Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Code
SAC047

Product Name
Niobium Alloy Powder (flammable)

UN/ID no
3089

Synonyms
All niobium alloy powders, columbium alloy powders, C103 powder (former product #516)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use
Alloy product manufacture

Uses advised against

1.3. Details of the supplier of the safety data sheet

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

1.4. Emergency telephone number

Emergency Telephone
Chemtrec: +1-703-741-5970

Section 2: HAZARDS IDENTIFICATION

This material is classified per Regulation (EC) No 1272/2008.

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Flammable solids
Category 1

2.2. Label elements

Danger

Hazard statements
H228 - Flammable solid

Emergency Overview

Appearance Powder
Physical state Solid
Odour Odourless

Precautionary Statements - Prevention
Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EC No</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niobium</td>
<td>231-113-5</td>
<td>7440-03-1</td>
<td>40-99</td>
</tr>
<tr>
<td>Titanium</td>
<td>231-142-3</td>
<td>7440-32-6</td>
<td>0-60</td>
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<tr>
<td>Aluminium</td>
<td>231-072-3</td>
<td>7429-90-5</td>
<td>0-50</td>
</tr>
<tr>
<td>Tantalum</td>
<td>231-135-5</td>
<td>7440-25-7</td>
<td>0-30</td>
</tr>
<tr>
<td>Hafnium</td>
<td>231-166-4</td>
<td>7440-58-6</td>
<td>0-30</td>
</tr>
<tr>
<td>Tungsten</td>
<td>231-143-9</td>
<td>7440-33-7</td>
<td>0-20</td>
</tr>
<tr>
<td>Vanadium</td>
<td>231-171-1</td>
<td>7440-62-2</td>
<td>0-10</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>231-107-2</td>
<td>7439-98-7</td>
<td>0-10</td>
</tr>
<tr>
<td>Zirconium</td>
<td>231-176-9</td>
<td>7440-67-7</td>
<td>0-5</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>215-605-7</td>
<td>1333-74-0</td>
<td>0-1.2</td>
</tr>
</tbody>
</table>

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

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

Skin Contact
None under normal use conditions.

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

Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms
None anticipated.

4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors
Treat symptomatically.
Section 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media
Isolate large fires and allow to burn out. Smother small fires with salt (NaCl).

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.

5.2. Special hazards arising from the substance or mixture

Intense heat. Very fine, high surface area material resulting from processing this product may ignite spontaneously at room temperature. WARNING: Fine particles 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 minimise combustible dust hazard.

Hazardous combustion products: Titanium dioxide, an IARC Group 2B carcinogen. Vanadium pentoxide (V2O5) affects eyes, skin, respiratory system. Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

5.3. Advice for firefighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions
Use personal protective equipment as required.

For emergency responders
Use personal protective equipment as required. Follow Emergency Response Guidebook, Guide No. 170.

6.2. Environmental precautions

Collect spillage to prevent release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep or shovel material into dry containers using non-sparking tools. Avoid creating uncontrolled dust.

6.4. Reference to other sections

See Section 12: ECOLOGICAL INFORMATION.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling
Very fine, high surface area material resulting from grinding, buffing, polishing, or similar processes of this product may ignite spontaneously at room temperature. WARNING: Fine particles 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 minimise combustible dust hazard.

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

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). For long-term storage, keep sealed in argon-filled steel drums.

Incompatible materials
Dissolves in hydrofluoric acid. Ignites in the presence of fluorine. When heated above 200°C, reacts exothermically with the following: Chlorine, bromine, halocarbons, Carbon tetrachloride, carbon tetrafluoride, freon.

