SECTION 1: Identification

1.1 Product identifier

Product name: Titanium

1.2 Other means of identification

Not available

1.3 Recommended use of the chemical and restrictions on use

Titanium Raw Materials & Components

1.4 Supplier's details

<table>
<thead>
<tr>
<th>Name</th>
<th>Reliable Source, Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>11109 Jasmine St</td>
</tr>
<tr>
<td></td>
<td>Fontana, CA 92337</td>
</tr>
<tr>
<td></td>
<td>USA</td>
</tr>
</tbody>
</table>

Telephone: 909-357-1211
Fax: 909-357-1311
email: info@rsmetals.us

1.5 Emergency phone number(s)

909-357-1211 (business hours)

SECTION 2: Hazard identification

General hazard statement

The product as delivered does not present a health hazard. However, if user activities generate dust, fumes or mists during processing and handling (melting, welding, sawing, brazing, grinding and machining), it may become hazardous.

2.1 Classification of the substance or mixture

GHS classification in accordance with: (US) OSHA (29 CFR 1910.1200)

- Sensitization, respiratory, Cat. 1
- Sensitization, skin, Cat. 1

2.2 GHS label elements, including precautionary statements
Pictogram

Signal word

Danger

Hazard statement(s)
H317 May cause an allergic skin reaction
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statement(s)
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves.
P284 [In case of inadequate ventilation] wear respiratory protection.
P302+P352 IF ON SKIN: Wash with plenty of water
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor
P363 Wash contaminated clothing before reuse.

2.3 Other hazards which do not result in classification
No data available

SECTION 3: Composition/information on ingredients

3.1 Substances
Not applicable.

3.2 Mixtures

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium (CAS no.: 7440-32-6)</td>
<td>50 - 75 % (weight)</td>
</tr>
<tr>
<td>Molybdenum (CAS no.: 7439-98-7)</td>
<td>10 - 25 % (weight)</td>
</tr>
<tr>
<td>Vanadium (CAS no.: 7440-62-2)</td>
<td>10 - 25 % (weight)</td>
</tr>
<tr>
<td>Chromium compounds (as Cr (III)) (CAS no.: 7440-47-3)</td>
<td>5 - 10 % (weight)</td>
</tr>
<tr>
<td>Niobium (CAS no.: 7440-03-1)</td>
<td>5 - 10 % (weight)</td>
</tr>
<tr>
<td>Zirconium (CAS no.: 7440-67-7; EC no.: 231-176-9)</td>
<td>5 - 10 % (weight)</td>
</tr>
<tr>
<td>Aluminum (CAS no.: 7429-90-5; EC no.: 231-072-3)</td>
<td>1 - 5 % (weight)</td>
</tr>
<tr>
<td>TIN (CAS no.: 7440-31-5)</td>
<td>1 - 5 % (weight)</td>
</tr>
<tr>
<td>Silicon (CAS no.: 7440-21-3)</td>
<td>1 - 5 % (weight)</td>
</tr>
</tbody>
</table>

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off immediately all contaminated clothing. Rinse skin with water/shower for at least 15 minutes. Call a poison center or doctor if irritation develops or persists. Wash contaminated clothing before reuse.

In case of eye contact
Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention/advice.

If swallowed
Rinse mouth. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Call a poison center or doctor.

4.2 Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labeling (see section 2) and/or in section 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary
No data available.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Use alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Specific hazards arising from the chemical
Combustion products may contain metal oxides.

5.3 Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid actions that cause dust to become airborne. Do not breathe dust or mist. Avoid contact with skin. Wear appropriate personal protective equipment as described in Section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid dust, mist or fume formation. Ensure adequate ventilation. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation. For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Normal temperatures and pressures do not affect the material. Keep in a dry and well-ventilated place.

**Specific end use(s)**

Apart from the uses mentioned in section 1 no other specific uses are stipulated.

