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Meets the Requirements of OSHA Standard 29 CFR 1910.1200 Hazard Communication and EPA Supplier Notification Requirements under Section 313 of the Emergency Planning and Community Right-to-Know Act.

SAFETY DATA SHEET (SDS)

**AUSTENITIC GRAY IRON CASTINGS**

SDS SC-000-038 Rev. 13

DATE ISSUED

10/13

**SECTION 1—PRODUCT IDENTIFICATION & COMPANY INFORMATION**

**PRODUCT NAME**

**AUSTENITIC GRAY IRON CASTINGS**

**OTHER DESIGNATIONS:** ASTM (American Society for Testing & Materials) Specification No's., (ACI (Alloy Casting Institute) Alloy Designations—Grades)

ASTM: A436

**PRODUCT IDENTIFICATION (Label Identifier)**

Austenitic Gray Iron Castings

**MANUFACTURER'S NAME**

Modern Investment Casting Company

**STREET ADDRESS**

850 Oakland Avenue

**EMERGENCY TELEPHONE NO.**

800-364-6422

**MAILING ADDRESS**

PO Box 707

**TELEPHONE NO.**

580-762-6547

**CITY, STATE, ZIP CODE, COUNTRY**

Ponca City, OK, 74602, USA

**FAX NO.**

580-762-9357

**E-MAIL ADDRESS/WEBSITE**

www.emicc.com

**RECOMMENDED USE OF CHEMICAL AND RESTRICTIONS ON USE**

Solid casting; no restrictions

**SECTION 2—HAZARD IDENTIFICATION**

**CLASSIFICATION**

Castings are metallic articles that do not present hazards in their original form.

**OTHER INFORMATION**

1. Grinding castings that have not been cleaned or that contain embedded sand may generate significant amounts of dust containing crystalline silica.
2. Fumes from hot processes may contain other compounds of these elements with different exposure limits than those listed above. Dust or fumes generated by machining, grinding, welding or thermal cutting of the casting may produce airborne contaminants. Consult Section 8 for further information.

**SECTION 3—COMPOSITION/INFORMATION ON INGREDIENTS**

CHEMICAL NAME/ COMMON NAME/ SYNONYM	Wt %	CAS NUMBER
Carbon (C)	2.6–3.0	7440-44-0
Chromium (Cr)	0.1–6.0	7440-47-3
Copper (Cu)	0.05–7.5	7440-50-8
Iron (Fe)	Remainder	7439-89-6
Manganese (Mn)	0.5–1.5	7439-96-5
Nickel (Ni)	13.5–36.0	7440-02-0
Silicon (Si)	1.0–6.0	7440-21-3

## SECTION 4—FIRST AID MEASURES

**EYE CONTACT:**Not applicable

**SKIN CONTACT:**No special requirements

**INGESTION:**Not applicable

**INHALATION:**Not applicable

## SECTION 5—FIREFIGHTING MEASURES

**FLAMMABLE PROPERTIES:**Not applicable

**EXTINGUISHING MEDIA:**Not applicable

**PROTECTION OF FIREFIGHTERS:**Not applicable

## SECTION 6—ACCIDENTAL RELEASE MEASURES

Not applicable

## SECTION 7—HANDLING & STORAGE

### RECOMMENDED STORAGE

No special requirements

### PROCEDURES FOR HANDLING

Proper hand and foot protection is recommended.

## SECTION 8—EXPOSURE CONTROLS/PERSONAL PROTECTION

### ENGINEERING CONTROLS

None Required. There are no health hazards from these castings in solid form.

SUBSTANCE	ACGIH TLV mg/m <sup>3</sup>	OSHA PEL mg/m <sup>3</sup>
Carbon (C)	N/E	N/E
Chromium (Cr)	0.5	1
Copper (Cu)	1	1
Iron (Fe)	N/E	N/E
Manganese (Mn)	0.02 (R); 0.1 (I)	5 (C)
Nickel (Ni)	1.5 (I)	1
Silicon (Si)		
Total dust	N/E	15
Respirable dust	N/E	5

### SUPPLEMENTAL INFORMATION

Grinding castings that have not been cleaned or that contain embedded sand may generate significant amounts of dust containing crystalline silica.

Fumes from hot processes may contain other compounds of these elements with different exposure limits than those listed above. Dust or fumes generated by machining, grinding, welding or thermal cutting of the casting may produce airborne contaminants. Exposure limits for the most common contaminants are offered as reference. Please consult a competent person for guidance on exposure assessment and controls.

