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

Product identifier
Product Name  Titanium Sponge

Other means of identification
Product Code  SAC012
Synonyms  All quality grades of titanium sponge (Product #802-1R0)

Recommended use of the chemical and restrictions on use
Recommended Use  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  Chemtrec: 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label elements

Emergency Overview

Appearance  Various blends of powders and chunks  Physical state  Solid; Powder  Odor  Odorless

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: Titanium dioxide an IARC Group 2B carcinogen.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms  All quality grades of titanium sponge, (Product #802-1R0).

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium</td>
<td>7440-32-6</td>
<td>&gt;99</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
None under normal use conditions.

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

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

Most important symptoms and effects, both acute and delayed

Symptoms
None anticipated.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Smother 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
Titanium dioxide an IARC Group 2B carcinogen.

Explosion data
Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH approved (or equivalent) respirator and full protective 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
Collect spillage to prevent release to the environment.

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. Avoid creating uncontrolled dust.

### 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). 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, and freon.

### 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>Titanium 7440-32-6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Magnesium Chloride 7786-30-3</td>
<td>-</td>
<td>-</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**
Physical state | Solid; Powder
---|---
Appearance | Various blends of powders and chunks
Color | Grey silver
Odor | Odorless
Odor threshold | Not applicable

**Property** | **Values** | **Remarks • Method**
---|---|---
pH | - |  
Melting point/freezing point | 1850 °C / 3360 °F |  
Boiling point / boiling range | 4377 °C |  
Flash point | - | Not applicable
Evaporation rate | - | Not applicable
Flammability (solid, gas) | - | Not flammable in the form of this product as distributed, flammable as finely divided particles or pieces resulting from processing of this product

**Flammability Limit in Air**
Upper flammability limit: | - |  
Lower flammability limit: | - |  
Vapor pressure | - | Not applicable
Vapor density | - | Not applicable
Specific Gravity | 6.49 |  
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. Ignites in the presence of fluorine. When heated above 200°C, reacts exothermically with the following: Chlorine, bromine, halocarbons, carbon tetrachloride, carbon tetrafluoride, and freon.

**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.
11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

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>Titanium 7440-32-6</td>
<td>&gt; 5000 mg/kg bw</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Magnesium Chloride 7786-30-3</td>
<td>5000 mg/kg bw</td>
<td>&gt;2000 mg/kg bw</td>
<td>-</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

Skin corrosion/irritation  
Product not classified.

Serious eye damage/eye irritation  
Product not classified.

Sensitization  
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.

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>Titanium 7440-32-6</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>Magnesium Chloride 7786-30-3</td>
<td>The 72 h EC50 of magnesium chloride to Desmodesmus subsipicus was greater than 100 mg of MgCl2/L.</td>
<td>The 96 h LC50 of magnesium chloride to Pimephales promelas was 2119.3 mg of MgCl2/L.</td>
<td>The 3 h EC50 of magnesium chloride for activated sludge was greater than 900 mg of MgCl2/L.</td>
<td>The 48 h LC50 of magnesium chloride hexahydrate to Daphnia magna was 548.4 mg of MgCl2/L.</td>
</tr>
</tbody>
</table>

Persistence and degradability

-
Bioaccumulation

Other adverse effects

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

14. TRANSPORT INFORMATION

DOT
Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL/NDSL Complies
EINECS/ELINCS Complies
ENCS Complies
IECSC Complies
KECL Complies
PICCS Complies
AICS Complies

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 does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td>No</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

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>Titanium</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7440-32-6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

U.S. EPA Label Information
EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA  Health hazards 0  Flammability 0  Instability 0  Physical and Chemical Properties -
HMIS  Health hazards 1*  Flammability 1  Physical hazards 0  Personal protection X

Chronic Hazard Star Legend  *= Chronic Health Hazard

Issue Date 28-May-2015
Revision Date 12-Dec-2016
Revision Note Updated Section(s): 5, 6, 7, 8, 9, 12

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