7.3. Specific end use(s)

Risk Management Methods (RMM)
The information required is contained in this Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>European Union</th>
<th>United Kingdom</th>
<th>France</th>
<th>Spain</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niobium 7440-03-1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Titanium 7440-32-6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Aluminium 7429-90-5</td>
<td>-</td>
<td>STEL: 30 mg/m³ TWA: 10 mg/m³ TWA: 5 mg/m³</td>
<td>TWA: 10 mg/m³ TWA: 5 mg/m³</td>
<td>TWA: 10 mg/m³ TWA: 5 mg/m³</td>
<td>TWA: 4 mg/m³ TWA: 1.5 mg/m³</td>
</tr>
<tr>
<td>Tantalum 7440-25-7</td>
<td>-</td>
<td>STEL: 10 mg/m³ TWA: 5 mg/m³</td>
<td>TWA: 5 mg/m³</td>
<td>TWA: 5 mg/m³</td>
<td>TWA: 4 mg/m³ TWA: 1.5 mg/m³</td>
</tr>
<tr>
<td>Hafnium 7440-58-6</td>
<td>-</td>
<td>-</td>
<td>TWA: 0.5 mg/m³</td>
<td>TWA: 0.5 mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Tungsten 7440-33-7</td>
<td>-</td>
<td>STEL: 10 mg/m³ TWA: 5 mg/m³</td>
<td>-</td>
<td>STEL: 10 mg/m³ TWA: 5 mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Vanadium 7440-62-2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Skin</td>
</tr>
<tr>
<td>Molybdenum 7439-98-7</td>
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<td>-</td>
<td>-</td>
<td>TWA: 10 mg/m³ TWA: 3 mg/m³</td>
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</tr>
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<td>-</td>
<td>STEL: 10 mg/m³ TWA: 5 mg/m³</td>
<td>TWA: 1 mg/m³ Ceiling / Peak: 1 mg/m³</td>
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<tr>
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<td>-</td>
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<tr>
<td>Chemical Name</td>
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<td>Portugal</td>
<td>Netherlands</td>
<td>Finland</td>
<td>Denmark</td>
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<td>-</td>
<td>TWA: 5 mg/m³ TWA: 0.5 mg/m³</td>
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<tr>
<td>Titanium 7440-32-6</td>
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<td>-</td>
<td>-</td>
<td>-</td>
</tr>
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<td>Aluminium 7429-90-5</td>
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<td>TWA: 1.5 mg/m³</td>
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<td>-</td>
<td>TWA: 5 mg/m³</td>
<td>-</td>
<td>TWA: 5 mg/m³</td>
<td>TWA: 5 mg/m³</td>
</tr>
<tr>
<td>Hafnium 7440-58-6</td>
<td>-</td>
<td>TWA: 0.5 mg/m³</td>
<td>-</td>
<td>TWA: 0.5 mg/m³</td>
<td>TWA: 0.5 mg/m³</td>
</tr>
<tr>
<td>Tungsten 7440-33-7</td>
<td>-</td>
<td>STEL: 10 mg/m³ TWA: 5 mg/m³</td>
<td>-</td>
<td>TWA: 5 mg/m³</td>
<td>TWA: 5 mg/m³</td>
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<td>Vanadium 7440-62-2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Molybdenum 7439-98-7</td>
<td>-</td>
<td>TWA: 10 mg/m³ TWA: 3 mg/m³</td>
<td>-</td>
<td>TWA: 0.5 mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Zirconium 7440-67-7</td>
<td>-</td>
<td>STEL: 10 mg/m³ TWA: 5 mg/m³</td>
<td>-</td>
<td>TWA: 1 mg/m³</td>
<td>TWA: 5 mg/m³</td>
</tr>
<tr>
<td>Hydrogen 1333-74-0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
### Derived No Effect Level (DNEL)
No DNELs are available for this product as a whole.

### Predicted No Effect Concentration (PNEC)
No PNECs are available for this product as a whole.

### 8.2. Exposure controls

**Engineering Controls**
Avoid generation of uncontrolled particles.

**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. When particulates/fumes/gases are generated and if exposure limits are exceeded or irritation is experienced, proper approved respiratory protection should be worn.

- **Respiratory protection**
  - Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

### Environmental exposure controls
Section 6: ACCIDENTAL RELEASE MEASURES.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical state</strong></td>
<td>Solid</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
<td>Powder</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>metallic grey or Silver</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Odour</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Odour threshold</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>-</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td><strong>Melting point / freezing point</strong></td>
<td>2470 °C / 4480 °F</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Boiling point / boiling range</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
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<td>Not applicable</td>
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</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>-</td>
<td>Flammable</td>
<td></td>
</tr>
<tr>
<td><strong>Flammability Limit in Air</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Upper flammability limit:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lower flammability limit:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Vapour pressure - Not applicable
Vapour density - Not applicable
Specific Gravity 8.57
Water solubility Insoluble

9.2. Other information
Softening point -
Molecular weight -
VOC Content (%) Not applicable
Density -
Bulk density 260 lb/ft3

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity
Not applicable.

10.2. Chemical stability
Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge May be ignited by heat, sparks or flames.

10.3. Possibility of hazardous reactions

Hazardous polymerisation
Hazardous polymerisation does not occur.

Possibility of Hazardous Reactions
None under normal processing.

10.4. Conditions to avoid
Dust formation and dust accumulation.

10.5. Incompatible materials
Dissolves in hydrofluoric acid. Ignites in the presence of fluorine. When heated above 200°C, reacts exothermically with the following: Chlorine, bromine, halocarbons, Carbon tetrachloride, carbon tetrafluoride, freon.

