1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name
Iron-Base Alloys

Other means of identification

Product Code
SM004

Synonyms
Non-powder forms of AL-6XN® Alloy, AM 355® Alloy, ATI 1014™ Alloy, ATI 13-8Mo®
SuperTough® Alloy, ATI 13-8Mo™ Alloy, ATI 15-5™ Alloy, ATI 26-1™ Alloy, ATI 300M™
Alloy, ATI 301™ Alloy, ATI 304™ Alloy, ATI 316L™ Alloy, ATI 403™ Alloy, ATI 4340M™
Alloy, ATI 4340™ Alloy, ATI 450™ Alloy, ATI 53™ Alloy, ATI 611™ Alloy, ATI 802™ Alloy, ATI 9310™ Alloy, ATI 9-4-30™ Alloy, ATI Aero100™ Alloy, ATI Datalloy
2® Alloy, ATI Datalloy HP™ Alloy, ATI HCM3™ Alloy, ATI M250™ Alloy, ATI REX 734™
Alloy, ATI S240® Alloy, ATI VascoMax® C-200 Alloy, ATI VascoMax® C-250 Alloy, ATI
VascoMax® C-300 Alloy, ATI VascoMax® C-350 Alloy, ATI VascoMax® T-200 Alloy, ATI
VascoMax® T-250 Alloy, ATI X-2M™ Alloy, ATI XM-19™ Alloy, Ethalloy Il® Alloy (* a
Registered Trademark of Ethicon, Inc.), VASCO® M-1™ Alloy, R35, R3SS, R39, 18-4-1,
RBD, ATI FV448B™, FV448™, S62, FV458, 1%CrMoV, Nitralloy, F1E, A286L, 15/15PH,
SiMnCuMoV, ATI 321H™, ATI CRV2™, ATI FV535™, ATI FV607™, ATI HCM5™, and ATI
Jethete™ M152

Recommended use of the chemical and restrictions on use

Recommended Use
Iron alloy product manufacture.

Uses advised against

Details of the supplier of the safety data sheet

Manufacturer Address
ATI, 1000 Six PPG Place, Pittsburgh, PA
15222 USA

Emergency telephone number
Emergency Telephone Chemtrec: 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200) This product is
an article and, as such, does not present a hazard to human health by inhalation or ingestion

Acute toxicity - Oral
Category 4

Respiratory sensitization
Category 1B

Skin sensitization
Category 1

Carcinogenicity
Category 1B

Reproductive toxicity
Category 2

Specific target organ toxicity (repeated exposure)
Category 1

Label elements

Danger

Emergency Overview

Hazard statements
Harmful if swallowed
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
May cause cancer
Suspected of damaging fertility or the unborn child
Causes damage to the respiratory tract through prolonged or repeated exposure if inhaled

Precautionary Statements - Prevention
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wear protective gloves
If skin irritation or rash occurs: Get medical advice/attention
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Not applicable

Other Information
When product is subjected to welding, burning, melting, sawing, brazing, grinding, buffing, polishing, or other similar heat-generating processes, the following potentially hazardous airborne particles and/or fumes may be generated:: Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer; Zinc, copper, magnesium, or cadmium fumes may cause metal fume fever; Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

3. COMPOSITION/INFORMATION ON INGREDIENTS


<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>7439-89-6</td>
<td>35 - 95</td>
</tr>
<tr>
<td>Nickel</td>
<td>7440-02-0</td>
<td>0 - 35</td>
</tr>
<tr>
<td>Chromium</td>
<td>7440-47-3</td>
<td>0 - 30</td>
</tr>
<tr>
<td>Manganese</td>
<td>7439-96-5</td>
<td>0 - 16</td>
</tr>
<tr>
<td>Cobalt</td>
<td>7440-48-4</td>
<td>0 - 15</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

First aid measures

Eye contact
In the case of particles coming in contact with eyes during processing, treat as with any foreign object.

Skin Contact
In the case of skin irritation or allergic reactions see a physician.

Inhalation
If excessive amounts of smoke, fume, or particulate are inhaled during processing, remove to fresh air and consult a qualified health professional.

Ingestion
Not an expected route of exposure.

