AUSTENITIC DUCTILE IRON CASTINGS

SECTION 1—PRODUCT IDENTIFICATION & COMPANY INFORMATION

PRODUCT NAME
AUSTENITIC DUCTILE IRON CASTINGS

OTHER DESIGNATIONS
ASTM: A439, A571

PRODUCT IDENTIFICATION (Label Identifier)
CASTING, AUSTENITIC DUCTILE IRON

MANUFACTURER’S NAME
DONSCO, INC.

STREET ADDRESS
124. N. FRONT ST.

EMERGENCY TELEPHONE NO.
717-252-1561 EXT 200

MAILING ADDRESS
P. O. BOX 2001

TELEPHONE NO.
717-252-1561

CITY, STATE, ZIP CODE, COUNTRY
WRIGHTSVILLE, PA, 17368

FAX NO.
717-252-5629

E-MAIL ADDRESS/WEBSITE
WWW.DONSCO.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

<table>
<thead>
<tr>
<th>CHEMICAL NAME/COMMON NAME/SYNONYM</th>
<th>Wt %</th>
<th>CAS NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon (C)</td>
<td>2.4–3.0</td>
<td>7440-44-0</td>
</tr>
<tr>
<td>Chromium (Cr)</td>
<td>0.1–5.5</td>
<td>7440-47-3</td>
</tr>
<tr>
<td>Iron (Fe)</td>
<td>46.0–77.1</td>
<td>7439-89-6</td>
</tr>
<tr>
<td>Manganese (Mn)</td>
<td>0.7–2.4</td>
<td>7439-96-5</td>
</tr>
<tr>
<td>Molybdenum (Mo)</td>
<td>0.7–1.0</td>
<td>6439-98-7</td>
</tr>
<tr>
<td>Nickel (Ni)</td>
<td>18.0–38.0</td>
<td>7440-02-0</td>
</tr>
<tr>
<td>Silicon (Si)</td>
<td>1.0–6.0</td>
<td>7440-21-3</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>ACGIH TLV mg/m³</th>
<th>OSHA PEL mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon (C)</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>Chromium (Cr)</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Iron (Fe)</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>Manganese (Mn)</td>
<td>0.02 (R); 0.1 (I)</td>
<td>5 (C)</td>
</tr>
<tr>
<td>Molybdenum (Mo)</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>Nickel (Ni)</td>
<td>1.5 (I)</td>
<td>1</td>
</tr>
<tr>
<td>Silicon (Si)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total dust</td>
<td>N/E</td>
<td>15</td>
</tr>
<tr>
<td>Respirable dust</td>
<td>N/E</td>
<td>5</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>ACGIH TLV mg/m³</th>
<th>OSHA PEL mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium Compounds (as Cr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chromium (II) inorganic compounds</td>
<td>N/E</td>
<td>0.5</td>
</tr>
<tr>
<td>Chromium (III) inorganic compounds</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Chromium (VI) inorganic compounds, certain water insoluble</td>
<td>0.01</td>
<td>0.005</td>
</tr>
<tr>
<td>Chromium (VI) inorganic compounds, water soluble</td>
<td>0.05</td>
<td>0.005</td>
</tr>
<tr>
<td>Chromium (VI) all forms and compounds</td>
<td>N/E</td>
<td>0.005</td>
</tr>
<tr>
<td>Iron Compounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron oxide (Fe₂O₃) fume</td>
<td>N/E</td>
<td>10</td>
</tr>
<tr>
<td>Iron oxide (Fe₂O₃)</td>
<td>5 (R)</td>
<td>N/E</td>
</tr>
<tr>
<td>Molybdenum (as Mo)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insoluble, inorganic compounds (as Mo)</td>
<td>10 (I); 3 (R)</td>
<td>N/E</td>
</tr>
<tr>
<td>Soluble compounds (as Mo)</td>
<td>0.5 (R)</td>
<td>5</td>
</tr>
<tr>
<td>Total Dust</td>
<td>N/E</td>
<td>15</td>
</tr>
<tr>
<td>------------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>Nickel Compounds (as Ni)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insoluble, inorganic compounds</td>
<td>0.2(I)</td>
<td>1</td>
</tr>
<tr>
<td>Soluble, inorganic compounds</td>
<td>0.1(I)</td>
<td>1</td>
</tr>
<tr>
<td>Nickel oxide</td>
<td>0.2(I)</td>
<td>1</td>
</tr>
</tbody>
</table>

**TERMS**

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

- **C** = Ceiling
- **I** = Inhalable fraction
- **R** = Respirable fraction
- **TLV** = Threshold Limit Value/ACGIH (American Conference of Industrial Hygienists)
- **PEL** = Permissible Exposure Limit/OSHA (Occupational Safety & Health Administration)

\[ \text{mg/m}^3 = \text{milligrams per cubic meter} \]

**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 2350°F (1300°C)

**SPECIFIC GRAVITY (relative density)**

7.85 g/cm³ for iron

**BOILING POINT**

5000°F (2750°C) 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

<table>
<thead>
<tr>
<th>INGREDIENT</th>
<th>OSHA</th>
<th>NTP</th>
<th>IARC</th>
<th>TARGET ORGAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel (metal)</td>
<td>NL</td>
<td>K</td>
<td>2B</td>
<td>Lung, Nose</td>
</tr>
</tbody>
</table>

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, iron, manganese, molybdenum, 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, 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 372.

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.
**PRODUCT IDENTIFIER**

SC-000-039 Rev. 13

**AUSTENITIC DUCTILE IRON CASTINGS**

<table>
<thead>
<tr>
<th>SUPPLIER IDENTIFICATION</th>
<th>HAZARD PICTOGRAMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name DONSCO, INC.</td>
<td>None*</td>
</tr>
<tr>
<td>Street Address 124 N. FRONT ST.</td>
<td></td>
</tr>
<tr>
<td>Mailing Address P. O. BOX 2001</td>
<td></td>
</tr>
<tr>
<td>City WRIGHTSVILLE</td>
<td>State PA</td>
</tr>
<tr>
<td>Zip/Postal Code 17368</td>
<td>Country USA</td>
</tr>
<tr>
<td>Emergency Phone Number 717-252-1561 EXT 200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGNAL WORD</th>
</tr>
</thead>
<tbody>
<tr>
<td>None*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRECAUTIONARY STATEMENTS</th>
<th>HAZARD STATEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>None*</td>
<td>None*</td>
</tr>
</tbody>
</table>

*Castings 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 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 & 8 of the SDS for further information.