10.6. 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: Titanium dioxide, an IARC Group 2B carcinogen. Vanadium pentoxide (V2O5) affects eyes, skin, respiratory system. Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects
Product Information

Inhalation
Product not classified.

Eye contact
Product not classified.

Skin Contact
Product not classified.

Ingestion
Product not classified.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niobium</td>
<td>&gt; 10,000 mg/kg bw</td>
<td>&gt; 2000 mg/kg bw</td>
<td>-</td>
</tr>
<tr>
<td>Titanium</td>
<td>&gt; 5000 mg/kg bw</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Aluminium</td>
<td>15,900 mg/kg bw</td>
<td>-</td>
<td>&gt; 1 mg/L</td>
</tr>
<tr>
<td>Tantalum</td>
<td>&gt; 2000 mg/kg bw</td>
<td>&gt; 2000 mg/kg bw</td>
<td>&gt; 5.18 mg/L</td>
</tr>
<tr>
<td>Hafnium</td>
<td>&gt; 5000 mg/kg bw</td>
<td>-</td>
<td>&gt;4.3mg/L</td>
</tr>
<tr>
<td>Tungsten</td>
<td>&gt; 2000 mg/kg bw</td>
<td>&gt; 2000 mg/kg bw</td>
<td>&gt; 5.4 mg/L</td>
</tr>
<tr>
<td>Vanadium</td>
<td>&gt; 2000 mg/kg bw</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Molybdenum</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>Zirconium</td>
<td>&gt; 5000 mg/kg bw</td>
<td>-</td>
<td>&gt;4.3 mg/L</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>-</td>
<td>-</td>
<td>&gt; 15000 ppm ( Rat ) 1 h</td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
None known.

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

Acute toxicity
Product not classified.

Skin corrosion/irritation
Product not classified.

Serious eye damage/eye irritation
Product not classified.

Sensitisation
Product not classified.

Germ cell mutagenicity
Product not classified.

Carcinogenicity
Product not classified.

Reproductive toxicity
Product not classified.

STOT - single exposure
Product not classified.

STOT - repeated exposure
Product not classified.

Aspiration hazard
Product not classified.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

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>Niobium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Titanium</td>
<td>The 72 h EC50 of titanium dioxide to Pseudokirchnerella subcapitata was 61 mg of TiO2/L.</td>
<td>The 96 h LC50 of titanium dioxide to Cyprinodon variegatus was greater than 10,000 mg of TiO2/L. The 96 h LC50 of titanium dioxide to Pimephales promelas was greater than 1,000 mg of TiO2/L.</td>
<td>The 3 h EC50 of titanium dioxide for activated sludge were greater than 1000 mg/L.</td>
<td>The 48 h EC50 of titanium dioxide to Daphnia Magna was greater than 1000 mg of TiO2/L.</td>
</tr>
<tr>
<td>Aluminium</td>
<td>The 96-h EC50 values for</td>
<td>The 96 h LC50 of</td>
<td>-</td>
<td>The 48-hr LC50 for</td>
</tr>
<tr>
<td>Substance</td>
<td>72 h EC50</td>
<td>96 h LC50</td>
<td>48 h EC50</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>------------------</td>
<td>------------------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>Tantalum</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Hafnium</td>
<td>The 72 h EC50 of hafnium to <em>Pseudokirchneriella subcapitata</em> was greater than 8 ug of Hf/L (100% saturated solution).</td>
<td>The 96 h LC50 of Hafnium dioxide in water to <em>Danio rerio</em> was greater than the solubility limit of 0.007 mg Hf/L.</td>
<td>- The 48 h EC50 of Hafnium dioxide to <em>Daphnia magna</em> was greater than the solubility limit of 0.007 mg Hf/L.</td>
<td></td>
</tr>
<tr>
<td>Tungsten</td>
<td>The 72 h EC50 of sodium tungstate to <em>Pseudokirchneriella subcapitata</em> was 31.0 mg of W/L.</td>
<td>The 96 h LC50 of sodium tungstate to <em>Danio rerio</em> was greater than 106 mg of W/L.</td>
<td>The 48 h EC50 of sodium tungstate to <em>Daphnia magna</em> was greater than 96 mg of W/L.</td>
<td></td>
</tr>
<tr>
<td>Vanadium</td>
<td>The 72 h EC50 of vanadium pentoxide to <em>Desmodesmus subspicatus</em> was 2,907 ug of V/L.</td>
<td>The 96 h LC50 of vanadium pentoxide to <em>Pimephales promelas</em> was 1,850 ug of V/L.</td>
<td>The 48 h EC50 of vanadium pentoxide to <em>Daphnia magna</em> was 2,661 ug of V/L.</td>
<td></td>
</tr>
<tr>
<td>Molybdenum</td>
<td>The 72 h EC50 of sodium molybdate dihydrate to <em>Pseudokirchneriella subcapitata</em> was 362.9 mg of Mo/L.</td>
<td>The 96 h LC50 of sodium molybdate dihydrate to <em>Pimephales promelas</em> was 644.2 mg/L.</td>
<td>The 48 h EC50 of sodium molybdate dihydrate to <em>Ceriodaphnia dubia</em> was 1,015 mg/L.</td>
<td></td>
</tr>
<tr>
<td>Zirconium</td>
<td>The 14 d NOEC of zirconium dichloride oxide to <em>Chlorella vulgaris</em> was greater than 102.5 mg of Zr/L.</td>
<td>The 96 h LL50 of zirconium to <em>Danio rerio</em> was greater than 74.03 mg/L.</td>
<td>- The 48 h EC50 of zirconium dioxide to <em>Daphnia magna</em> was greater than 74.03 mg of Zr/L.</td>
<td></td>
</tr>
<tr>
<td>Hydrogen</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

