**Odor:**

Metallic Gray  
No Odor

### IV. FIRE AND EXPLOSION HAZARD DATA

Steel Products in the solid state present No Fire or Explosion Hazard

Unusual Fire and Explosion Hazards: Temperatures above the melting point may liberate fumes of iron, nickel and zinc oxide.

### V. REACTIVITY DATA

Stable under normal conditions of use, storage, and transport. Will react with strong acid to liberate hydrogen. At temperatures above the melting point may liberate fumes of iron, nickel and zinc oxide.

### VI. HEALTH HAZARD DATA

#### Major Exposure Hazard

Inhalation

Skin Contact

Eye Contact

Ingestion

Chronic Inhalation of high concentrations of Iron Oxide Fume or Dusts may lead to a Benign Pneumoconiosis (Siderosis). Inhalation of high concentrations of Ferric Oxide may possibly enhance the risk of Lung Cancer in workers exposed to Pulmonary Carcinogens.

The inhalation of high concentrations of freshly formed Oxide Fumes and Dusts of Manganese, Copper, Lead, and/or Zinc in the respirable particle size range can cause Influenza-like illness termed Metal Fume Fever. Typical symptoms last 12 to 48 hours and are characterized by metallic taste in the mouth, dryness, and irritation of the throat, followed by weakness, muscle Pain, Fever, and Chills.

**Emergency and First Aid Procedures:** For overexposure to airborne fumes and particulates; remove exposed person to fresh air. If breathing is difficult or has stopped, administer artificial respiration or oxygen as indicated. Seek Medical Attention Promptly.

Treat Metal Fume Fever by bed rest, and administer a pain and fever reducing medication.

### VII. SPILL OR LEAK PROCEDURES

Not applicable to Steel in the solid state.

Waste Disposal Method: Metals may be reclaimed. Dispose of in a Land Fill in accordance with all Local, State, and Federal Regulations.

### VIII. SPECIAL PROTECTION INFORMATION

**Respiration:** NOISH/MSHA – Approved Dust and Fume Respirators should be used to avoid excessive inhalation of particulates. Appropriate respirator selection depends on the magnitude of exposure.

**Skin:** Protective gloves should be worn as required for welding, burning, or handling operations.

**Eye:** Use Safety Glasses or Goggles as required for welding, burning, sawing, brazing, grinding, or machining operations.

**Ventilation:** Local exhaust ventilation should be provided when welding, burning, sawing, brazing, grinding, or machining to prevent excessive dust or fume exposure.

**Other Protective Equipment:** Depending upon the conditions of use and specific work situations, additional protective equipment and/or clothing may be required to control exposures.

## IX. SPECIAL PRECAUTIONS

**Handling and Storage:** Operations with the potential for generating high concentrations of airborne particulates should be evaluated as necessary. Avoid breathing Metal Fumes and/or Dusts.

**Other Comments:** Medical Conditions Aggravated By Exposure: Individuals with chronic respiratory disorders (i.e. Asthma, Chronic Bronchitis, Emphysema, etc.) may be adversely affected by any fume or airborne particulate matter exposure.