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

US OSHA Permissible Exposure Limits, Annotated Table Z-1, www.osha.gov:

<table>
<thead>
<tr>
<th></th>
<th>OSHA PEL (C) Ceiling</th>
<th>Cal/OSHA PEL 8-hour TWA (ST) STEL (C) Ceiling</th>
<th>NIOSH REL Up to 10-hour TWA (ST) STEL (C) Ceiling</th>
<th>ACGIH® TLV® 8-hour TWA (ST) STEL (C) Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum (CAS no.: 7429-90-5)</td>
<td>Total dust</td>
<td>15 mg/m³</td>
<td>10 mg/m³</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Respirable fraction</td>
<td>5 mg/m³</td>
<td>5 mg/m³</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td>Chromium (III) compounds (CAS no.: 7440-47-3)</td>
<td>0.5 mg/m³</td>
<td>0.5 mg/m³</td>
<td>0.5 mg/m³</td>
<td>0.003 mg/m³-(IHL), water soluble</td>
</tr>
<tr>
<td>Chromium (VI) compounds</td>
<td>(C) 1 mg/10m³</td>
<td>0.005 mg/m³ as Cr (C) 0.1 mg/m³</td>
<td>Ca 0.0002 mg/m³ (8-hr-TWA)</td>
<td>0.0002 mg/m³(IHL) (ST) 0.0005 mg/m³(IHL), water soluble</td>
</tr>
<tr>
<td>Zirconium compounds (CAS no.: 7440-67-7)</td>
<td>5 mg/m³</td>
<td>5 mg/m³ (ST) 10 mg/m³</td>
<td>5 mg/m³ (ST) 10 mg/m³</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td>Tin inorganic compounds (except oxides) (CAS no.: 7440-31-5)</td>
<td>2 mg/m³</td>
<td>2 mg/m³; also tin oxide; except SnH₄</td>
<td>2 mg/m³; except tin oxides</td>
<td>metal, oxide and inorganic compounds, except tin hydride: 2 mg/m³</td>
</tr>
<tr>
<td>Molybdenum (CAS no.: 7439-98-7)</td>
<td>Soluble compounds</td>
<td>5 mg/m³</td>
<td>0.5 mg/m³</td>
<td>0.5 mg/m³</td>
</tr>
<tr>
<td>Insoluble Compounds - Total dust</td>
<td>15 mg/m³</td>
<td>10 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insoluble Compounds</td>
<td>3 mg/m³ (resp.)</td>
<td></td>
<td>10 mg/m³ (IHL)</td>
<td></td>
</tr>
<tr>
<td>Silicon (CAS no.: 7440-21-3)</td>
<td>Total dust</td>
<td>15 mg/m³</td>
<td>10 mg/m³</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

Reliable Source, Inc.  
www.reliablesourcemetals.com
Safety Data Sheet
Titanium

<table>
<thead>
<tr>
<th>Respirable fraction</th>
<th>5 mg/m³</th>
<th>5 mg/m³</th>
<th>5 mg/m³</th>
</tr>
</thead>
</table>

Abbreviations: C = Ceiling limit; Ca = Potential occupational carcinogens; CAS No. = Chemical Abstract Service Number; IHL = Inhalable; ppm = parts per million; STEL = Short Term Exposure Limit; Thor. = Thoracic fraction; TLV® = Threshold Limit Value; TWA = Time weighted average

8.2 Appropriate engineering controls
Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Pictograms

Eye/face protection
When engaged in activities where ingredients could contact the eye, wear safety glasses with side shields or goggles. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Wear face shield during welding or burning. Eye protection equipment must be tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU)

Skin protection
Wear protective gloves suitable for the material handled. Consult manufacturer specifications for further information.

Body protection
Wear protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Avoid actions that cause dust, mist or fume exposure to occur. Use local or general ventilation to control exposures below applicable exposure limits. NIOSH or MSHA approved particulate filter respirators should be used in the context of respiratory protection program meeting the requirements of the OSHA respiratory protection standard [29 CFR 1910.134] to control exposures when ventilation or other controls are inadequate or discomfort or irritation is experienced. Respirator and/or filter cartridge selection should be based on American National Standards Institute (ANSI) Standards Z88.2 Practices for Respiratory Protection.

Thermal hazards
No data available.