**In particular, Hexavalent Chromium is an OSHA Expanded Health Standard; refer to OSHA 29 CFR 1910.1026-Chromium (VI) for complete requirements.**

SUBSTANCE	ACGIH TLV mg/m <sup>3</sup>	OSHA PEL mg/m <sup>3</sup>
Chromium Compounds (as Cr)		
Chromium (II) inorganic compounds	N/E	0.5
Chromium (III) inorganic compounds	0.5	0.5
Chromium (VI) inorganic compounds, certain water insoluble	0.01	0.005
Chromium (VI) inorganic compounds, water soluble	0.05	0.005
Chromium (VI) all forms and compounds	N/E	0.005

Copper Compounds Fume, as Cu Dusts and mists, as Cu	0.2 1	0.1 1
Iron Compounds Iron oxide (Fe <sub>2</sub> O <sub>3</sub> ) fume Iron oxide (Fe <sub>2</sub> O <sub>3</sub> )	N/E 5 (R)	10 N/E
Nickel Compounds (as Ni) Insoluble, inorganic compounds Soluble, inorganic compounds Nickel oxide	0.2(I) 0.1(I) 0.2(I)	1 1 1

#### TERMS

All exposure limits referenced above are 8 hour time weighted averages (TWA) unless otherwise noted.

N/E = None Established

C = Ceiling

I = Inhalable fraction

R = Respirable fraction

TLV = Threshold Limit Value/American Conference of Industrial Hygienists (ACGIH)

PEL = Permissible Exposure Limit / OSHA

mg/m<sup>3</sup> = milligrams per cubic meter

#### PERSONAL PROTECTION

Proper hand and foot protection is recommended.

### SECTION 9—PHYSICAL & CHEMICAL PROPERTIES

#### APPEARANCE/PHYSICAL STATE

Solid, silver gray in color

#### ODOR/ODOR THRESHOLD

None

#### VAPOR DENSITY

Not applicable

#### MELTING POINT/FREEZING POINT

Approximately 1300°C (2350°F)

#### SPECIFIC GRAVITY (relative density)

7.85 g/cm<sup>3</sup> for iron

#### BOILING POINT

2750°C (5000°F) for iron

#### VAPOR PRESSURE

Not applicable

#### FLASH POINT

Not applicable for solid castings

#### EVAPORATION RATE

Not applicable

#### FLAMMABILITY

Not flammable

#### SOLUBILITY IN WATER

Insoluble

#### UPPER AND LOWER FLAMMABILITY LIMITS

Not applicable for solid castings

#### pH

Not applicable

#### AUTO IGNITION TEMPERATURE

Not applicable

#### VISCOSITY

Not applicable

#### DECOMPOSITION TEMPERATURE

Not applicable

#### PARTITION COEFFICIENT

Not applicable

### SECTION 10—STABILITY & REACTIVITY

#### CHEMICAL STABILITY

Stable

#### CONDITIONS TO AVOID

None

#### REACTIVITY

Not reactive

#### INCOMPATIBLE MATERIALS

None

#### HAZARDOUS DECOMPOSITION PRODUCTS

None

#### POSSIBILITY OF HAZARDOUS REACTIONS

Not applicable

## SECTION 11—TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

**EYE CONTACT:** None

**SKIN:** None

**INGESTION:** None

**INHALATION:** None

### Carcinogen Classification of Ingredients

INGREDIENT	OSHA	NTP	IARC	TARGET ORGAN
Nickel (metal)	NL	K	2B	Lung, Nose

### TERMS

#### OSHA—Occupational Safety & Health Administration

Y = Listed as a Human Carcinogen

#### NTP—National Toxicology Program

K = Known to be a Human Carcinogen

R = Reasonably Anticipated to be a Human Carcinogen (RAHC)

#### IARC—International Agency for Research on Cancer

1 = Carcinogen to Humans

2A = Probably Carcinogenic to Humans

2B = Possibly Carcinogenic to Humans

3 = Unclassifiable as to Carcinogenicity in Humans

4 = Probably not Carcinogenic to Humans

#### Other

NL = Not Listed

## SECTION 12—ECOLOGICAL INFORMATION

### ECOTOXICITY

Not applicable

### PERSISTENCE AND DEGRADABILITY

Not applicable

### BIOACCUMULATION POTENTIAL

Not applicable

### MOBILITY IN SOIL

Not applicable

### OTHER ADVERSE EFFECTS

Not applicable

## SECTION 13—DISPOSAL CONSIDERATIONS

Recover or recycle if possible. Dispose of according to federal, state and local regulations. Dust collected from machining, welding, etc. may be classified as a hazardous waste. Consult federal, state and local regulations.

