MATERIAL SAFETY DATA SHEET

SECTION I. NAME AND PRODUCT

MANUFACTURER'S NAME

AMERICAN CAST IRON PIPE COMPANY

ADDRESS (STREET, CITY, STATE AND ZIP CODE)

P.O. BOX 2727
BIRMINGHAM, ALABAMA 35202

TRADE NAME, COMMON NAME OR SPECIFICATION

DUCTILE IRON PIPE AM DU - 010

CHEMICAL FAMILY OR PRODUCT TYPE

IRON CASTINGS

ACIPCO EMERGENCY PHONE NUMBER:
205/325-7975

ACIPCO PHONE NUMBER:
205/325-7701

24 HOUR FAX:
205/307-2822

EFFECTIVE DATE:
APRIL 1, 2006

APPROVED BY:
Frank C. Lausie

SECTION II. REGULATED INGREDIENTS

CHEMICAL NAME		PERCENT INGREDIENT	OSHA PERMISSIVE EXPOSURE LIMIT	ACGIH TLV
Carbon	7440-44-0	3.000 - 4.000%	Not Listed	Not Listed
Silicon	7440-21-3	2.000 - 3.000%	15 mg/m³	Withdrawn
Manganese	7439-96-5	.200 - 1.000%	C5 mg/m³ (fume)	.2 mg/m³
Manganese	7439-96-5	.200 - 1.000%	C5 mg/m³ (dust)	.2 mg/m³
Chrome	7440-47-3	.050 - 1.000%	.5 mg/m³	.5 mg/m³
Chrome	7440-47-3	.050 - 1.000%	5 ug/m³ as Cr VI	0.05 mg/m³ (water-soluble Cr VI cmpnds)
Chrome	7440-47-3	.050 - 1.000%	5 ug/m³ as Cr VI	0.01 mg/m³ (insoluble Cr VI cmpnds)
Copper	7440-50-8	.050 - 1.000%	.1 mg/m³ (fume)	.2 mg/m³
Copper	7440-50-8	.050 - 1.000%	1 mg/m³ (dust)	1 mg/m³
Nickel	7440-02-0	.010 - 1.000%	1.5 mg/m³	1 mg/m³
Iron		Balance	10 mg/m³ (iron oxide)	5 mg/m³
Cement			15 mg/m³ (total dust)	10 mg/m³
Cement			5 mg/m³ (respirable oxide)	10 mg/m³

SECTION III. PHYSICAL AND CHEMICAL DATA

Boiling Point	5,000°F	Melting Point	2,280°F	Specific Gravity	7.4
Vapor Pressure	N/A	Percent Volatile by Vol.	N/A	Vapor Density	N/A
Evaporation Rate	N/A	Solubility in Water	Insoluble	Solubility in Alcohol	Insoluble

Solubility in Other Solvent: N/A

Appearance and Odor: Metallic – No Odor

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point	N/A	(Method Used)	N/A	Flammable Limits	LEL - N/A UEL - N/A
Extinguishing Media	N/A				
Special Fire Fighting Procedures	N/A				
Explosion Potential	N/A				

SECTION V. HEALTH, FIRST AID AND MEDICAL DATA

PRIMARY ROUTES OF ENTRY	ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE	EMERGENCY AND FIRST AID PROCEDURES
Inhalation	See overview	See overview
Ingestion	No problem	N/A
Skin	No problem	N/A
Eye	No problem	Mechanical injury as from any foreign body

Other Potential Health Risks

Ductile iron pipe as supplied does not constitute a health hazard. If material is to be modified, by welding, flame cutting, torching, grinding, or machining, follow the appropriate safe work procedure for eye, respiratory and body protection.

AMERICAN CAST IRON PIPE COMPANY

MSDS DUCTILE IRON PIPE OVERVIEW

There are no chemical hazards from these castings in solid form.

Dust or fumes generated by machining, grinding, or welding on the casting may put contaminants in the air. Since the casting is over 85% iron, most of the dust or fume will be iron or iron oxide. If you are working in a confined space with poor ventilation, use a NIOSH approved dust respirator. The PEL for iron dust is 10 mg/m^3 while the TLV is 5 mg/m^3 for respirable dust and fume. High production dry machining of ductile iron castings may require local exhaust ventilation.

Flame cutting, arc-gouging, or welding on the casting generates iron oxide fume. Inhalation of too much iron oxide fume over a long time can cause siderosis, sometimes called "iron pigmentation" of the lung. It can be seen on a chest x-ray but causes little or no disability. Also see the Material Safety Data Sheet for welding rod use.

Welding or flame cutting may convert a fraction of the chromium to the water insoluble hexavalent (carcinogenic) form, but the chromium content of the casting is so low that overexposure is not likely.

