C5 Coated Silicon Steel

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

Revision Date: 04/06/2016
Date of issue: 04/06/2016
Version: 1.0

SECTION 1: IDENTIFICATION

1.1. Product Identifier
Product Name: C5 Coated Silicon Steel

1.2. Intended Use of the Product Protective Coating for Steel Components

1.3. Name, Address, and Telephone of the Responsible Party
Manufacturer
Arnold Magnetics Technologies - Precision Thin Metals
300 North West Street
Marengo, IL 60152
815-568-2000
www.arnoldmagnetics.com

1.4. Emergency Telephone Number
Emergency Number: Within USA and Canada 1-800-424-9300 or +1 703-527-3887 (collect calls accepted)

SECTION 2: HAZARDS IDENTIFICATION

Under normal conditions of use and handling in the solid form, harmful substances cannot be released. Much of the information provided in this SDS is for situations of use in which hazardous exposures may occur, such as welding, cutting, brazing or machining.

2.1. Classification of the Substance or Mixture
GHS-US classification
Not classified

2.2. Label Elements
GHS-US Labeling
No labeling required

2.3. Other Hazards
Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

2.4. Unknown Acute Toxicity (GHS-US)
No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance
Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product Identifier</th>
<th>Weight %</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>(CAS No) 7439-89-6</td>
<td>96 - 97</td>
<td>Comb. Dust</td>
</tr>
<tr>
<td>Silicon</td>
<td>(CAS No) 7440-21-3</td>
<td>3 - 3.5</td>
<td>Comb. Dust</td>
</tr>
<tr>
<td>Manganese</td>
<td>(CAS No) 7439-96-5</td>
<td>0.05 - 0.13</td>
<td>Comb. Dust</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures
First-aid Measures General: The health effects listed below are not likely to occur unless dust or fumes are generated by processing. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice. If medical advice is needed, have product SDS at hand.

First-aid Measures After Inhalation: Move to fresh air. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

First-aid Measures After Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/Injuries: Under normal conditions of use not expected to present a significant hazard. During processing or physical alteration, fumes or dust may cause irritation of the respiratory tract, eyes, skin, and are harmful.

Symptoms/Injuries After Inhalation: May cause respiratory irritation

Symptoms/Injuries After Skin Contact: Prolonged exposure may cause skin irritation.

Symptoms/Injuries After Eye Contact: May cause slight irritation to eyes.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.
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Chronic Symptoms: None expected under normal conditions of use.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed
If exposed or concerned, get medical advice and attention. If medical advice is needed, have product SDS at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media
Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.
Unsuitable Extinguishing Media: None.

5.2. Special Hazards Arising From the Substance or Mixture
Fire Hazard: Small chips, turnings, dust and fines from processing may be readily ignitable.
Explosion Hazard: Fine dust clouds may form explosive mixtures with air.
Reactivity: Hazardous reactions will not occur under normal conditions.

5.3. Advice for Firefighters
Firefighting Instructions: Use water spray or fog for cooling exposed containers.
Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.
Other Information: Fine dust dispersed in air may ignite.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures
General Measures: Avoid generating dust.
6.1.1. For Non-emergency Personnel
Protective Equipment: Refer to section 8.2.

6.1.2. For Emergency Responders
Protective Equipment: Equip cleanup crew with proper protection.
Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Evacuate unnecessary personnel.

6.2. Environmental Precautions
Prevent entry to sewers and public waters.

6.3. Methods and Material for Containment and Cleaning Up
For Containment: Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams.
Methods for Cleaning Up: Carefully shovel or sweep up spilled material and place in suitable container. Clean contaminated surfaces thoroughly.

6.4. Reference to Other Sections
See Section 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling
Additional Hazards When Processed: Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion. Keep dust levels to a minimum and follow applicable regulations.
Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities
Technical Measures: Comply with applicable regulations.
Storage Conditions: Store in a dry, cool place.
Incompatible Products: Strong acids, strong bases, strong oxidizers.

7.3. Specific End Use(s): Protective Coating for Steel Components

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters
For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

<table>
<thead>
<tr>
<th>Substance</th>
<th>USA NIOSH</th>
<th>USA OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
</tr>
<tr>
<td>Silicon</td>
<td>10 mg/m³ (total dust)</td>
<td>15 mg/m³ (total dust)</td>
</tr>
<tr>
<td></td>
<td>5 mg/m³ (respirable dust)</td>
<td>5 mg/m³ (respirable fraction)</td>
</tr>
</tbody>
</table>
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Manganese (7439-96-5)

<table>
<thead>
<tr>
<th>USA ACGIH</th>
<th>ACGIH TWA (mg/m³)</th>
<th>0.02 mg/m³ (respirable fraction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH</td>
<td>ACGIH chemical category</td>
<td>Not Classifiable as a Human Carcinogen</td>
</tr>
<tr>
<td>USA NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>1 mg/m³ (fume)</td>
</tr>
<tr>
<td>USA NIOSH</td>
<td>NIOSH REL (STEL) (mg/m³)</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td>USA IDLH</td>
<td>US IDLH (mg/m³)</td>
<td>500 mg/m³</td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (Ceiling) (mg/m³)</td>
<td>5 mg/m³ (fume)</td>
</tr>
</tbody>
</table>

8.2. Exposure Controls
Appropriate Engineering Controls: Not generally required. Site-specific risk assessments should be conducted to determine the appropriate exposure control measures. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. Provide adequate ventilation to minimize dust concentrations.