Most important symptoms and effects, both acute and delayed

Symptoms
May cause allergic skin reaction. May cause acute gastrointestinal effects if swallowed. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Product not flammable in the form as distributed, flammable as finely divided particles or pieces resulting from processing of this product. Isolate large fires and allow to burn out. Smother small fires with salt (NaCl) or class D dry powder fire extinguisher.

Unsuitable extinguishing media
Do not spray water on burning metal as an explosion may occur. This explosive characteristic is caused by the hydrogen and steam generated by the reaction of water with the burning material.

Specific hazards arising from the chemical
Intense heat. WARNING: Fine particles resulting from grinding, buffing, polishing, or similar processes of this product may form combustible dust-air mixtures. Keep particles away from all ignition sources including heat, sparks, and flame. Prevent dust accumulations to minimize combustible dust hazard.

Hazardous combustion products
Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer; Zinc, copper, magnesium, or cadmium fumes may cause metal fume fever. Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

Explosion data
Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.

Protective equipment and precautions for firefighters
Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Use personal protective equipment as required.

For emergency responders
Use personal protective equipment as required.
Environmental precautions

Environmental precautions
Not applicable to massive product.

Methods and material for containment and cleaning up

Methods for containment
Not applicable to massive product.

Methods for cleaning up
Not applicable to massive product.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
WARNING: Fine particles resulting from grinding, buffing, polishing, or similar processes of this product may form combustible dust-air mixtures. Keep particles away from all ignition sources including heat, sparks, and flame. Prevent dust accumulations to minimize combustible dust hazard.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep chips, turnings, dust, and other small particles away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity).

Incompatible materials
Dissolves in hydrofluoric acid.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron 7439-89-6</td>
<td>TWA: 1.5 mg/m³ inhalable fraction</td>
<td>TWA: 1 mg/m³</td>
</tr>
<tr>
<td>Nickel 7440-02-0</td>
<td>TWA: 0.5 mg/m³</td>
<td>TWA: 1 mg/m³</td>
</tr>
<tr>
<td>Chromium 7440-47-3</td>
<td>TWA: 0.1 mg/m³ Mn</td>
<td>(vacated) STEL: 3 mg/m³ fume</td>
</tr>
<tr>
<td>Manganese 7439-96-5</td>
<td>TWA: 0.1 mg/m³ Mn</td>
<td>Ceiling: 5 mg/m³ fume Ceiling: 5 mg/m³ Mn</td>
</tr>
<tr>
<td>Cobalt 7440-48-4</td>
<td>TWA: 0.02 mg/m³ dust and fume</td>
<td></td>
</tr>
<tr>
<td>Silicon 7440-21-3</td>
<td>-</td>
<td>TWA: 15 mg/m³ total dust</td>
</tr>
<tr>
<td>Molybdenum 7439-98-7</td>
<td>TWA: 3 mg/m³ respirable fraction</td>
<td>TWA: 5 mg/m³ respirable fraction</td>
</tr>
<tr>
<td>Copper 7440-50-8</td>
<td>TWA: 0.2 mg/m³ dust and mist</td>
<td>TWA: 0.1 mg/m³ fume</td>
</tr>
<tr>
<td>Tungsten 7440-33-7</td>
<td>STEL: 10 mg/m³ STEL: 10 mg/m³ W TWA: 5 mg/m³ TWA: 5 mg/m³ W</td>
<td>(vacated) STEL: 10 mg/m³ (vacated) STEL: 10 mg/m³ W</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering Controls
Avoid generation of uncontrolled particles.

Individual protection measures, such as personal protective equipment

Eye/face protection
When airborne particles may be present, appropriate eye protection is recommended. For example, tight-fitting goggles, foam-lined safety glasses or other protective equipment that shield the eyes from particles.
Skin and body protection  Fire/flame resistant/retardant clothing may be appropriate during hot work with the product. Cut-resistant gloves and/or protective clothing may be appropriate when sharp surfaces are present.

