



"The Complete Steel Service Center"
Since 1933

200 W. North Bend Rd.
Cincinnati, Ohio 45216

(513) 821-6400
OHIO 1-800-582-2626
U.S.A. 1-800-543-4922

April 18, 1986

To Our Customers:

In compliance with Occupational Safety and Health Administration (OSHA) Compliance Standard 29CFR1910.1200 which became effective November 25, 1985, we are required to provide the enclosed Material Safety Data Sheet (MSDS) for steel products which we distribute.

Please note that these products present no health hazard in their natural state during use, transportation or storage. However when subjected to welding, burning, grinding, cutting, abrasive blasting, heat treating, pickling or similar operations, potentially hazardous fumes or dust may be emitted.

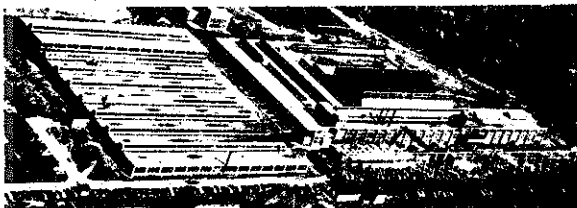
The information contained in the MSDS is intended to be used for employee health and safety education and not for specification purposes.

If we can be of further assistance, don't hesitate to call us.

Very truly yours,

FREDERICK STEEL CO.


Mark A. Kurtz, Vice President



Mill and Warehouse located on 75 acres and served by B & O siding

**HOT & COLD ROLLED BARS • STRUCTURALS • MESH • PLATE • SHEETS
REINFORCING BARS ROLLED IN OUR OWN MILL**

MATERIAL SAFETY DATA SHEET

Frederick Steel Co.

November 25, 1985

I. PRODUCT IDENTIFICATION

Company: Frederick Steel Co. - 200 W. North Bend Road, Cincinnati, OH 45216
 Trade Name (Common or Synonym): Carbon Steel
 Chemical Name: Steel
 Form: Bar, Structural, Plate, Sheet, Tubing, Wire
 Emergency Telephone: (513) 821-6400 or nearest Poison Control Center

II. PRODUCT INGREDIENTS

Material	CAS No.	% Wt.	Exposure Limits	
			OSHA PEL (mg/m ³)	ACGIH TLV (mg/m ³)
Base Metal				
Iron (Fe)	7439-89-6	Balance	10 - Oxide Fume	5 - Oxide Fume
Alloying Elements				
Aluminum (Al)	7429-90-5	0.10 Max	Not Established	Not Established
Carbon (C)	7440-44-0	0.015-1.5	Not Established	Not Established
Chromium (Cr)	7440-47-3	0.01-12.0	1.0 Chrome Metal	0.5 Chrome Metal
Copper (Cu)	7440-50-8	0.04-0.7	0.1 Fume/1.0 Dust	0.2 Fume/1.0 Dust
Lead (Pb)	7439-92-1	0.15-0.35	.05 Fume/.05 Dust	.15 Fume/.15 Dust
Manganese (Mn)	7439-96-5	0.05-2.0	5c Fume/5c Dust	1 Fume/5c Dust
Molybdenum (Mo)	7439-98-7	0.01-1.10	15 Insol Compds	10 Insol Compds
Nickel (Ni)	7440-02-0	0.01-10.0	1 Nickel Metal	1 Nickel Metal
Phosphorous (P)	7723-14-0	0.15 Max	0.1 Phosphorous	0.1 Phosphorous
Silicon (Si)	7440-21-3	0.15-2.20	Not Established	Not Established
Sulfur (S)	7704-34-9	.001-0.35	13 Sulphur Dioxide	5 Sulphur Dioxide
Vanadium (V)	7440-62-2	0.01-1.0	.1c Fume/.5c Dust	.05 Fume/.05 Dust
Zinc (Zn)	1314-13-2	10 Max	5.0 as Fume	5.0 as Fume

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. No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel. Values shown are applicable to component elements.

III. PHYSICAL DATA

Physical Form: Solid under normal conditions	
Appearance & Odor: Gray-black or Silver-gray odorless metal	
Specific Gravity (H ₂ O = 1): 7.84	Solubility in Water: (% by weight): N/A
Melting Point: Approx 2800 F	Boiling Point: N/A
Vapor Pressure: N/A	Vapor Density: N/A
Acidity/Alkalinity: N/A	% Volatile by Volume: N/A

IV. FIRE AND EXPLOSION DATA

Flash point: N/A
 Auto-ignition Temperature: N/A
 Flammable Limits in Air: N/A
Fire & Explosion Hazards-Extinguishing Media: Steel does not present fire or explosion hazards under normal conditions. Use fire fighting methods and materials that are appropriate for surrounding fire.

