

COLD FINISH BAR

Material Safety Data Sheet

9 pages total

Product Name or Code: Steel

Company Name: Charter Steel

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Section 1: Product and Company Information

Supplier Name and Address: Charter Steel

1658 Cold Springs Drive
Saukville, Wisconsin 53080

Emergency Phone Number: (800) 424-9300 (Chemtrec)

Information Phone Number: (262) 268-2334

Product Name: Steel

Synonyms: Steel rod, steel bar, steel wire

Product Information: Carbon and low alloy steels; 10XX, 40XX, 41XX, 46XX, 50XX, 51XX, 52100, 6151, 81XX, 86XX, 87XX, 92XX and others

Issue Date: 12/10/2003

Section 2: Hazards Identification

EMERGENCY OVERVIEW

Appearance/ Odor: Grey or grey-black solid, odorless metal. May be billets, rods, bars or wire.

Steel rods, bars or wire in their final manufactured state do not pose health, fire or environmental hazards.

Operations such as welding, burning, flame or laser cutting, brazing, grinding, sanding, and sawing may release fume and other particulate (metal dust) which may present health, fire, explosion, or environmental hazards.

Fume or particulate may aggravate existing asthma and pulmonary disease.

Product may contain small amounts of nickel and chromium and trace amounts of lead which may be released during processing in forms that are listed as carcinogens or potential carcinogens by OSHA, IARC or NTP.

Molten metal or finely divided particulate, which has been ignited, may pose an explosion hazard in contact with water or other liquids. If fine particulate has ignited, use Class D Extinguishing agent.

Section 3: Composition/Information on Ingredients

Component	CAS#	% by Weight
Carbon	1333-86-4	< 1.1 %
Chromium	7440-47-3	< 1.5 %
Manganese	7439-96-5	< 2.0 %
Molybdenum	7439-98-7	< 0.7 %

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- ¹ Total particulate (OSHA definition)
- ² Inhalable particulate (ACGIH definition)
- ³ Respirable particulate (ACGIH definition)
- ⁴ Some nickel compounds are carcinogens, excluding metallic nickel
- ⁵ Respirable particulate (OSHA definition)

Engineering Controls:

Steel billets, rods, bars and wire in their final manufactured state do not present inhalation, ingestion, or contact hazards. However, operations such as welding, burning, flame or laser cutting, brazing, grinding, sanding or sawing may release fume and other particulate, which should be captured with adequate local exhaust ventilation such as a fume extractor or vented down draft table. Mechanical exhaust ventilation is mandatory for welding and thermal cutting of carbon steel in confined spaces. Mechanical exhaust ventilation is also strongly recommended if the carbon steel surface is galvanized or coated since there may be toxic fumes from heat breakdown of the coatings. OSHA ventilation and work practice requirements for welding are in 29 CFR 1910.252.

Eye/Face Protection

Goggles or safety glasses with side shields and face shields should be used for protection against flying particulate and fume during steel processing. Provide appropriate welding helmet with eye protection during welding.

Skin Protection:

Protective clothing including long sleeves and long pants of nonflammable insulating material is recommended for protection during steel processing. Sturdy cut-resistant gloves should be worn when handling solid materials. Provide welding gloves, aprons or jackets, and other skin protection when welding, cutting, brazing or banding.

Respiratory Protection:

No respiratory protection is needed unless processing releases fume or particulate. Where exposures cannot be adequately controlled through exhaust ventilation provide respiratory protection in accordance with OSHA and NIOSH recommendations. Minimum respiratory protection would include half-face piece air purifying or PAPR with N,P,R-95 filter or supplied air in continuous mode.

General Hygiene Considerations

Hands and face should be washed before eating or smoking. Fume and other particulate should be removed from clothing by HEPA vacuuming. Compressed air MUST NOT be used for particulate removal. Contaminated clothing should not be worn off the job site.

