1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers
Product name : Titanium
Product Number : 366994
Brand : Aldrich
CAS-No. : 7440-32-6

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet
Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number
Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Pyrophoric solids (Category 1), H250
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements
Pictogram

Signal word : Danger
Hazard statement(s) : Catches fire spontaneously if exposed to air.
Precautionary statement(s)
P210 : Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P222 : Do not allow contact with air.
P231 : Handle under inert gas.
P280 : Wear protective gloves/ protective clothing/ eye protection/ face protection.
P335 + P334 : Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P370 + P378 : In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P422 : Store contents under inert gas.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none
3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium</td>
<td>Pyr. Sol. 1; H250</td>
<td>90 - 100 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of 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
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed
No data available.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use approved class D extinguishers or smother with dry sand, dry ground limestone, or dry clay. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Titanium/titanium oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Handle and store under inert gas. Air and moisture sensitive. Keep in a dry place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Protective gloves against thermal risks

Full contact

Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
**Body Protection**
Flame retardant antistatic 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**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Appearance</td>
</tr>
<tr>
<td>b)</td>
<td>Odour</td>
</tr>
<tr>
<td>c)</td>
<td>Odour Threshold</td>
</tr>
<tr>
<td>d)</td>
<td>pH</td>
</tr>
<tr>
<td>e)</td>
<td>Melting point/freezing point</td>
</tr>
<tr>
<td>f)</td>
<td>Initial boiling point and boiling range</td>
</tr>
<tr>
<td>g)</td>
<td>Flash point</td>
</tr>
<tr>
<td>h)</td>
<td>Evaporation rate</td>
</tr>
<tr>
<td>i)</td>
<td>Flammability (solid, gas)</td>
</tr>
<tr>
<td>j)</td>
<td>Upper/lower flammability or explosive limits</td>
</tr>
<tr>
<td>k)</td>
<td>Vapour pressure</td>
</tr>
<tr>
<td>l)</td>
<td>Vapour density</td>
</tr>
<tr>
<td>m)</td>
<td>Relative density</td>
</tr>
<tr>
<td>n)</td>
<td>Water solubility</td>
</tr>
<tr>
<td>o)</td>
<td>Partition coefficient: n-octanol/water</td>
</tr>
<tr>
<td>p)</td>
<td>Auto-ignition temperature</td>
</tr>
<tr>
<td>q)</td>
<td>Decomposition temperature</td>
</tr>
<tr>
<td>r)</td>
<td>Viscosity</td>
</tr>
<tr>
<td>s)</td>
<td>Explosive properties</td>
</tr>
<tr>
<td>t)</td>
<td>Oxidizing properties</td>
</tr>
</tbody>
</table>

#### 9.2 Other safety information
no data available

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### 10. STABILITY AND REACTIVITY

#### 10.1 Reactivity
no data available

#### 10.2 Chemical stability
Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Oxygen, Aluminum, Carbon dioxide (CO2), Halogens, Chlorinated solvents, Strong acids, Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
no data available

Inhalation: no data available
Dermal: no data available

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human 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
no data available

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: XR1700000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

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

12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2546 Class: 4.2 Packing group: II
Proper shipping name: Titanium powder, dry
Reportable Quantity (RQ):
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2546 Class: 4.2 Packing group: II EMS-No: F-G, S-M
Proper shipping name: TITANIUM POWDER, DRY
Marine pollutant: No

IATA
UN number: 2546 Class: 4.2 Packing group: II
Proper shipping name: Titanium powder, dry

15. REGULATORY INFORMATION

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

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Reactivity Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components
Titanium CAS-No. 7440-32-6 Revision Date 2007-03-01

New Jersey Right To Know Components
Titanium CAS-No. 7440-32-6 Revision Date 2007-03-01

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.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H250 Catches fire spontaneously if exposed to air.
Pyr. Sol. Pyrophoric solids

HMIS Rating
Health hazard: 0
Chronic Health Hazard: 
Flammability: 0
Physical Hazard 2

NFPA Rating
Health hazard: 0
Fire Hazard: 0
Reactivity Hazard: 2

Further information
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Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

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