Environmental exposure controls
Do not let product enter drains.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance/form (physical state, color, etc.)</td>
<td>Metal Solid</td>
</tr>
<tr>
<td>Odor</td>
<td>No odor</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>Melting point/freezing point</td>
<td>No data available.</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available.</td>
</tr>
</tbody>
</table>
Evaporation rate: No data available.
Flammability (solid, gas): No data available.
Upper/lower flammability limits: No data available.
Upper/lower explosive limits: No data available.
Vapor pressure: No data available.
Vapor density: No data available.
Relative density: No data available.
Specific gravity: 4.46 - 4.54
Solubility(ies): No data available.
Partition coefficient: n-octanol/water: No data available.
Auto-ignition temperature: No data available.
Decomposition temperature: No data available.
Viscosity: No data available.
Explosive properties: No data available.
Oxidizing properties: No data available.

Other safety information:
No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2 Chemical stability
Stable under normal storage conditions.

10.3 Possibility of hazardous reactions
No data available.

10.4 Conditions to avoid
No data available.

10.5 Incompatible materials
Strong acids, oxidizing agents, halogens.

10.6 Hazardous decomposition products
No data available.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Based on available data, classification data are not met

Skin corrosion/irritation
Based on available data, classification data are not met

Serious eye damage/irritation
Based on available data, classification data are not met

Respiratory or skin sensitization
May cause an allergic skin reaction. May cause allergy or asthma symptoms of breathing difficulties if inhaled.
Germ cell mutagenicity
Based on available data, classification data are not met

Carcinogenicity
Based on available data, classification data are not met

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Based on available data, classification data are not met

STOT-single exposure
Based on available data, classification data are not met

STOT-repeated exposure
Based on available data, classification data are not met

Aspiration hazard
Based on available data, classification data are not met

Additional information
No data available.

SECTION 12: Ecological information

Toxicity
No data available on product

Persistence and degradability
No data available on product

Bioaccumulative potential
No data available on product

Mobility in soil
No data available.

Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects
No data available.

SECTION 13: Disposal considerations

Disposal of the product
Disposal should be in accordance with applicable Federal, State and local laws and regulations. Local regulations may be more stringent than State or Federal requirements.
Disposal of contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Massachusetts Right To Know Components
Molybdenum (CAS no.: 7439-98-7)
Vanadium (CAS no.: 7440-62-2)
Chromium (CAS no.: 7440-47-3)
Zirconium (CAS no.: 7440-67-7)
Aluminum (CAS no.: 7429-90-5)
TIN (CAS no.: 7440-31-5)
Silicon (CAS no.: 7440-21-3)

New Jersey Right To Know Components
Titanium (CAS no.: 7440-32-6)
Molybdenum (CAS no.: 7439-98-7)
Vanadium (CAS no.: 7440-62-2)
Chromium (CAS no.: 7440-47-3)
Zirconium (CAS no.: 7440-67-7)
Aluminum (CAS no.: 7429-90-5)
TIN (CAS no.: 7440-31-5)
Titanium

Silicon (CAS no.: 7440-21-3)

Pennsylvania Right To Know Components
Molybdenum (CAS no.: 7439-98-7)
Vanadium (CAS no.: 7440-62-2)
Chromium (CAS no.: 7440-47-3)
Zirconium (CAS no.: 7440-67-7)
Aluminum (CAS no.: 7429-90-5)
TIN (CAS no.: 7440-31-5)
Silicon (CAS no.: 7440-21-3)

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:
Chromium (CAS no.: 7440-47-3)
Aluminum (CAS no.: 7429-90-5)

HMIS Rating

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HEALTH</td>
<td>2</td>
</tr>
<tr>
<td>FLAMMABILITY</td>
<td>0</td>
</tr>
<tr>
<td>PHYSICAL HAZARD</td>
<td>0</td>
</tr>
<tr>
<td>PERSONAL PROTECTION</td>
<td></td>
</tr>
</tbody>
</table>

NFPA Rating

SECTION 16: Other information

16.1 Further information/disclaimer

Date of issue: February 28, 2019.
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