Section 9: Physical and Chemical Properties

Color:	Grey or grey-black
Odor:	Odorless
Physical State:	Solid metal
pH:	Not applicable

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Chronic exposure:

Long term exposure to high concentrations of the heavy metals from burning or mechanical action on this product may cause the following chronic effects: Iron oxide fume may cause benign siderosis (a pneumoconiosis); Iron oxide may increase the risk of lung cancer development when also exposed to pulmonary carcinogens. Manganese may affect the central nervous system, causing sleepiness, languor, weakness in the legs, psychological or neurological and psychomotor effects; manganese may also cause reduced fertility in males. Silicon is an upper respiratory tract and skin irritant. Carbon is a skin, eye and respiratory tract irritant. Nickel is an irritant and sensitizer of the skin and respiratory tract. Some compounds of nickel cause cancer. Molybdenum particulate affects the eyes and respiratory system and may also damage the liver and kidneys.

Symptoms:

Symptoms of exposure to fume and other particulate from burning or mechanical action on steel include irritation of skin, eyes and throat; central nervous system effects such as sleepiness, languor, psychological and psychomotor effects; metal fume fever, cough, tightness in chest, weakness, fatigue, insomnia, GI distress, kidney, liver or cardiovascular system disease.

Section 12: Ecological Information

Steel in the solid manufactured state does not present an ecological hazard.

Section 13: Disposal Considerations

Disposal: Not a RCRA (Resource Conservation and Recovery Act) hazardous waste. Dispose of per local, state and federal requirements.

Exception: Steel Swarf (ferrous metal borings, powder, dust, cuttings, shavings, turnings, etc.) is ignitable and has the EPA Hazardous Waste Number of D001. Recycle or remove to a waste facility in compliance with local, state and federal regulations.

Section 14: Transport Information

Steel rods, wires and bars in their final manufactured state are not a US Department of Transportation (US DOT) regulated hazardous material requiring labeling or a placard.

Exception: Steel Swarf is a DOT regulated material.

Hazard Class:	4.2
Identification No:	UN2793
PG:	III
Label Code:	4.2
Packaging:	No exceptions 213, 241
Placard:	SPONTANEOUS COMBUSTIBLE

Section 15: Regulatory Information

ACGIH	Threshold Limit Values for Chemical Substances and Physical Agents, 2003
NIOSH	Pocket Guide to Chemical Hazards, 2001
US DOT	Emergency Response Guide to Chemical Hazards, 2001

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MATERIAL SAFETY DATA SHEET

CARBON AND ALLOY STEELS

Issued: September 22, 1987

Revised: July 19, 2000

SECTION I - MATERIAL IDENTIFICATION

Material Name: Carbon and Alloy Steels

Other Designations: A-36, Carbon SBQ, Alloy SBQ,
60 Rebar, 11XX SBQManufacturer: TXI Chaparral Steel
300 Ward Rd
Midlothian, Texas 76065Emergency Information/Telephone
(972) 775-8241
Ask for Environmental Manager

SECTION II - HAZARDOUS INGREDIENTS

Elements	% By Weight	Hazardous Form	CAS Number	ACGIH TLV TWA, mg/m ³	OSHA PEL TWA, mg/m ³	NIOSH REL TWA, mg/m ³
Iron	>94	Oxide Fume	1309-37-1	5	10***	5***
Carbon	<1	Carbon Black	1333-86-4	3.5	3.5	3.5
Chromium	<1.2	Metal	7440-47-3	0.5	1	0.5
Manganese	<1.65	Dust Fume	7439-96-5 7439-96-5	5 1.3 (c)	5 (c) 1.3 (c)	1.3 (c)
Molybdenum	<1	Insoluble	7439-98-7	10	10*	0.015
Nickel	<2.0	Metal	7440-02-0	0.05	1	10**
Silicon	<1	Crystal	7440-21-3	10	10* 5**	5**

* Total Dust ** Respirable Fraction *** Total Dust (c) = STEL/CEILING

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Melting point: 1371-1482 degrees C. Vapor Pressure (Iron Dust): 1 mm Hg @ 1787 degrees C.

Specific gravity (@60 F.): 7.84 Solubility in H₂O: Insoluble

Appearance and Odor: Metallic silver-grey, odorless.