Respiratory protection  When particulates/fumes/gases are generated and if exposure limits are exceeded or irritation is experienced, proper approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations  Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>1420 - 1450 °C 2590 - 2650 °F</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor density</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>7-9</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>Insoluble</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

Property                             Values              Remarks • Method
pH                                   -                   
Melting point/freezing point         1420 - 1450 °C 2590 - 2650 °F  Not applicable
Boiling point / boiling range        -                   
Flash point                          -                   
Evaporation rate                     -                   Not applicable
Flammability (solid, gas)            -                   
Flammability Limit in Air            -                   
Upper flammability limit:            -                   
Lower flammability limit:            -                   
Vapor pressure                       -                   Not applicable
Vapor density                        -                   Not applicable
Specific Gravity                     7-9                 
Water solubility                     Insoluble            
Solubility in other solvents         -                   Not applicable
Partition coefficient                -                   Not applicable
Autoignition temperature             -                   Not applicable
Decomposition temperature            -                   Not applicable
Kinematic viscosity                  -                   Not applicable
Dynamic viscosity                    -                   Not applicable
Explosive properties                 Not applicable        
Oxidizing properties                 Not applicable        

Other Information

Softening point                       -                   
Molecular weight                      -                   
VOC Content (%)                       Not applicable       
Density                               -                   
Bulk density                          -                   

10. STABILITY AND REACTIVITY

Reactivity                            Not applicable      
Chemical stability                    Stable under normal conditions.
Possibility of Hazardous Reactions
None under normal processing.

Hazardous polymerization
Hazardous polymerization does not occur.

Conditions to avoid
Dust formation and dust accumulation.

Incompatible materials
Dissolves in hydrofluoric acid.

Hazardous Decomposition Products
When product is subjected to welding, burning, melting, sawing, brazing, grinding, buffing, polishing, or other similar heat-generating processes, the following potentially hazardous airborne particles and/or fumes may be generated:

- Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer.
- Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

### 11. TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

**Product Information**

**Inhalation**
Not an expected route of exposure for product in massive form.

**Eye contact**
Not an expected route of exposure for product in massive form.

**Skin Contact**
Nickel or Cobalt containing alloys may cause sensitization by skin contact.

**Ingestion**
Not an expected route of exposure for product in massive form.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron 7439-89-6</td>
<td>98,600 mg/kg bw</td>
<td>-</td>
<td>&gt; 0.25 mg/L</td>
</tr>
<tr>
<td>Nickel 7440-02-0</td>
<td>&gt; 9000 mg/kg bw</td>
<td>-</td>
<td>&gt; 10.2 mg/L</td>
</tr>
<tr>
<td>Chromium 7440-47-3</td>
<td>&gt; 3400 mg/kg bw</td>
<td>-</td>
<td>&gt; 5.41 mg/L</td>
</tr>
<tr>
<td>Manganese 7439-96-5</td>
<td>&gt; 2000 mg/kg bw</td>
<td>-</td>
<td>&gt; 5.14 mg/L</td>
</tr>
<tr>
<td>Cobalt 7440-48-4</td>
<td>550 mg/kg bw</td>
<td>&gt; 2000 mg/kg bw</td>
<td>&lt; 0.05 mg/L</td>
</tr>
<tr>
<td>Silicon 7440-21-3</td>
<td>&gt; 5000 mg/kg bw</td>
<td>&gt; 5000 mg/kg bw</td>
<td>&gt; 2.08 mg/L</td>
</tr>
<tr>
<td>Molybdenum 7439-98-7</td>
<td>&gt; 2000 mg/kg bw</td>
<td>&gt; 2000 mg/kg bw</td>
<td>&gt; 5.10 mg/L</td>
</tr>
<tr>
<td>Copper 7440-50-8</td>
<td>481 mg/kg bw</td>
<td>&gt; 2000 mg/kg bw</td>
<td>&gt; 5.11 mg/L</td>
</tr>
<tr>
<td>Tungsten 7440-33-7</td>
<td>&gt; 2000 mg/kg bw</td>
<td>&gt; 2000 mg/kg bw</td>
<td>&gt; 5.4 mg/L</td>
</tr>
</tbody>
</table>

Information on toxicological effects

**Symptoms**
Nickel or Cobalt containing alloys may cause sensitization by skin contact. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause acute gastrointestinal effects if swallowed.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Acute toxicity**
Harmful if swallowed. Cobalt-containing powders may be fatal if inhaled.

**Skin corrosion/irritation**
Product not classified.

**Serious eye damage/eye irritation**
Product not classified.

**Sensitization**
Nickel or Cobalt containing alloys may cause sensitization by skin contact.
Cobalt-containing alloys may cause sensitization by inhalation.

Germ cell mutagenicity
Product not classified.

