

MATERIAL SAFETY DATA SHEET

This form may be used to comply with OSHA's Hazard Communication Standard, 29 CFR 110.1200

IDENTITY - High Strength Low Alloy Steel Castings

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURERS NAME AND ADDRESS:

Hensley Industries, Inc.
P.O. Box 29779
2108 Joe Field Rd.
Dallas, TX 75229-0779

TELEPHONE NUMBERS:

Emergency: (972) 241-2321
Technical Information: (972) 406-6201

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MSDS Updated By: Diana L Lundelius, CHMM
Environmental Manager

The data in this document covers parts manufactured and/or distributed by Hensley Industries, including (but not limited to):

XS Extreme Service, Parabolics, "5" Series, "6" Series, OEM Products, Dura, Direct Replacement Products for Caterpillar/Esco/H&L/Komatsu, Lip Systems & Shrouds, Wear Protection products, and Pins & Fastener products.

SYNONYMS: Steel Castings

CHEMICAL FAMILY: Ferrous metal

HAZARD LABEL: None

MOLECULAR FORMULA: Fe

MOLECULAR WEIGHT: 55.85 gm/mole

NFPA RATINGS (0-4) Health: 0 Flammability: 0 Reactivity: 0

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components (Specific Chemical Identity Common Name)

	CAS#	OSHA PEL	ACGIH TLV	OTHER LIMITS	WT PERCENT
Aluminum	7429-90-5	15.0 mg/M ³ 5.0 mg/M ³	10.0 mg/M ³ 5.0 mg/M ³	total respirable	< 0.1
Arsenic	7440-38-2	0.01 mg/M ³	0.01 mg/M ³		< 0.1
Chromium	7440-47-3	1.0 mg/M ³	0.5 mg/M ³		< 1.3
Copper	7440-50-8	0.1 mg/M ³	0.2 mg/M ³	as fume	< 0.6
Iron	7439-89-6	10.0 mg/M ³	5.0 mg/M ³		> 95.0
Manganese	7439-96-5	5.0 mg/M ³	0.2 mg/M ³	as fume	< 1.2
Molybdenum	7439-98-7	15.0 mg/M ³	10.0 mg/M ³	as metal	< 0.5
Nickel	7440-02-0	1.0 mg/M ³	1.5 mg/M ³	as metal	< 1.1
Vanadium	7440-62-2	0.1 mg/M ³	0.05 mg/M ³	as V ₂ O ₅ fume	< 0.1

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: 3000 - 3500 degrees F

Melting Point: 2800 degrees F

Physical State: solid

pH: N/A

Specific Gravity: 7.6-7.8 at 76.0 degrees F

Vapor Pressure: N/A

Vapor Density: N/A

Evaporation Rate: N/A

Solubility in Water: N/A

Percent Volatile: N/A

Appearance: Solid, Silver-Gray in Color, No Odor

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A Method Used: N/A
Explosive Limits: N/A LEL: N/A UEL: N/A
Extinguishing Media: N/A
Special Fire Fighting Procedures: N/A
Unusual Fire and Explosion Hazards: N/A

SECTION V - REACTIVITY DATA

Stability: Unstable [] Stable [x]
Conditions to Avoid (instability): N/A
Incompatibility (materials to avoid): N/A
Hazardous Polymerization: May Occur [] Will Not [x] Occur
Conditions to Avoid (for Hazardous Polymerization): N/A

Hazardous Decomposition or By-Products:

Keep area well ventilated when welding, cutting, burning, or brazing. Avoid generation of airborne dusts and fumes. Welding fumes cannot be simply classified. The composition and quantity are dependent upon the metal being welded, the process, procedures and type of electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded, number of welds and volume of work area, quality and amount of ventilation, position of welder's head with respect to the fume plume, as well as the presence of other contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

When the product is welded, the fume and gas decomposition products are different in characteristic from the primary metal ingredients listed in Section II. Oxide and other gaseous decomposition products, not the primary metals in the casting, present the potential hazards of concern. Decomposition products include those originating from the volatilization, reaction, or oxidation of the substances listed in Section II, plus constituents from the welding rods, electrodes, coatings, machine oil, etc. Such components are virtually always present as complex metal oxide, nitride, and carbide compounds, and not as metals.