SECTION IV - FIRE and EXPLOSION DATA

Flash Point: N/A Flammability Limits: N/A Autoignition Temperature: 930 degrees C.

Solid, massive form is non-combustible.

Fire and explosion hazards are moderate when material is in the form of dust and is exposed to heat or flame or attacked by chemical reaction. Fires have been reported in piles of fine scrap, probably due to contamination from oil or other materials which support combustion.

Fire extinguishing Methods: Use special mixtures of dry chemicals or sand. Firefighters should wear self-contained breathing apparatus and protective clothing.

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SECTION V - REACTIVITY DATA

Massive material is stable at ordinary temperatures and during normal conditions of use, storage, and transport.

Dust presents moderate fire and explosion hazards.

Material may be incompatible with acids, bases and oxidizers.

SECTION VI - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY- Inhalation, ingestion, eye and skin contact or dust or fume (See Section II for threshold limit values).

Under normal handling and use, exposure to massive forms of steel presents no health hazards. Grinding, thermal cutting, and melting of steel may produce fumes containing elemental constituents, and breathing these fumes may present potentially significant health hazards. The exposure levels in section II are relevant to fumes and dusts. Special precautions should be taken if steel is contaminated (See section IX).

Chronic overexposure to iron oxide fumes may cause an early apparently benign pneumoconiosis (siderosis) with few or no symptoms. Overexposure to dusts and especially fumes containing elemental constituents of ferrous alloys may cause skin, nose, and eye irritation and lung changes in workers, potentially leading to pulmonary diseases.

Manganese fumes may cause metal fume fever with flu-like symptoms. Over exposure to manganese fumes can cause chronic manganese poisoning. Early symptoms include headaches, apathy, sleepiness, and weakness or cramps in the legs. Chronic overexposure can affect the central nervous system, ultimately leading to emotional disturbances, gait and balance difficulties, and paralysis.

Chromium and nickel compounds have been associated with allergic reactions and rashes, and lung changes. Nickel is a respiratory irritant and causes pneumonia. Hexavalent chromium compounds and some nickel compounds have been identified as potential human carcinogens.

SECTION VII - PRECAUTIONS for SAFE HANDLING and USE

Spill procedures:

No special precautions are necessary for spills of bulk solid material. If large quantities of dust are spilled, remove by vacuuming or wet sweeping to prevent heavy concentrations of airborne dust. Cleanup personnel should wear respirators and protective clothing.

SECTION VIII - CONTROL MEASURES

Use general and local exhaust ventilation to control airborne concentrations of dust or fumes. Employees should wear NIOSH-approved respirators for protection against airborne dust or fumes. Full protective clothing should be worn by workers exposed to heavy concentrations of dust, and showering should be required before changing into street clothes. Gloves and barrier creams may be necessary to prevent skin sensitization and dermatitis. Approved safety glasses or goggles should be worn when working with dusty material. Safety eyewash stations should be provided in close proximity to work areas. Food should not be consumed in the work area.

Pre-employment and periodic medical evaluations should be provided. Attention should be directed toward skin, eyes, respiratory tract, pulmonary function and neurologic health. Chest X-rays should be included if symptoms are present.

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SECTION IX - SPECIAL PRECAUTIONS

Use good housekeeping practices to prevent accumulations of dust to keep airborne dust concentrations at a minimum. Avoid breathing metal dust or fumes. Store material away from incompatible materials and keep dust away from sources of ignition. This material is potentially contaminated with coatings, paints, preservatives, cutting oils, and other contaminants. If the material is contaminated, special precautions (such as process control and personnel protective equipment, appropriate to the nature of the suspected contaminants) should be taken to avoid resulting exposures when handling, cutting (mechanical or thermal), grinding, and/or melting.

DISCLAIMER

This data is offered in good faith as typical values and not as a product specification. No warranty, either expressed or implied, is hereby made. The recommended Industrial Hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate. Because the conditions or methods of handling of the material described by this data sheet are beyond our control and may be beyond our knowledge, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of such handling.