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Material Safety Data Sheet

Commodity Name: Mesabi Nuggets (Pig Iron)

CAS#: NA

Commodity Code: 46

DUSTS OR FUMES MAY CAUSE LUNG DISEASE

Trade Name and Synonyms: NA

Chemical Family: Alloy

Molecular Weight: NA

HAZARDOUS INGREDIENTS

Material	% Weight	OSHA PEL (unit)	ACGIH TLV (unit)
Iron	94 - 97	10 mg/M3 (oxide fume)	5 mg/M3 (oxide fume)
Carbon	2.5 - 3.5	5000 ppm (dioxide); 50 ppm (monoxide)	5000 ppm (dioxide); 50 ppm (monoxide)
Manganese	0.05 - 0.15	5 mg/M3	5 mg/M3 (dust); 1 mg/M3 (fume)
Silicon	0.05 - 0.50	15 mg/M3 (total dust); 5 mg/M3 (respirable dust)	10 mg/M3 (total dust); 5 mg/M3 (respirable dust)
Sulfur	0.05 - 0.15	5 ppm (dioxide)	2 ppm (dioxide)
Phosphorus	0.10 max	0.1 mg/M3 (yellow)	0.1 mg/M3 (yellow)

PHYSICAL DATA

Appearance: Metallic solid.
Melting Point: 2500°F
Specific Gravity: None Established.

HEALTH HAZARD DATA

Route of Exposure: Inhalation of dust or fumes.

Acute Effects: Excessive inhalation of fumes from many metals can produce an acute reaction known as "metal fume fever". Symptoms consist of chills and fever (very similar to and easily confused with flu symptoms), which come on a few hours after large exposures. Long-term effects of metal fume fever have not been noted.

SPECIAL PROTECTION INFORMATION

Ventilation: Local exhaust ventilation should be provided to keep worker exposures within allowable limits during welding or grinding operations.

Respiratory Protection: When engineering or administrative controls are not feasible to control overexposure or while they are being instituted, appropriate NIOSH-approved respirators should be used and selected according to 29CFR 1910.134.

Eye Protection: Personal protective equipment for eyes should be worn when there is a reasonable probability of injury during welding or grinding.

Protective Gloves: As needed to protect against physical hazards.

CARCINOGENIC ASSESSMENT

NTP, LARS, or OSHA has NOT identified the ingredients as known or suspect carcinogens.

REACTIVITY DATA

Stability: Stable under normal conditions of handling and use.

Conditions to Avoid: Heat or Flame

Incompatibility: Iron dust and manganese react violently with halogens, hydrogen peroxide, NO₂, phosphorus, sodium acetylide, sulfuric acid, air, water, polystyrene, and oxidizing agents. Manganese can react with water and steam to produce hydrogen.

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not occur.

SPECIAL PRECAUTIONS

The metal itself does not present a health hazard unless it is welded, burned, ground or cut. During these procedures, it is possible that excessive amounts of fumes or dust may be generated. It is advised that your particular operation be evaluated by a competent health professional to determine whether a hazard exists.

Chronic Effects: Only after six to ten years of exposure to iron dust or fume does one present any signs of pneumoconiosis (i.e., siderosis). Physical examinations of those exposed to iron dust have not indicated any disability. Excessive and prolonged inhalation of manganese (generally over 2 years exposure) can cause damage to the central nervous system. The pathology resembles Parkinson's Disease. Also, workers routinely exposed to high concentrations of manganese display unusually high incidences of respiratory disease. Silicon exists in a low percentage in the composition. However, should exposure be chronic and if silica dust is generated, silicosis may develop. This is characterized by coughing, dyspnea, wheezing, repeated nonspecific chest illness and progressive impairment of pulmonary function. Symptoms persist even after dust exposure ceases.

EMERGENCY AND FIRST AID PROCEDURES

Inhalation: If acute overexposure to fumes occurs, remove victim from the adverse environment and seek medical attention.

Skin contact: If dust or mist gets on the skin, wash the contaminated skin with soap and water. Remove contaminated clothing and launder before reuse.

Eye Contact: Flush with large amounts of water.

Ingestion: If particles are ingested, give 1-2 glasses of water or milk. Induce vomiting only if victim is fully conscious and has not convulsed. All ingestion cases should have immediate medical aid.

FIRE AND EXPLOSTION DATA

Flash Point: NA

Flammable Limits: NA

Metal products are not a fire hazard. However, dust generated in grinding operations may present a fire or explosion hazard.

Extinguishing Media: Special mixtures of dry chemical suitable for metal fires.

SPILL OR LEAK PROCEDURES

Minimal problems with spills of this product would occur because of its solid form. However, if there is a spill of dust, clean up using methods that avoid dust generation and the use of water, such as vacuum. If airborne dust is generated during the cleanup, use an appropriate NIOSH-approved respirator.

Waste Disposal Method: Dispose of in accordance with appropriate federal, state, and local regulations.