Personal Protective Equipment: Not generally required. The use of personal protective equipment may be necessary as conditions warrant.

Hand Protection: Wear cut resistant gloves.

Eye Protection: In case of excessive dust production: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: None required under normal product handling conditions. Use NIOSH-approved dust mask if dust has the potential to become airborne.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative Vapor Density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition Coefficient: N-Octanol/Water</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other Information: No additional information available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: Hazardous reactions will not occur under normal conditions.

10.2. Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.


10.5. Incompatible Materials: None known.


SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects
Acute Toxicity: Not classified

Silicon (7440-21-3)

LD50 Oral Rat 3160 mg/kg
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<table>
<thead>
<tr>
<th>Manganese (7439-96-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 Oral Rat</td>
<td>&gt; 2000 mg/kg</td>
</tr>
<tr>
<td>LC50 Inhalation Rat</td>
<td>&gt; 5.14 mg/l/4h</td>
</tr>
</tbody>
</table>

**Skin Corrosion/Irritation:** Not classified  
**Serious Eye Damage/Irritation:** Not classified  
**Respiratory or Skin Sensitization:** Not classified  
**Germ Cell Mutagenicity:** Not classified  
**Carcinogenicity:** Not classified  
**Reproductive Toxicity:** Not classified  
**Specific Target Organ Toxicity (Single Exposure):** Not classified  
**Specific Target Organ Toxicity (Repeated Exposure):** Not classified  
**Aspiration Hazard:** Not classified  
**Symptoms/Injuries After Inhalation:** Dust may be harmful or cause irritation.  
**Symptoms/Injuries After Skin Contact:** Prolonged exposure may cause skin irritation.  
**Symptoms/Injuries After Eye Contact:** May cause slight irritation to eyes.  
**Symptoms/Injuries After Ingestion:** Ingestion may cause adverse effects.  
**Chronic Symptoms:** None expected under normal conditions of use.

### SECTION 12: ECOLOGICAL INFORMATION

#### 12.1. Toxicity

**Ecology - General:** Not classified.

<table>
<thead>
<tr>
<th>Manganese (7439-96-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NOEC chronic fish</td>
<td>3.6 mg/l (Exposure time: 96h; Species: Oncorhynchus mykiss)</td>
</tr>
</tbody>
</table>

#### 12.2. Persistence and Degradability

Not established

#### 12.3. Bioaccumulative Potential

Not established

#### 12.4. Mobility in Soil

No additional information available

#### 12.5. Other Adverse Effects

**Other Information:** Avoid release to the environment.

### SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1. Waste treatment methods

**Waste Disposal Recommendations:** Dispose of contents/container in accordance with local, regional, national, and international regulations.

**Ecology – Waste Materials:** Avoid release to the environment.

### SECTION 14: TRANSPORT INFORMATION

#### 14.1. In Accordance with DOT

Not regulated for transport

#### 14.2. In Accordance with IMDG

Not regulated for transport

#### 14.3. In Accordance with IATA

Not regulated for transport

### SECTION 15: REGULATORY INFORMATION

#### 15.1 US Federal Regulations

| Iron (7439-89-6) | Listed on the United States TSCA (Toxic Substances Control Act) inventory |
| Silicon (7440-21-3) | Listed on the United States TSCA (Toxic Substances Control Act) inventory |
| Manganese (7439-96-5) | Listed on the United States TSCA (Toxic Substances Control Act) inventory |

**Subject to reporting requirements of United States SARA Section 313**

| SARA Section 313 - Emission Reporting | 1.0 % |

#### 15.2 US State Regulations

| Silicon (7440-21-3) | U.S. - Massachusetts - Right To Know List  
| U.S. - New Jersey - Right to Know Hazardous Substance List  
| U.S. - Pennsylvania - RTK (Right to Know) List |
| Manganese (7439-96-5) | U.S. - Massachusetts - Right To Know List  
| U.S. - New Jersey - Right to Know Hazardous Substance List |
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SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Other Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/06/2016</td>
<td>This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.</td>
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</tbody>
</table>

GHS Full Text Phrases:

<table>
<thead>
<tr>
<th>Comb. Dust</th>
<th>Combustible Dust</th>
</tr>
</thead>
</table>

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)