



MATERIAL SAFETY DATA SHEET

COMPLIES WITH 29 CFR 1910.1200.
OSHA HAZARD COMMUNICATION RULE

1. CHEMICAL IDENTITY

LABEL IDENTITY	Carbon Steel
CHEMICAL NAME/SYNONYMS	Carbon Steel HR & CR Leaded Carbon

2. HAZARDOUS INGREDIENTS

<u>BASE METAL, ALLOYING ELEMENTS & METALLIC COATINGS</u>	<u>% COMPOSITION BY WEIGHT (1)</u>	<u>ACGIH TLV (mg/m3) (2)</u>
Base Metal		
Iron (Fe)	97-99	5 (as iron oxide)
Alloying Elements		
Manganese (Mn)	<2	5 (as dust-ceiling)
Carbon (C)	<2	none established
Aluminum (Al)	<1	10
Phosphorus (P)	<1	none for inorganic
Sulfur (S)	<1	5 (as SO2)
Silicon (Si)	<1	10 (total dust)
Vanadium (V)	<1	.05 (as respirable dust)
Colombian (Cb)	<1	none established
Bismuth (Bi)	<1	none established
Lead Carbon i.e. 10L42		
Lead (Pb)	<1	.05 (OSHA lead std.)

(1) % of alloying material varies with grade of material

(2) 1985-1986 ACGIH THRESHOLD LIMIT VALUE

3. PHYSICAL DATA

COLOR, FORM AND ODOR	Gray-black, solid and odorless
MELTING POINT	72500°F
SPECIFIC GRAVITY	Approximately 7

4. FIRE AND EXPLOSION HAZARD DATA

EXTINGUISHING MEDIA	NA
SPECIAL FIRE FIGHTING PROCEDURES	Steel products in the solid state present no fire or explosion hazard
UNUSUAL FIRE & EXPLOSION HAZARDS	NA



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5. REACTIVITY DATA

STABILITY	Stable
INCOMPATIBILITY (MATERIALS TO AVOID)	Reacts with strong acids to produce hydrogen gas
CONDITIONS TO AVOID	NA
HAZARDOUS DECOMPOSITION PRODUCTS	Metallic dust or fumes may be produced during welding, burning, grinding and possible machining

6. HEALTH HAZARD DATA

NOTE: STEEL PRODUCTS IN THE NATURAL STATE DO NOT PRESENT AN INHALATION, INGESTION OR CONTACT HAZARD. HOWEVER, OPERATIONS SUCH AS BURNING, WELDING, SAWING, BRAZING AND GRINDING MAY RELEASE FUMES AND/OR DUSTS WHICH MAY PRESENT HEALTH HAZARDS IF TLV'S ARE EXCEEDED.

MAJOR EXPOSURE HAZARD

INHALATION

EFFECTS OF OVEREXPOSURE

Short term exposure to fumes/dust may produce irritation of eyes and respiratory systems. Inhalation of high concentrations of freshly formed oxide fumes or iron, manganese and copper may cause metal fume fever characterized by a metallic taste in the mouth, dryness and irritation of the throat and influenza-like symptoms.

Chronic inhalation of high concentrations of iron oxide fumes or dust may lead to a benign pneumoconiosis (siderosis). Inhalation of high concentrations of ferric oxide may possible enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.

Inhalation or ingestion of lead particles may result in lead-induced systemic toxicity. Symptoms of lead poisoning include abdominal cramps, anemia, muscle weakness and headache. Prolonged exposure can cause behavioral changes, kidney damage, CNS damage and reproduction effects.

EMERGENCY AND FIRST AID PROCEDURES

If exposed to excessive levels of metal fumes, remove to fresh air, seek medical attention immediately. Eyes: Flush with water for at least 15 minutes.

7. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

NA

WASTE DISPOSAL METHOD:

Consult federal, state and local regulations for proper disposal.



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8. SPECIAL PROTECTIVE DATA

RESPIRATORY PROTECTION	NIOSH/MSHA approved dust and fume respirator should be used to avoid excessive inhalation of particulates when exposure exceeds TLV's
VENTILATION	Local exhaust ventilation should be utilized when welding, burning, sawing, brazing, grinding or machining when exposure exceeds TLV's
EYE PROTECTION	Safety glasses or goggles should be utilized as required by exposure
PROTECTIVE CLOTHING	Other protective equipment should be utilized as required by the welding standards

9. SPECIAL PRECAUTIONS

SPECIAL PRECAUTIONS: Local exhaust ventilation should be utilized when welding, burning, sawing, brazing, grinding or machining when exposure levels exceeds TLV's.

In welding, precautions should be taken for airborne contaminants which may originate from components of the welding rod.

Arc or spark generated when welding or burning could be a source of ignition for combustible and flammable materials.

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NA = NOT APPLICABLE