Fine metal particles, such as produced in grinding and sawing, can burn. High concentration of metallic fines in the air may present an explosion hazard. Molten metal may explode on contact with water. For these fires use dry powder or sand extinguishing media.

V. ENVIRONMENTAL HEALTH & SAFETY INFORMATION

HEALTH HAZARDS:

Steel products in their solid state present no inhalation, ingestion, or contact health hazard. Operations such as burning, welding, sawing, brazing, grinding and machining, which result in elevating the temperature of the product to, or above its melting point, or result in the generation of airborne particulates may present hazards. The major exposure hazard is inhalation. Effects of overexposure to fume and dust are as follows:
Acute: Excessive inhalation of metallic fumes and dusts may result in

irritation of eyes, nose and throat. High concentrations of fumes and dusts of iron-oxide, manganese, copper zinc and lead may result in metal fume fever. Typical symptoms last from 12 to 48 hours and consist of a metallic taste in the mouth, dryness and irritation of the throat, chills and fever.
Chronic: Chronic and prolonged inhalation of high concentrations of fumes or dust of the following elements may lead to the conditions listed opposite the element:

Aluminum: May initiate fibrotic changes in lung tissue.

Chromium: Lesions of the skin and mucous membranes, possibly cancer of the nose or lungs-bronchogenic carcinoma.

Copper: No chronic debilitating symptoms indicated.

Iron: Siderosis, pulmonary effects. No chronic debilitating symptoms indicated.

Lead: Prolonged exposures can cause behavioral changes, kidney damage, periphery neuropathy characterized by decreased hand-grip strength and adverse reproductive effects.

Manganese: Bronchitis, pneumonitis, lack of coordination.

Molybdenum: Respiratory tract irritation, possible liver and kidney damage, bone deformity.

Nickel: Lesions of the skin and mucous membranes, possibly cancer of the nose or lungs-bronchogenic carcinoma.

Phosphorous: Necrosis of the mandible.

Sulfur (as sulfur dioxide): Edema of the lungs.

Vanadium (as vanadium pentoxide): Emphysema, pneumonia.

Zinc: None reported.

Occupational Exposure Limits: See Products Ingredients Section II. Chromium and Nickel have been identified by the International Agency for Research on Cancer (IARC) and/or the National Toxicology Program (NTP) as potential cancer causing agents.

EMERGENCY MEDICAL PROCEDURES:

Inhalation: Remove to fresh air; if condition continues, consult a physician.

Eye Contact: Flush thoroughly with running water to remove particulate; obtain medical attention.

Skin Contact: Remove particles by washing thoroughly with soap and water. Seek medical attention if condition persists.

Ingestion: If significant amounts of metal are ingested, consult a physician.

OCCUPATIONAL PROTECTIVE MEASURES:

Respiratory Protection: Appropriate dust/mist/fume respirator should be used to avoid excessive inhalation of particulates. If exposure limits are reached or exceeded, use NIOSH approved equipment.

Hands, Arms and Body: Protective gloves should be worn as required for welding, burning or handling operations.

Eyes and Face: Safety glasses should be worn when grinding or cutting. Face shields should be worn when welding or burning.

Other Clothing and Equipment: As required depending upon operations and safety codes.

REACTIVITY INFORMATION:

Stability: Stable under normal conditions of use, storage or transportation.

Incompatibility (materials to avoid): Reacts with strong acids to form hydrogen gas.

Conditions to Avoid: Steel at temperatures above the melting point may liberate fumes containing oxides of iron and alloying elements. Avoid generation of airborne fume and dust.

SPILL, LEAK & DISPOSAL METHODS:

Fine turnings and small chips should be swept or vacuumed. Scrap metal can be reclaimed for reuse. Used or unused product should be disposed of in accordance with federal, state or local laws and regulations.

ADDITIONAL PRECAUTIONS:

Minimize and control operations producing dust and fume. Provide adequate exhaust ventilation and maintain good housekeeping.

DISCLAIMER

This MSDS is intended for use solely in safety education and environmental health training and not for specification purposes. The information in this MSDS was obtained from usually reliable sources and is provided without any representation or warranty, express or implied regarding the 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. Frederick Steel Co. assumes no responsibility and expressly disclaims liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.