## SECTION 14—TRANSPORT INFORMATION

### US DEPARTMENT OF TRANSPORTATION (DOT)-HMR

Not Regulated

### CANADIAN TRANSPORTATION OF DANGEROUS GOODS (TDG)

Not regulated

### UN SHIPPING NAME

Not regulated

### UN NUMBER

Not regulated

### TRANSPORT HAZARD CLASS

Not regulated

### PACKING GROUP

Not regulated

### ENVIRONMENTAL HAZARDS

None

### LABEL(S) REQUIRED?

No

### TRANSPORT IN BULK

Not applicable

### SPECIAL SHIPPING INFORMATION

Not applicable

## SECTION 15—REGULATORY INFORMATION

### USA-OSHA (Hazard Communication Standard)

Reference 29 CFR 1910.1200 and 1910.1000. A finished casting is an article as defined in the OSHA Hazard Communication Standard 29CFR 1910.1200 (c). Dust or fumes generated by cleaning, machining, grinding, or welding of the casting may produce airborne contaminants, such as chromium, copper, iron, manganese, nickel, silicon and silica.

For hexavalent chromium references see 29 CFR 1910.1026.

### USA-EPA (Toxic Substances Control Act–TSCA)

All components of these products are on the TSCA inventory list or are excluded from listing.

### USA-EPA (SARA Title III)

Releases to the environment of **Chromium, Copper, Manganese and Nickel**, may be subject to reporting under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 72.

### CANADA-WHMIS (Workplace Hazardous Materials Information System)

This SDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the SDS contains the information required by the CPR.

### CANADIAN DSL (Domestic Substance List) Inventory Status

All components of these products are on the DSL Inventory.

### CEPA (Canadian Environmental Protection Act)

Chromium and nickel are on the CEPA Priorities Substances Lists

### EINECS No. (European Inventory of Existing Commercial Chemical Substances)

All components of these products are on the EINECS list.

### RoHS (Restriction of Certain Hazardous Substances) Compliance

Castings comply with RoHS

### CALIFORNIA PROPOSITION 65 Compliance

WARNING: This product contains or produces chemicals known to the State of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code 25248.5 et seq.)

### U.S. STATE REGULATORY INFORMATION

Some of the components listed in Section 3 may be covered under specific state regulations.

## SECTION 16—OTHER INFORMATION

### SDS SHEET PREPARED BY

American Foundry Society, Inc.  
Occupational Safety & Health Committee (10-Q)

### DATE

10/13

### NOTE

This data and label information is offered in good faith as typical values and not as a product specification. No warranty either expressed or implied is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review the recommendations in specific context of the intended use and determine if they are appropriate.

Addendum: Label Information

<p><b><u>PRODUCT IDENTIFIER</u></b></p> <p>SC-000-038 Rev. 13</p> <p>AUSTENITIC GRAY IRON CASTINGS</p>	
<p><b><u>SUPPLIER IDENTIFICATION</u></b></p> <p>Company Name <u>MICC</u></p> <p>Street Address <u>850 Oakland Avenue</u></p> <p>Mailing Address <u>PO Box 707</u></p> <p>City <u>Ponca City</u> State <u>OK</u></p> <p>Zip/Postal Code <u>74602</u> Country <u>USA</u></p> <p>Emergency Phone Number <u>800-364-6422</u></p> <p>Other Info <u>www.emicc.com</u></p>	<p><b><u>HAZARD PICTOGRAMS</u></b></p> <p>None*</p> <hr/> <p><b><u>SIGNAL WORD</u></b></p> <p>None*</p>
<p><b><u>PRECAUTIONARY STATEMENTS</u></b></p> <p>None*</p>	<p><b><u>HAZARD STATEMENTS</u></b></p> <p>None*</p>
<p>*Castings do not present hazards in their original form.</p> <p><b>OTHER INFORMATION</b></p> <ol style="list-style-type: none"> <li>Grinding castings that have not been cleaned or that contain embedded sand may generate significant amounts of dust containing crystalline silica.</li> <li>Fumes from hot processes may contain other compounds with different exposure limits. Dust or fumes generated by machining, grinding, welding or thermal cutting of the casting may produce airborne contaminants. Consult Sections 3 &amp; 8 of the SDS for further information.</li> </ol>	