Carcinogenicity
May cause cancer by inhalation.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel 7440-02-0</td>
<td>Group 1</td>
<td>Group 2B</td>
<td>Known</td>
<td>X</td>
</tr>
<tr>
<td>Chromium 7440-47-3</td>
<td>Group 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cobalt 7440-48-4</td>
<td>A3</td>
<td>Group 2A</td>
<td>Known</td>
<td>X</td>
</tr>
</tbody>
</table>

Reproductive toxicity
Possible risk of impaired fertility.

STOT - single exposure
Product not classified.

STOT - repeated exposure
Causes disorder and damage to the: Respiratory System.

Aspiration hazard
Product not classified.

12. ECOLOGICAL INFORMATION

Ecotoxicity
This product as shipped is not classified for aquatic toxicity.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Toxicity to microorganisms</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron 7439-89-6</td>
<td>-</td>
<td>The 96 h LC50 of 50% iron oxide black in water to Danio rerio was greater than 10,000 mg/L.</td>
<td>The 48 h EC50 of iron oxide for activated sludge was greater than 10,000 mg/L.</td>
<td></td>
</tr>
<tr>
<td>Nickel 7440-02-0</td>
<td>NOEC/EC10 values range from 12.3 µg/l for Scenedesmus accumulatus to 425 µg/l for Pseudokirchneriella subcapitata.</td>
<td>The 96 h LC50 values range from 0.4 mg Ni/L for Pimephales promelas to 320 mg Ni/L for Brachydanio rerio.</td>
<td>The 30 min EC50 of nickel for activated sludge was 33 mg Ni/L.</td>
<td>The 48h LC50s values range from 0.013 mg Ni/L for Ceriodaphnia dubia to 4970 mg Ni/L for Daphnia magna.</td>
</tr>
<tr>
<td>Chromium 7440-47-3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Manganese 7439-96-5</td>
<td>The 72 h EC50 of manganese to Desmodesmus subspicatus was 2.8 mg of Mn/L.</td>
<td>The 96 h LC50 of manganese to Oncorhynchus mykiss was greater than 3.6 mg of Mn/L.</td>
<td>The 3 h EC50 of manganese for activated sludge was 1000 mg/L.</td>
<td>The 48 h EC50 of manganese to Daphnia magna was greater than 1.6 mg/L.</td>
</tr>
<tr>
<td>Cobalt 7440-48-4</td>
<td>The 72 h EC50 of cobalt dichloride to Pseudokirchneriella subcapitata was 144 ug of Co/L.</td>
<td>The 96 h LC50 of cobalt dichloride ranged from 1.5 mg Co/L for Oncorhynchus mykiss to 85 mg Co/L for Brachydanio rerio.</td>
<td>The 3 h EC50 of cobalt dichloride for activated sludge was 120 mg of Co/L.</td>
<td>The 48 h EC50 of cobalt dichloride ranged from 0.61 mg Co/L for Ceriodaphnia dubia tested in soft, DOM-free water to &gt;1800mg Co/L for Tubifex tubifex in very hard water.</td>
</tr>
<tr>
<td>Silicon 7440-21-3</td>
<td>The 72 h EC50 of sodium metasilicate pentahydrate to Pseudokirchneriella subcapitata was greater than 250 mg/L.</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Molybdenum 7439-98-7</td>
<td>The 72 h EC50 of sodium molybdate dihydrate to Pseudokirchneriella subcapitata was 362.9 mg of Mo/L.</td>
<td>The 96 h LC50 of sodium molybdate dihydrate to Pimephales promelas was 644.2 mg/L.</td>
<td>The 3 h EC50 of molybdenum trioxide for activated sludge was 820 mg/L.</td>
<td>The 48 h LC50 of sodium molybdate dihydrate to Ceriodaphnia dubia was 1.015 mg/L. The 48 h LC50 of sodium molybdate dihydrate to Daphnia magna was greater than 1,727.8 mg/L.</td>
</tr>
<tr>
<td>Copper 7440-50-8</td>
<td>The 72 h EC50 values of copper chloride to Pseudokirchneriella subcapitata ranged between 30 µg/L (pH 7.02, hardness)</td>
<td>The 96-hr LC50 for Pimephales promelas exposed to Copper sulfate ranged from 256.2 to 38.4 µg/L with water hardness</td>
<td>The 24 h NOEC of copper chloride for activated sludge ranged from 0.32 to 0.64 mg of Cu/L.</td>
<td>The 48 h LC50 values for Daphnia magna exposed to copper in natural water ranged between 33.8 µg/L (pH 6.1, hardness 12.4 mg/L).</td>
</tr>
</tbody>
</table>
250 mg/L CaCO₃, DOC 1.95 mg/L and 824 µg/L (pH 6.22, hardness 100 mg/L CaCO₃, DOC 15.8 mg/L), increasing from 45 to 255.7 mg/L.

