WARD MFG

Safety Data Sheet

Conforms to the requirements of OSHA Standard 1910.1200 *Hazard Communication* and to the Various State *Employee Right to Know* Law.

1. Identification

1.1 Product Identifier Malleable Iron Castings

1.2 Recommended use and restrictions on use Pipe Fittings, Beam Clamps

1.3 Manufacturers details WARD MANUFACTURING LLC

Address: 117 Gulick St./P.O. Box 9
Blossburg, PA 16912
Telephone: (570) 638-2131
Fax: (570) 241-0100
Website: www.wardmfg.com

1.4 Emergency telephone number (570) 638-2131

2. Hazard Identification

2.1 Hazard Classification

There are no health hazards from these castings in solid form. Dust and fumes from welding, grinding, etc. may cause health hazards.

Potential Hazard	Hazard Category	Hazard symbol	Signal Word	Hazard Statement
Acute Toxicity Oral	4	Exclamation Point	Warning	Harmful if swallowed
Acute Toxicity Inhalation	4	Exclamation Point	Warning	Harmful if inhaled
Eye Damage/ Irritation	2B		Warning	Causes eye irritation
Skin Corrosion/ Irritation	2	Exclamation Point	Warning	Cause skin irritation
Specific Target Organ Toxicity	3	Exclamation Point	Warning	May cause respiratory

Single Exposure				irritation
Specific Target Organ Toxicity Repeated Exposure	1	Health Hazard	Danger	Causes damage to lungs and central nervous system through prolonged and repeated inhalation exposure.

3. Composition Information on Ingredients

3.1 Composition Table

Ingredient	C.A.S. No.	Percent
Carbon	**7440-44-0**	**2.5-3.5**
Silicon	**7440-21-3**	**0.8-2.0**
Manganese	**7439-96-5**	**0.2-0.8**
Nickel	**7440-02-0**	**0.10**
Chromium	**7440-47-3**	**0.02-0.15**
Aluminum	**7429-90-5**	**0.003-0.20**
Copper	**7440-50-8**	**0.11-0.21**
Iron	**7439-89-6**	**92.9-96.6**
Cerium	**7440-45-1**	**0.01-0.40**
Nitrogen	**7727-37-9**	**0.002-0.15**

4. First-aid Measures

4.1 Description of first aid measures

Inhalation: (Fumes from welding): Move to fresh air. If symptoms develop seek medical attention.

Skin Contact: For skin contact with dusts or powders, wash with soap and water. Cuts or abrasions should be treated promptly with thorough cleansing of the affected area.

Eye Contact: For contact with dust or particulates, flush eyes with water. Eye injuries from solid particles should be treated by a trained individual, such as a physician or nurse.

If Swallowed: No need for first aid is anticipated if material is swallowed, however if symptoms develop seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Metal particles in the eyes may cause irritation if not removed.
Prolonged or repeated over-exposure to iron oxide produced by grinding or welding may cause siderosis.

4.3 Indication of any immediate medical attentions and special treatment required

5. Fire-fighting Measures

Castings will not burn or explode.

5.1 Suitable extinguishing media

Use appropriate extinguishers for surrounding materials.

5.2 Specific hazards arising from the substance or mixture

N/A

5.3 Special protective actions for fire-fighters

N/A

6. Accidental Release Measures

Accidental release measures do not apply to solid castings. Dust collected from machining, welding, etc. may be classified as hazardous waste. Consult local authorities regarding disposal.