Water insoluble hexavalent chromium is classified as a human carcinogen by the American Conference of Governmental Industrial Hygienist (ACGIH), the National Toxicology Program (NTP) and the International Agency for Research on Cancer (IARC). 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, the overexposure to hexavalent chromium is not likely. (There is no hexavalent chromium in the alloy or its dust.)

Nickel is classified as a human carcinogen by IARC and a potential carcinogen by the NTP. The nickel content of the casting is so low that overexposure is not likely.

Grinding on castings that have not been cleaned, which contain embedded silica or cement lining, may generate significant amounts of dust containing free silica. Prolonged overexposure to free silica can cause silicosis. IARC states that silica is a carcinogen; the NTP anticipates silica to be a carcinogen. Good local ventilation is frequently required to prevent overexposure in this situation. If good ventilation is not available, use NIOSH approved dust respirator.

Other toxic metals in the alloy are present in small amounts that will not represent a health hazard if copper dust and fumes are adequately controlled.

PRODUCT NAME

AM DU - 010 **DUCTILE IRON PIPE**

Refer to Material Safety Data Sheet for more information.

MANUFACTURER

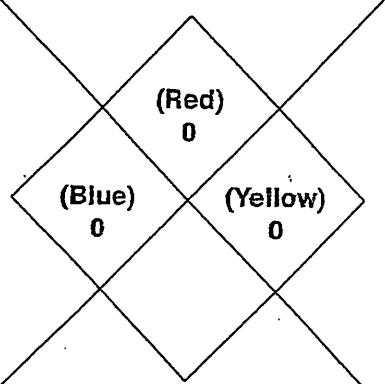
American Cast Iron Pipe Company
P.O. Box 2727
Birmingham, Alabama 35202-2727

FIRE HAZARD

4. EXTREMELY DANGEROUS FIRE AND EXPLOSION HAZARD.
3. FIRE AND EXPLOSION HAZARD AT NORMAL TEMP.
2. WILL BURN AT TEMPS. ABOVE 100°F.
1. WILL BURN AT TEMPS. ABOVE 200°F.
0. WILL NOT BURN.

HEALTH HAZARD

4. EXTREME HAZARD–AVOID CONTACT OR BREATHING VAPOR.
3. SEVERE HAZARD–USE SPECIAL CLOTHING AND MASKS.
2. HAZARDOUS–USE MASKS OR SPECIAL VENTILATION.
1. SLIGHTLY HAZARDOUS–IRRITATING.
0. NORMAL MATERIAL



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POLYMERIZES

REACTIVITY HAZARD

4. EXTREME HAZARD–VACATE AREA IN CASE OF FIRE.
3. SEVERE EXPLOSION HAZARD.
2. VIOLENT CHEMICAL CHANGE POSSIBLE.
1. UNSTABLE IF HEATED.
0. NORMALLY STABLE.

CAUTION: WELDING, CUTTING, OR GRINDING ON THIS CASTING MAY GENERATE TOXIC DUST OR FUMES.

INGREDIENTS

	(PERCENT)
Iron	Balance
Manganese	0.2 - 1.0
Silicon	2.0 - 3.0

See Material Safety Data Sheet for a listing of minor ingredients.

STORAGE AND HANDLING

No Special Precautions

SECTION VI. CORROSIVITY AND REACTIVITY DATA

Stability: Unstable ☐ Stable ☒ Hazardous Polymerization: May Occur ☐ Will Not Occur ☒

INCOMPATIBILITY (MATERIALS TO AVOID)

N/A

DECOMPOSITION PRODUCTS

N/A

CONDITIONS TO BE AVOIDED

N/A

SECTION VII. STORAGE, HANDLING AND USE PROCEDURES

NORMAL STORAGE AND HANDLING

Follow safe handling and storage procedures.

NORMAL USE

Transportation of water.

STEPS TO BE TAKEN IN CASE OF LEAKS OR SPILLS

N/A

WASTE DISPOSAL METHOD

Re-melt in appropriate furnace.

SECTION VIII. PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)		MSHA/NIOSH approved respirator for dust and metal fumes.
VENTILATION	LOCAL	See below
	MECHANICAL (GENERAL)	See below
	OTHER	See below
PROTECTIVE GLOVES		See below
EYE PROTECTION		See below
OTHER EQUIPMENT		See below

MEASURES TO BE TAKEN DURING REPAIR AND MAINTENANCE OF Iron Castings EQUIPMENT

Ductile iron pipe as supplied does not constitute a health hazard. If material is to be modified, by welding, torching, grinding, or machining, follow the appropriate safe work procedure for eye, respiratory, and body protection.

SECTION IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

OTHER PRECAUTIONS:

Same as Section VII

NAIF = NO APPLICABLE INFORMATION FOUND N/A = NOT APPLICABLE