Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

<table>
<thead>
<tr>
<th>Product Name</th>
<th>TITANIUM(IV) ISOPROPOXIDE, 97%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Number</td>
<td>205273</td>
</tr>
<tr>
<td>Company</td>
<td>Sigma-Aldrich Pty. Ltd.</td>
</tr>
<tr>
<td></td>
<td>12 Anella Avenue</td>
</tr>
<tr>
<td></td>
<td>Castle Hill NSW 2154</td>
</tr>
<tr>
<td></td>
<td>Australia</td>
</tr>
<tr>
<td>Technical Phone #</td>
<td>+61 2 9841 0555 (1800 800 097)</td>
</tr>
<tr>
<td>Fax</td>
<td>+61 2 9841 0500 (1800 800 096)</td>
</tr>
<tr>
<td>Emergency Phone #</td>
<td>+44 8701906777 (1800 448 465)</td>
</tr>
</tbody>
</table>

2 - Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Product Name</th>
<th>CAS #</th>
<th>EC no</th>
<th>Annex I Index Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TETRA-ISO-PROPYL ORTHOTITANATE</td>
<td>546-68-9</td>
<td>208-909-6</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Formula</th>
<th>Ti[OCH(CH3)2]4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Weight</td>
<td>284.26 AMU</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Isopropyl orthotitanate * Isopropyl titanate(IV) * Tetraisopropoxide titanium * Tetraisopropoxytitanium * Tetraisopropyl orthotitanate * Tetraisopropyl titanate * Tetris(isopropoxy)titanium * Titanium(4+) isopropoxide * Titanium isopropylate * Titanium tetraisopoxide * Titanium tetraisopropylate * Titanium tetra-n-propoxide * Tyzor TPt</td>
</tr>
</tbody>
</table>

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Flammable. Irritating to eyes.

4 - First Aid Measures

AFTER INHALATION
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT
In case of contact, immediately wash skin with soap and copious amounts of water.

AFTER EYE CONTACT
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.
AFTER INGESTION
    If swallowed, wash out mouth with water provided person is conscious. Call a physician.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA
    Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS
    Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.
    Explosion Hazards: Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS
    Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL
    Evacuate area. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
    Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
    Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING
    Directions for Safe Handling: Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE
    Conditions of Storage: Keep tightly closed. Keep away from heat, sparks, and open flame. Handle and store under nitrogen.

SPECIAL REQUIREMENTS: Readily hydrolyzed.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS
    Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

GENERAL HYGIENE MEASURES
    Wash thoroughly after handling. Wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT
    Respiratory Protection: Government approved respirator.
    Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.

### 9 - Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td><strong>Physical State:</strong> Clear liquid</td>
<td></td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Very faintly yellow</td>
<td></td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>BP/BP Range</strong></td>
<td>104 °C</td>
<td>10 mmHg</td>
</tr>
<tr>
<td><strong>MP/MP Range</strong></td>
<td>14 °C</td>
<td></td>
</tr>
<tr>
<td><strong>Flash Point</strong></td>
<td>45 °C</td>
<td>Method: closed cup</td>
</tr>
<tr>
<td><strong>Flammability</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Autoignition Temp</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Oxidizing Properties</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Explosive Properties</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Explosion Limits</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Vapor Pressure</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>SG/Density</strong></td>
<td>0.97 g/cm³</td>
<td></td>
</tr>
<tr>
<td><strong>Partition Coefficient</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Vapor Density</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Saturated Vapor Conc.</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Evaporation Rate</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Bulk Density</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Decomposition Temp.</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Solvent Content</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Water Content</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Surface Tension</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Conductivity</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Miscellaneous Data</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Solubility</strong></td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

### 10 - Stability and Reactivity

**STABILITY**
- Conditions of Instability: May decompose on exposure to moist air or water.
- Materials to Avoid: Strong acids, Strong oxidizing agents.

**HAZARDOUS DECOMPOSITION PRODUCTS**
- Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Titanium/titanium oxides.

**HAZARDOUS POLYMERIZATION**
- Hazardous Polymerization: Will not occur

### 11 - Toxicological Information

**RTECS NUMBER:** NT8060000

**ACUTE TOXICITY**
- **LD50**
  - Oral Rat
  - 7460 UL/KG
- **LD50**
  - Skin Rabbit
IRRITATION DATA

Skin
Rabbit
500 mg
24H
Remarks: Mild irritation effect

Eyes
Rabbit
20 mg
24H
Remarks: Moderate irritation effect

SIGNS AND SYMPTOMS OF EXPOSURE
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE
Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes eye irritation.
Inhalation: May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

12 - Ecological Information
No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR
UN#: 1993
Class: 3
PG: II
Proper Shipping Name: Flammable liquid, n.o.s.

IMDG
UN#: 1993
Class: 3
PG: II
Proper Shipping Name: Flammable liquid, n.o.s.
Marine Pollutant: No
Severe Marine Pollutant: No
Technical Name: Required

IATA
UN#: 1993
Class: 3
PG: II
Proper Shipping Name: Flammable liquid, n.o.s.
Inhalation Packing Group I: No
Technical Name: Required

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES
INDICATION OF DANGER: Xi
- Irritant.
R-PHRASES: 10-36
- Flammable. Irritating to eyes.
S-PHRASES: 16-26-36/37/39
- Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection.

COUNTRY SPECIFIC INFORMATION

Germany
- WGK: 2

SWITZERLAND
- SWISS POISON CLASS: FREI

16 - Other Information

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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