6.1 Personal precautions, protective equipment, and emergency procedures

N/A

6.2 Environmental precautions

N/A

6.3 Methods and materials for containment and cleaning up

N/A

7. Handling and Storage

7.1 Handling No special handling requirements for castings.

7.2 Storage Store castings in a dry place to prevent rusting.

8. Exposure Controls/Personal Protection

8.1 Control Parameters

Ingredient	TLV	PEL
Carbon	**N/E**	**N/E**
Silicon	**10 mg/cu-m**	**15 mg/cu-m**
Manganese	**.02 mg/cu-m as dust .1 mg/cu-m as fume**	**C5 mg/cu-m**
Nickel	**1.5 mg/cu-m (IHL as Ni metal) .2 mg/cu-m (IHL, insoluble inorganic compounds)**	**1 mg/cu-m**
Chromium Chromium (hexavalent)	**.5 mg/cu-m .05 mg/cu-m**	**1 mg/cu-m .005 mg/cu-m**
Aluminum	**15 mg/cu-m (total dust) 5 mg/cu-m (resp.)**	**1 mg/cu-m (resp.)**
Copper	**.2 mg/cu-m as fume 1 mg/cu-m as dust**	**.1 mg/cu-m as fume 1 mg/cu-m as dust**
Iron	**5 mg/cu-m as fume**	**10 mg/cu-m as fume**
Cerium	**N/E**	**N/E**
Nitrogen	**N/E**	**N/E**

Water insoluble hexavalent chromium is classified as a human carcinogen by the American Conference of Governmental Industrial Hygienists (ACGIH).
Approximately 66% of the total chromium (in welding fume) is hexavalent, and only 5% of that is insoluble. Considering the small amount of chromium in the casting, over exposure to hexavalent chromium is not likely. (There is no hexavalent chromium in the alloy or dust).

8.2 Exposure Controls

No specific controls are needed when the casting is in a solid state. If welding, grinding or machining castings provide general ventilation and/or local exhaust if necessary to maintain concentrations below TLV's and PEL's.

8.3 Personal protective equipment (PPE)

Eye/face protection: Safety glasses with side shields and/or face shields for particles (grinding). Welding goggles or helmet for welding.

Skin/hand protection: Work gloves advisable for handling castings.

Respiratory protection: Wear a NIOSH approved respirator for dusts or fumes if concentrations exceed the TLV or PEL.

Other Protective Equipment: Wear a protective apron and gauntlets if arc-air gouging or cutting, or welding on castings. If noise is above 85 dBA you should wear ear muffs or ear plugs.

9. Physical and Chemical Properties

9.1 Basic physical and chemical properties

Appearance:	Solid, silver gray in color
Odor:	No odor
Odor threshold:	N/A
pH:	N/A
Melting point/freezing point:	Approximately 1300° C
Initial boiling point and boiling range:	2750° C for iron
Flash Point:	N/A
Evaporation rate:	N/A
Flammability:	Not flammable
Upper/lower flammability or exposure limits:	N/A
Vapor pressure:	N/A
Vapor density:	N/A

Relative density:	7.86 for iron
Solubility (in water):	Insoluble
Partition coefficient:	N/A
Auto-ignition temperature:	N/A
Decomposition temperature:	N/A
Viscosity:	N/A

10. Stability and Reactivity

10.1 Reactivity

Non-reactive

10.2 Chemical Stability

Stable

10.3 Possibility of hazardous reactions

None

10.4 Conditions to avoid

None

10.5 Incompatible materials

10.6 Hazardous decomposition products

None

11. Toxicological Information

11.1 Information on Toxicological effects

Malleable cast iron in solid form does not present any toxicological effects, dusts and fumes generated from welding, machining, etc. may cause health effects.

Acute Effects:

Inhalation: Excessive inhalation of fumes and dust can produce an acute reaction known as “metal fume fever”. Symptoms consist of chills and fever, metallic taste in the mouth, dryness and irritation of the throat and weakness and muscle pain. Symptoms usually last 12 to 48 hours.

Ingestion: Ingestion of dust may cause nausea or vomiting. If swallowed call a poison center or doctor if you feel unwell.

Skin Contact: Skin contact with dusts may cause irritation or sensitization.

Eye contact: Exposure to high concentration of dusts may cause eye irritation.

Chronic Effects:

Prolonged or repeated over-exposure to iron oxide produced by grinding, welding, etc. may lead to siderosis. No physical impairment of lung function has been associated with siderosis.

Disclaimer: The information in this SDS is believed to be accurate, but under the circumstances is not warranted to be.