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## MATERIAL SAFETY DATA SHEET

### I. MATERIAL IDENTIFICATION

<b>PRODUCT NAME</b>	<b>MANUFACTURER:</b>
CARBON STEEL BAR, SHEETS, PLATE, STRUCTURAL, TUBULAR	VARIOUS

### II. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	CAS NUMBER	% WEIGHT	EXPOSURE LIMITS	
			OSHA PEL (mg/m <sup>3</sup> )	ACGIH TLV (mg/m <sup>3</sup> )
Carbon (C)	7440-44-0	0.00-1.5	None Listed	None Listed
Chromium (Cr)	7440-47-3	0.00-30	1.0 as chrome	0.5 as chrome salts
Manganese (Mn)	7439-95-5	0.05-2.0	5 as manganese	5 as dust, 1 fume
Molybdenum (Mo)	7439-98-7	0.00-10	15 as insoluble compds	10 as insoluble compds
Nickel (Ni)	7440-02-0	0.00-37	1.0 as Nickel	1.0 as Nickel
Phosphorous (P)	7723-14-0	0.15 Max.	0.1 as Phosphorous	0.1 as Phosphorous
Silicon (Si)	7440-21-3	0.00-3	None Listed	10 total dust
Sulfur (S)	7704-34-9	0.00-0.35	13 Sulfur dioxide	5 Sulfur dioxide
Iron (Fe)	7439-89-6	100 Max	10 iron fume; N/A as Fe	N/A as iron; 5 as Fe
Zinc (Zn) coating	1325-13-2	> 98	5.0 as fume	5.0 as fume
Oil coating (optional)	SEE ADDITIONAL INFORMATION			

**NOTE:** The above listing is a summary of elements used in various grades of steel and may contain different combinations of these elements. Trace elements may also be present in minute amounts.

### III. PHYSICAL DATA

<b>MELTING POINT</b>			
Base Metal 2750°F	Not Applicable	Evaporation Rate	Not Applicable
Vapor Pressure (MM HG at 20°C)	Greater than 7	Boiling Point	Not Applicable
Specific Gravity: Water + 1)	Not Applicable	Solubility in Water	Not Applicable
Vapor Density (Air - 1)	Not Applicable	Appearance and Odor	Black, metallic lustre, odorless

### IV. FIRE AND EXPLOSION DATA

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

### V. HEALTH/SAFETY INFORMATION

Steel products in the natural state do not present an inhalation, ingestion, or contact health hazard. However, operations such as welding, burning, sawing, brazing, grinding, and possibly 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 are as follows:

**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 & 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 to the condition listed opposite to the element:

**Chromium** - Various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract, and possible cancer of nasal passages and lungs.

**Sulfur (as sulfur dioxide)** - Edema of the lungs.

**Iron (iron oxide)** - Pulmonary effects, siderosis.

**Zinc** - Arthritis, lameness and inflammation of the gastro-intestinal tract reported from animal studies.

**Manganese** - Bronchitis, pneumonitis, lack of coordination.

#### FIRST AID:

**Molybdenum** - Pain in joints, hands, knees and feet. Morphological changes in the liver, kidneys and spleen; anemia, diarrhea, coma, deformity and growth retardation.

**INHALATION** of airborne fumes and particulates, remove to fresh air. Get medical attention.

**Nickel** - SAME AS CHROMIUM.

**Eye Contact:** Immediately flush well with running water. Get medical attention.

**Phosphorous** - Necrosis of the mandible.

**Skin Contact:** If irritation develops, remove clothing and wash well with soap and water. If condition persists, get medical attention.

**REACTIVITY**

Stability	Incompatibility (Materials to Avoid)
Stable	Reacts with strong acids to form hydrogen gas
<b>Keep Area Well Ventilated</b>	
Conditions to Avoid	Non-ventilated areas when cutting, welding, burning, or brazing; avoid generation of airborne dusts and fumes.
Hazardous Decomposition Products	Metallic Oxides

**VI. ENVIRONMENTAL**

Spill or Leak Procedures:	NA
Special Precautions: Use good housekeeping practices to prevent accumulation of dust and to keep airborne dust to a minimum.	
Waste Disposal Method	Dust, etc. — Follow federal, state, and local regulations regarding disposal.

**VII. ADDITIONAL INFORMATION**

**Disclaimer**  
 The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any representation or warranty, expressed or implied regarding the accuracy or correctness.  
 The possible presence of oil coatings on steel products should be recognized and considered when evaluating potential employee health hazards and exposures during welding or other dust/fume generating activities.  
 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 or in any way connected with the handling, storage, use or disposal of the product.