SECTION VI - HEALTH HAZARD DATA

Route(s) of Entry: Inhalation: Y Skin: N Eyes: Y Ingestion: N

Health Hazards (Acute and Chronic):

Steel casting products in the natural state do not present an inhalation, ingestion, or contact health hazard. However, operations such as welding, burning, grinding, or brazing may elevate the product's temperature to, or above, its melting point, resulting in the generation of potentially hazardous airborne particles. Such operations as described should be performed in well ventilated areas. The major exposure hazard under these conditions is inhalation.

Effects of Overexposure:

Acute: Excessive inhalation of metallic fumes and dusts may result in irritation of the eyes, nose, and throat. Also, high concentrations of fumes and dusts of iron-oxide, manganese, and copper may result in metal fume fever.

Chronic: Iron (iron-oxide), siderosis

Carcinogenicity: NTP: Y IARC Monographs: Y OSHA Regulated: Y

Hexavalent chromium and nickel are classified as carcinogens by ACGIH

Recommended Exposure Limits: See Section II

LD 50/LC 50: N/A

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Signs and Symptoms of Exposure:

Iron (as iron oxide) - Decrease in pulmonary function.

Chromium - Various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract, and possibly cancer of nasal passages and lungs. Based on available information, there does not appear to be any evidence that exposure to welding fumes induces human cancer.

Nickel - Same as Chromium.

Copper - Pulmonary effects.

Molybdenum - Pain in joints, hands, knees, and feet.

Metal Fever - Metallic taste in mouth, dryness and irritation of the throat, chills and fever, and usually lasts from 12 to 48 hours.

Medical Conditions Generally Aggravated By Exposure: No data

Emergency and First Aid Procedures: Metal particles should be removed from eyes by trained professionals such as a nurse or physician. For overexposure to inhalation, remove from excessive exposure conditions to an area with fresh air.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps To Be Taken In Case Material Is Released Or Spilled: N/A

Regulatory and Waste Disposal Information: Collected dust from grinding, welding, cutting, etc. should be properly disposed of according to city, state, and federal regulations.

Finished castings are considered articles and are therefore not subject to SARA Title III Section 312 reporting (Tier II).

Finished castings which are not further processed by end users are not subject to reporting under SARA Title III Section 313 (EPCRA/Form R) for listed alloy metals. Processing, as defined by EPA, includes alteration by mechanical or chemical means, and may include activities such as: grinding; welding; heat treating to soften or harden; anodizing; plating; pickling; or, polishing. Further processing of finished castings may require evaluation of reporting obligations under EPCRA.

Worn castings which are considered waste or scrap should be sent to a reputable metal reclaimer. Long term storage of unpainted finished castings outside under extreme weather conditions may result in the formation of superficial rust, which should not contact storm water run off.

Precautions to Be Taken In Handling And Storing: When installing Hensley Industries, Inc. Products, the wearing of safety glasses is required.

Other Precautions: N/A

SECTION VIII - CONTROL MEASURES

Protective Equipment Summary - Hazard Label Information

Respiratory Protection (Specify Type): NIOSH approved respirator for dusts and/or fumes, depending on operation.

Ventilation: Local exhaust for welding, grinding, and cutting.

Mechanical Guards: recommended for all operations as appropriate for the equipment being used.

Protective Gloves: Heat resistant leather gloves are recommended.

Eye Protection: Safety glasses and cutting goggles or face shield.

Other Protective Clothing or Equipment: Welding hoods; protective apron and gauntlets of leather recommended.

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Work/Hygienic/Maintenance Practices: Spark proof dust collection devices for welding, cutting and grinding
Special/Other: N/A

SECTION IX - ADDITIONAL COMMENTS

Important: Information contained in this MSDS is offered without charge for use by technically qualified personnel at their discretion and risk. Statements, technical information, and recommendations contained in this document are based on tests and other data which are believed to be reliable, however, the accuracy or completeness of such references and sources is not guaranteed, and no warranty is made in this regard. This information is not intended as a license to operate, practice or infringe on any patent of the Company or other third party with respect to process, material composition, or product use. Since the Company has no control of the end use of the products described, the Company assumes no liability for loss or damage incurred from the proper or improper use of its products.