

## Material Safety Data Sheet (MSDS)

<b>Company:</b> Dura-Bar Metal Services 2195 W. Lake Shore Dr. Woodstock, IL 60098	<b>Issue Date:</b> January 2002 (no changes as of January 2008)	<b>Product Identification Numbers:</b> 4512, 4512HR, 5008, 5506, 6003, 7002, HTN-1, HTN-2, CVG, G0, G1, G1A, G2 and all subcategory numbers
<b>Trade Name (Common Name of Synonym):</b> Ductile Irons and Gray Irons	<b>Emergency Phone Number:</b> 815-338-3800	
<b>Chemical Name:</b> Iron	<b>Form:</b> Continuous Cast Bar	

## SECTION I. INGREDIENTS

Ingredient	CAS Number	% Weight	Exposure Limits	
			OSHA PEL (mg/m <sup>3</sup> )	ACGIH TLV (mg/m <sup>3</sup> )
Base Metal Iron (Fe)	7439-89-6	Remainder	10 (Fume)	5 (Fume)
Principle Alloying Elements:				
Carbon (C)	7440-44-0	2.5-4.3	N/E	N/E
Chromium (Cr)	7440-47-3	0.01-2.0	0.5	0.5
Copper (Cu)	7440-50-8	0.01-1.5	0.1 (Fume); 1 (Dust)	0.2 (Fume); 1 (Dust)
Manganese (Mn)	4739-96-5	0.01-2.0	5 (Ceiling)	0.2
Nickel (Ni)	7440-02-0	0.01-3.0	1	0.1 (Fume)
Silicon (Si)	7440-21-3	1.0-4.0	5	10 (Dust)

**Note:**  
The above listing is a summary of the principle elements. Various grades of iron will contain varying amounts or combination of these elements. Other elements may also be present in minute amounts. N/E means none established.

## SECTION II. PHYSICAL DATA

<b>Physical Description:</b> Solid, gray-black, with metallic luster, no odor		<b>Percent Volatile By Volume:</b> Not Applicable	
<b>Acidity / Alkalinity:</b> Not Applicable	<b>Approximate</b> Melting Point: 2750°F for iron Boiling Point: Not Applicable	Evaporation Rate: Not Applicable Specific Gravity: 7.86 for Iron (H <sub>2</sub> O=1) Solubility in Water: Not Applicable	<b>Vapor Pressure/Vapor Density:</b> Not Applicable

## SECTION III. PERSONAL PROTECTIVE EQUIPMENT

<b>Respiratory Protection:</b> NIOSH approved dust/mite/fume respirator should be used when cutting, grinding, welding or burning, if PEL or TLV is exceeded.	<b>Hands, Arms and Body:</b> Use appropriate protective clothing such as welder's aprons and gloves, when welding or burning.
<b>Eyes and Face:</b> Safety glasses with side shields should be worn for grinding or cutting; tinted face shields should be worn for welding or burning.	<b>Other Clothing or Equipment:</b> As required for specific work or jobs.

## SECTION IV. EMERGENCY MEDICAL PROCEDURES

<b>Inhalation:</b>	Remove to fresh air and seek medical attention.
<b>Eye Contact:</b>	Immediately flush with water to remove particulates; seek medical attention.
<b>Skin Contact:</b>	If irritation occurs, remove clothing, wash with soap and water. If condition persists, seek medical attention.
<b>Ingestion:</b>	If significant amounts of metal are ingested, seek medical attention.

## SECTION V. HEALTH AND SAFETY INFORMATION

Iron products in their natural state do not present inhalation, ingestion or contact hazards. However, dust or fumes from machining, cutting, grinding, welding, brazing, flame cutting and arc gouging will release contaminants into the air, with inhalation as the primary route of entry. Since the castings are primarily iron, the dust and fume generated from the working of these castings will be primarily iron or iron oxide. Flame cutting, arc gouging or welding on these castings may convert a fraction of the chromium to a water insoluble hexavalent (Carcinogenic) form. However, the chromium content of these castings is very low and overexposure is not likely.

### Effects of Acute Exposure:

Inhalation of high concentrations of metal dust or fume for short periods of time can cause irritation to the eyes, nose and throat. Metal fume fever can also occur, with symptoms of metallic taste, dryness of the mouth, throat irritation and chills and fever, which usually lasts for 12 to 48 hours.

### Effects of Chronic Exposure, by Principle Elements:

Carbon:	Prolonged and repeated over-exposure (Inhalation) may lead to benign pneumoconiosis.
Chromium:	In some workers, chromium compounds act as allergens and may cause dermatitis and may also produce pulmonary sensitization. Chromium and chromium compounds have been identified as carcinogenic substances.
Copper:	Fumes may cause metal fume fever, with flu-like symptoms and hair and skin discoloration. Keratinization of the hands and feet has been reported. Systemically, dust and fume cause irritation of the upper respiratory tract, metallic taste and nausea.
Iron:	Iron oxide dust or fumes may cause benign pneumoconiosis (siderosis). This disease may make x-ray diagnosis of other lung conditions difficult or impossible, but causes little or no disability.
Manganese:	Chronic manganese poisoning may result from inhalation of dust and fume. The central nervous system is the chief site of injury. This is not a fatal disease, although it is extremely disabling. Some persons may be hypersusceptible to manganese. Freshly formed manganese fume has caused fever and chills, similar to metal fume fever.
Nickel:	The most common ailment arising from contact with nickel or its compounds is an allergenic dermatitis known as "nickel itch", which occurs usually when the skin is moist. Generally, nickel and most salts of nickel do not cause systemic poisoning, but nickel and some nickel compounds have been identified as suspected carcinogens.
Silicon:	Accumulation in lungs can cause benign pneumoconiosis, but is not considered to be responsible for pulmonary functional impairment or respiratory symptoms.

## SECTION VI. FIRE AND EXPLOSION DATA

These castings will not burn or explode. However, metal working dusts present a moderate fire and explosion hazard, when exposed to heat, flames, chemical reaction or in contact with power oxidizers. To extinguish, use special mixtures of dry chemicals or sand. Firefighters should wear self-contained breathing apparatus and protective clothing.

## SECTION VII. REACTIVITY DATA

<b>Stability:</b> Stable	<b>Incompatibility:</b> May cause violent decomposition of hydrogen peroxide (52% by weight or greater)
<b>Hazardous Polymerization:</b> Will not occur	<b>Hazardous Decomposition:</b> Metal fume

## SECTION VIII. SPILLS, LEAKS, AND DISPOSAL PROCEDURES

Steps to be taken if material is spilled or released: If castings are damaged, consult with vendor or send to a scrap reclaimer.  
Disposal: Metal working wastes may be classified as "hazardous waste" or as some other form of regulated waste. Consult with federal, state and local officials regarding waste determinations and proper disposal.

## SECTION IX. CONTROL MEASURES

Ventilation:	Required if dust or fumes is created in the handling or working of this material.
Local Exhaust:	Same as "Ventilation". However, consult with local and state environmental agencies for air pollution control requirements.
Mechanical (General):	Same as above, to reduce airborne dust and fume.
Work/Hygiene Practices:	Evaluate jobs done on this product and meet requirements of all applicable OSHA and environmental standards.

## SECTION X. SPECIAL PRECAUTIONS AND OTHER COMMENTS

NOTICE: This product contains a toxic chemical or chemicals, subject to the reporting requirements of Section 313, Title III or SARA and of 40 CFR Part 372.

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