Material Safety Data Sheet
Titanium Dioxide Anatase

Section 1: Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>Titanium Dioxide Anatase 98%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Name:</td>
<td>Titanium Dioxide Anatase</td>
</tr>
<tr>
<td>Customs Tariff No:</td>
<td>32061110</td>
</tr>
<tr>
<td>Synonym Name:</td>
<td>Anatase; Titania; Titanic Anhydride.</td>
</tr>
<tr>
<td>Chemical Formula:</td>
<td></td>
</tr>
</tbody>
</table>

Company Information:
Chemtrate International
Rm. 201, Unit 3, Building 8, Shijia Garden, No. 93,
Xiangjiang Road, Qingdao Development Zone,
Qingdao, Shandong, China 266555
Tel: 0086-532-86893005
Fax: 0086-532-86893005

Section 2: Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS No.</th>
<th>EINECS No.</th>
<th>% by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium Dioxide Anatase</td>
<td>13463-67-7</td>
<td>236-675-5</td>
<td>98.0</td>
</tr>
</tbody>
</table>

Section 3: Hazards Identification

EMERGENCY OVERVIEW

Appearance: white to off-white solid.
Caution! May cause eye, skin, and respiratory tract irritation. The toxicological properties of this material have not been fully investigated.

Target Organs: No data found.

Potential Health Effects
Eye: Dust may cause mechanical irritation.
Skin: Dust may cause mechanical irritation. May be harmful if absorbed through the skin.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May be harmful if swallowed.
Inhalation: Dust is irritating to the respiratory tract. May be harmful if inhaled. May cause pulmonary fibrosis and permanent damage.
Chronic: Chronic inhalation may cause pulmonary fibrosis.

Section 4: First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid if irritation develops or persists. Wash clothing before reuse. Flush skin with plenty of soap and water.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: No specific antidote exists. Treat symptomatically and supportively.

Section 5: Fire and Explosion Data

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Non-combustible, substance itself does not burn but may decompose upon heating to produce irritating, corrosive and/or toxic fumes.
Extinguishing Media: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.
Flash Point: Not applicable.
Autoignition Temperature: None Reported
Explosion Limits, Lower: None Reported
Upper: None Reported
NFPA Rating: (estimated) Health: 1; Flammability: 0; Instability: 0
Section 6: Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7: Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with skin and eyes. Keep container tightly closed. Avoid ingestion and inhalation.
Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8: Exposure Controls/Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Exposure Limits

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium(IV) Oxide</td>
<td>10 mg/m3 TWA</td>
<td>5000 mg/m3 IDLH</td>
<td>15 mg/m3 TWA (total dust)</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: Titanium(IV) Oxide: 10 mg/m3 TWA (total dust)

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9: Physical and Chemical Properties

Physical State: Solid
Appearance: white to off-white
Odor: odorless
pH: Approximately 6 to 7
Vapor Pressure: Negligible.
Vapor Density: Not applicable.
Evaporation Rate: Negligible.
Viscosity: Not available.
Boiling Point: 4532-5432 deg F
Freezing/Melting Point: 3326-3362 deg F
Decomposition Temperature: Not available.
Solubility: Insoluble in water.
Specific Gravity/Density: 3.84-4.26 (water=1)
Molecular Formula: TiO2
Molecular Weight: 79.8788

Section 10: Stability and Reactivity Data

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Dust generation.
Incompatibilities with Other Materials: A violent or incandescent reaction with metals (aluminum, calcium, magnesium, potassium, sodium, zinc and lithium) may occur at high temperatures. Substance is incompatible with strong acids.
Hazardous Decomposition Products: Titanium/titanium oxides.
Hazardous Polymerization: Has not been reported

Section 11: Toxicological Information
RTECS#: CAS# 13463-67-7
LD50/LC50: Not available.
Carcinogenicity: CAS# 13463-67-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Mutagenicity: Please refer to RTECS# XR2275000 for specific information.
Neurotoxicity: No information available.
Other Studies:

Section 12: Ecological Information
Ecotoxicity: No data available. No information available.
Environmental: No information reported.
Physical: No information available.
Other: No information available.

Section 13: Disposal Considerations
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14: Transport Information
US DOT: Not regulated as a hazardous material
Identification: No information found
Special Provisions for Transport: No information found

Section 15: Other Regulatory Information
US FEDERAL
TSCA
CAS# 13463-67-7 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
Section 313
No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
CAS# 13463-67-7 can be found on the following state right to know lists: New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols:
Not available.
Risk Phrases:
Safety Phrases:
S 24/25 Avoid contact with skin and eyes.

WGK (Water Danger/Protection)
CAS# 13463-67-7: 0

Canada - DSL/NDSL
CAS# 13463-67-7 is listed on Canada's DSL List.

Canada - WHMIS
This product does not have a WHMIS classification.

Canadian Ingredient Disclosure List

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Section 16: Other Information

**MSDS Creation Date:** 6/16/2000  
**Revision #4 Date:** 3/15/2007

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