Tungsten 7440-33-7

The 72 h EC₅₀ of sodium tungstate to Pseudokirchneriella subcapitata was 31.0 mg of W/L.

The 96 h LC₅₀ of sodium tungstate to Danio rerio was greater than 106 mg of W/L.

The 30 min EC₅₀ of sodium tungstate for activated sludge were greater than 1000 mg/L.

The 48 h EC₅₀ of sodium tungstate to Daphnia magna was greater than 96 mg of W/L.

**Persistence and degradability**

**Bioaccumulation**

**Other adverse effects**

This product as shipped is not classified for environmental endpoints. However, when subjected to sawing or grinding, particles may be generated that are classified for aquatic acute or aquatic chronic toxicity.

### 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Disposal of wastes**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

**Contaminated packaging**

None anticipated.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>RCRA - D Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium 7440-47-3</td>
<td>5.0 mg/L regulatory level</td>
</tr>
</tbody>
</table>

This product contains one or more substances that are listed with the State of California as a hazardous waste.

### 14. TRANSPORT INFORMATION

**DOT**

Not regulated

### 15. REGULATORY INFORMATION

**International Inventories**

<table>
<thead>
<tr>
<th>TSCA</th>
<th>Complies</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

**Legend:**

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory  
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List  
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
ENCS - Japan Existing and New Chemical Substances  
IECSC - China Inventory of Existing Chemical Substances  
KECL - Korean Existing and Evaluated Chemical Substances  
PICCS - Philippines Inventory of Chemicals and Chemical Substances  
AICS - Australian Inventory of Chemical Substances
US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>7440-02-0</td>
<td>0 - 35</td>
<td>0.1</td>
</tr>
<tr>
<td>Chromium</td>
<td>7440-47-3</td>
<td>0 - 30</td>
<td>1.0</td>
</tr>
<tr>
<td>Manganese</td>
<td>7439-96-5</td>
<td>0 - 16</td>
<td>1.0</td>
</tr>
<tr>
<td>Cobalt</td>
<td>7440-48-4</td>
<td>0 - 15</td>
<td>0.1</td>
</tr>
<tr>
<td>Copper</td>
<td>7440-50-8</td>
<td>0 - 5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
- **Acute health hazard**: Yes
- **Chronic Health Hazard**: Yes
- **Fire hazard**: No
- **Sudden release of pressure hazard**: No
- **Reactive Hazard**: No

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chromium</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>100 lb</td>
</tr>
<tr>
<td>Chromium</td>
<td>5000 lb</td>
</tr>
<tr>
<td>Copper</td>
<td>5000 lb</td>
</tr>
</tbody>
</table>

US State Regulations

California Proposition 65
This product contains the Proposition 65 chemicals listed below. Proposition 65 warning label available at ATImetals.com.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>California Proposition 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>Cobalt</td>
<td>Carcinogen</td>
</tr>
</tbody>
</table>

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Chromium</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Manganese</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Element</th>
<th>EINECS</th>
<th>ENN</th>
<th>NFPA</th>
<th>HMIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt</td>
<td>7440-48-4</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Silicon</td>
<td>7440-21-3</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>7439-98-7</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Copper</td>
<td>7440-50-8</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tungsten</td>
<td>7440-33-7</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not applicable

**16. OTHER INFORMATION**

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Physical hazards</th>
<th>Personal protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Chronic Hazard Star Legend**

* = Chronic Health Hazard

**Issue Date** 28-May-2015

**Revision Date** 10-Sep-2018

**Revision Note** Updated Section(s): 4, 5, 7, 9, 11, 12, 15

**Note:**

The information provided in this safety data sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**

**Additional information available from:** Safety data sheets and labels available at ATImetals.com