



CSN, LLC  
 455 West Industrial Drive  
 Terre Haute, Indiana 47802

Business Phone: 812-299-4157  
 Fax: 812-299-8848  
 24 Hour Contact:  
 812-299-8866 Ext. 1117

**Material Safety Data Sheet – MSDS**

**1. Material Identification**

**Material Name: Carbon Steel - high strength low alloy**

**Chemical Family: Metals**

**Form: Cold Rolled Sheets in Coils**

**2. Hazardous Ingredients**

(Alloy Elements) Name and Symbol	% (%Weight)	(Exposure Limits)	
		OSHA PEL (mg/m <sup>3</sup> )	ACGIH TLV(mg/m <sup>3</sup> )
Iron (Fe)	Matrix (base metal)	10 (Iron Oxide Fume)	5 (Iron Oxide Dust and Fume)
Carbon (C)	0.00-2.00	PNOR	10 (Inhalable) 3 (Respirable)
Manganese (Mn)	0.05-2.00	5	.2
Phosphorus (P)	0.15 max	PNOR	10 (Inhalable) 3 (Respirable)
Sulfur (S)	0.35 max	PNOR	10 (Inhalable) 3 (Respirable)
Silicon (Si)	0.00-3.00	15 (Total Dust) 5 (Respirable)	10
Titanium (Ti)	0.00-0.20	PNOR <sup>+</sup>	10
Aluminum (Al)	0.00-0.20	15 (Total Dust) 5 (Respirable)	10
Copper (Cu)	0.00-0.60	.1 (Fume) 1 (Dust or Mist)	.2 (Fume) 1 (Dust or Mist)
Molybdenum (Mo)	0.00-0.15	15 (Total Dust) 5 (Soluble Compounds)	10
Chromium (Cr)	0.00-0.80	1	.5
Nickel (Ni)	0.00-0.50	1	1

**\*PNOR (Particulates Not Otherwise Regulated).** All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the PNOR limit which is the same as the inert or nuisance dust limit of 15 mg/m<sup>3</sup> for total dust and 5 mg/m<sup>3</sup> for the respirable fraction.

The described elements may be hazardous to health and/or the environment. In steel, they are dissolved and/or precipitated in an iron matrix and aren't hazardous to health and/or environment.

Note: The above listing is a summary of elements used in alloying steel . Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

**Toxicity:** Airborne particulates may be harmful to lungs.

### 3. Physical Data

<b>Melting Point</b>	1535 °C (2795 °F)
<b>Absolute boiling point</b>	3000 °C (5432 °F)
<b>Specific Gravity</b>	7.86
<b>Atomic mass</b>	55.84
<b>Atomic number</b>	26
<b>Mean specific heat</b>	0.11 cal/g. °C (460 j/kg. K)
<b>Melting heat</b>	3.7 kcal/at.g (74928.37 j/kg)
<b>Appearance</b>	Gray, silver, black with metallic luster
<b>Odor</b>	Odorless

### 4. Fire and Explosion Data

Steel products in the solid state do not present a fire or explosion hazard.

### 5. Health/Safety Information

Steel products, as supplied state do not present any inhalation, ingestion or contact health hazard. However, operations such as welding, burning, sawing, grinding, and possibility machining, which results in elevating the temperature of the product to or above its melting point or results in the generation of airborne particulates, may present hazards. The above operations should be performed in well-ventilated areas. The major exposure hazard is inhalation.

#### **Effects of overexposure:**

**(Acute):** Excessive inhalation of metallic fumes and dusts may result in irritation of eyes, nose, and throat. Also high concentrations of fumes and dusts of iron oxide, manganese, copper, zinc and lead may result in metal fume fever. Typical symptoms consist of a metallic taste in the mouth, dryness and irritation of the throat, chills and fever, and usually last from 12 to 48 hours.

**(Chronic):** Chronic and prolonged inhalation of high concentrations of fumes or dust of the following elements may lead do the condition listed opposite the element:

- Iron (iron-oxide) – pulmonary effects, siderosis
- Manganese – bronchitis, pneumonitis, lack of coordination
- Phosphorous – necrosis of the mandible
- Sulfur (as sulfur dioxide) – edema of the lungs
- Nickel and Chromium – certain nickel and chromium compounds have listed by as nasal and lung carcinogen

#### **(First Aid):**

a) Inhalation of airborne plume, fumes and particulates – remove to fresh air. Seek medical attention.

b) Eye contact: Immediately flush well with running water; get medical attention.

c) Skin contact: If irritation develops, remove clothing and wash well with soap and water. If condition persists, seek medical attention.

### 6. Reactivity Data

**a) Stability:** Stable except at extreme heat (above 1500 °C).

**b) Incompatibility:** Reacts with strong acids to form hydrogen gas.

**c) Hazardous Decomposition Products:** Smoke fumes and oxide of iron, manganese, chromium, nickel and molybdenum when welding or flame cutting. Area to be kept well ventilated.

#### **7. Special Protection Information**

**a) Respiratory:** Approved respirators should be used to avoid excessive inhalation of fumes and particulates. In the absence of natural ventilation, mechanical ventilation must be provided if plume, fumes and particulates exceed established PEL's. Recommended when performing tasks such as welding, burning, grinding and other machining operations.

**b) Eyes:** Appropriate eye protection (safety glasses, face shield, welding and cutting helmets, etc.) during welding, grinding, and or other machine operations.

**c) Other clothing and equipment:** Additional clothing and protective equipment may be needed depending on the nature and extent of the work being performed. Personal protective equipment hazard assessments may need to be performed according to State and Federal Laws.

#### **8. Special Precautions**

Good housekeeping practices should be maintained at all times in the work area. Safety and working equipment should be maintained in good condition. Steel may be protected with various coatings, oils, or paints. In such cases, and depending on the nature of the material, special precautions should be taken when handling, cutting, welding, burning and performing any other operations that may result in the formation of fume, dust or particulates.

#### **9. Other Information**

**The information in this MSDS was obtained from sources which we believe are reliable. The information, however, is provided without any representation or warranty, expressed or implied, regarding its accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of in any way connected with the handling, storage, use or disposal of the product.**