12.3. Bioaccumulative potential

12.4. Mobility in soil

Mobility

12.5. Results of PBT and vPvB assessment

The PBT and vPvB criteria do not apply to inorganic substances.

12.6. Other adverse effects

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues/unused products

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

**Section 14: TRANSPORT INFORMATION**

**IMDG**
- 14.1 UN/ID no: 3089
- 14.2 Proper shipping name: Metal powders, flammable, n.o.s. (Niobium Alloy Powder)
- 14.3 Hazard Class: 4.1
- 14.4 Packing Group: II
- 14.5 Marine pollutant: Not applicable
- 14.6 Special Provisions: IB8, IP2, IP4, T3, TP33
- 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code: Not applicable

**RID**
- 14.1 UN/ID no: 3089
- 14.2 Proper shipping name: Metal powders, flammable, n.o.s. (Niobium Alloy Powder)
- 14.3 Hazard Class: 4.1
- 14.4 Packing Group: II
- 14.5 Environmental hazard: Not applicable
- 14.6 Special Provisions: IB8, IP2, IP4, T3, TP33

**ADR**
- 14.1 UN/ID no: 3089
- 14.2 Proper shipping name: Metal powders, flammable, n.o.s. (Niobium Alloy Powder)
- 14.3 Hazard Class: 4.1
- 14.4 Packing Group: II
- 14.5 Environmental hazard: Not applicable
- 14.6 Special Provisions: IB8, IP2, IP4, T3, TP33

**ICAO (air)**
- 14.1 UN/ID no: 3089
- 14.2 Proper shipping name: Metal powders, flammable, n.o.s. (Niobium Alloy Powder)
- 14.3 Hazard Class: 4.1
- 14.4 Packing Group: II
- 14.5 Environmental hazard: Not applicable
- 14.6 Special Provisions: IB8, IP2, IP4, T3, TP33

**IATA**
- 14.1 UN/ID no: 3089
- 14.2 Proper shipping name: Metal powders, flammable, n.o.s. (Niobium Alloy Powder)
- 14.3 Hazard Class: 4.1
- 14.4 Packing Group: II
- **Description:** Not applicable
- 14.5 Environmental hazard: Not applicable
- 14.6 Special Provisions: IB8, IP2, IP4, T3, TP33

**ERG Code**
- 170

**Section 15: REGULATORY INFORMATION**

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>French RG number</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Niobium</td>
<td>7440-03-1</td>
<td>-</td>
</tr>
<tr>
<td>Titanium</td>
<td>7440-32-6</td>
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</table>
European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorisations and/or restrictions on use:
This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV). This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

International Inventories

<table>
<thead>
<tr>
<th>DSL/NDSL</th>
<th>Complies</th>
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<tbody>
<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>Not Listed</td>
</tr>
<tr>
<td>AICS</td>
<td>Not Listed</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

15.2. Chemical safety assessment

No chemical safety assessment has been performed for this product.

Section 16: OTHER INFORMATION

<table>
<thead>
<tr>
<th>Issue Date</th>
<th>12-Jan-2018</th>
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</thead>
<tbody>
<tr>
<td>Revision Date</td>
<td>07-Nov-2019</td>
</tr>
<tr>
<td>Revision Note</td>
<td>SDS sections updated: 2, 3, 5, 6, 9, 10, 11, 12, 14, 15, 16.</td>
</tr>
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</table>

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Note:
The information provided in this Material 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.

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

End of Safety Data Sheet