

MATERIAL SAFETY DATA SHEET

IDENTIFICATION

Product Name: Reinforcement Bars, Semi-finished Billets, Rounds, Flats, Angles, Channels

Common Name: Carbon Steel
 Example: HSLA A588 & AISI Grade 1020, A-36
 Example: Rebar Carbon Steel Grades 40 & 60

Date Prepared: November 1, 1985
Date Revised: June 5, 2006

Manufacturer Address: Steel Dynamics, Roanoke Bar Division
 Post Office Box 13948
 Roanoke, Virginia 24038

Information and Emergency Phone Number: (540) 342-1831

HAZARDOUS SUBSTANCES AND OCCUPATIONAL EXPOSURE LIMITS

Hazardous Substance/ CAS Number	Weight Percent	Exposure Limits OSHA PEL ACGIH TLV
Iron 7439-89-6	98-99	OSHA PEL: 10mg/m ³ Oxide Fume ACGIH TLV: 5mg/m ³ Oxide Fume
Manganese 7439-96-5	0.47-1.35	OSHA PEL: (c) 5 mg/m ³ dust & fume ACGIH TLV: (c) 5 mg/m ³ dust & 1mg/m ³ fume
Nickel 7440-02-0	0.03-0.21	OSHA PEL: 1 mg/m ³ Nickel Metal ACGIH TLV: 1 mg/m ³ Nickel Metal
Chromium 7440-47-3	0.00-0.56	OSHA PEL: 1 mg/m ³ dust & fume ACGIH TLV: 0.5 mg/m ³ dust & fume
Lead 7439-92-1	0.00-0.07	OSHA PEL: 0.05 mg/m ³ dust & fume ACGIH TLV: 0.15 mg/m ³ dust & fume

****NOTES****

Nickel and its compounds are required to be considered carcinogenic by OSHA.

Iron Oxide, Fe₂O₃, is a possible carcinogen.

Chromium is considered carcinogenic.

Lead is a suspected carcinogen.

(c) Denotes ceiling limit, which is not to be exceeded at anytime.

PHYSICAL DATA

Melting Point: 2650 - 2750 F

Heat of Reaction in Water: None

Appearance: Metallic Grey

Odor: No Odor

Specific Gravity (H₂O=1): 7.9

Specific Heat (at 60 F): 0.11

Solubility in Water (Weight %): Nil.

FIRE AND EXPLOSION DATA

Flammability: Non-combustible

REACTIVITY DATA

Product Stability: Stable under normal conditions of use, storage, and transport.

HEALTH HAZARD DATA

Effects of Overexposure:

Iron and compounds: Chronic inhalation of iron oxide fumes or dust may lead to a benign pneumoconiosis (Siderosis). Iron oxide is also very toxic via the subcutaneous route.

Manganese and compounds: Inhalation of dusts or fumes can increase the frequency of upper respiratory distress (pneumonia), and in chronic cases there is lethargy, sleepiness, weakness in limbs, muscular twitchings, and many other symptoms.

Chromium and compounds: Corrosive to skin and mucous membranes, with lesions confined to exposed surfaces. Compounds can cause eczematous dermatitis.

Nickel and compounds: It is a human carcinogen in the form of respirable dusts/aerosols from Ni metal, nickel sulfide, and sulfide ores, nickel oxide, and nickel carbonate from processing and production.

Lead and compounds: Suspected carcinogen. Poison by ingestion. Human systemic effects by ingestion and inhalation: loss of appetite, insomnia, headache, irritability, and other symptoms.

Emergency and First Aid Procedures: For overexposure to airborne fumes and dusts, remove exposed person to fresh air. Administer artificial respiration if individual's breathing has ceased, or administer oxygen if respiration is labored in individual. Promptly seek medical attention.

Primary Route of Entry: The primary route of entry by which the hazardous substances enter the body would be inhalation.

SPILL OR LEAK PROCEDURES

Any spilled material should be collected and placed in an appropriate container for removal or reuse.

SPECIAL PROTECTION INFORMATION

Precautions for Safe Handling and Use: Operations that generate high concentrations of fume and/or particulates need special precautions to prevent overexposure. Maximum respiratory protection and adequate ventilation must be maintained during operations. Avoid breathing fumes or dusts.

Respiratory Protection: NIOSH/MSHA-approved respirators should be used to avoid inhalation of dusts and fumes.

Protective Equipment:

- A. Gloves should be worn as required for welding, burning, or handling operations.
- B. Use safety glasses/side shields or goggles as required for welding, burning, sawing, brazing, grinding or machining operations.
- C. Safety boots/shoes
- D. Hard hat
- E. Coveralls
- F. Local exhaust ventilation should be provided when welding, burning, sawing, brazing, grinding or machining to prevent excessive dust or fume exposure.

SECTION 313 SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40CFR372):

CAS No.	Chemical Name	% By Weight
7439-96-5	Manganese	0.47 - 1.35
7440-02-0	Nickel	0.03 - 0.21
7439-92-1	Lead	0.00 - 0.07
7440-47-3	Chromium	0.00 - 0.56

This information must be included in all MSDS's that are copied and distributed for this material.