1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Titanium(IV) oxide, mixture of rutile and anatase
Product Number: 700355
Brand: Sigma-Aldrich
Supplier: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS, MO 63113
USA
Telephone: +1 800-325-5832
Fax: +1 630-525-5552
Emergency Phone # (For both supplier and manufacturer): (314) 775-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview
OSHA Hazards
Carcinogen, Target Organ Effect, Harmful by Ingestion, Corrosive, Teratogen
Target Organs
Central nervous system, Kidney, Eyes, Cardiovascular system, Liver, Blood
GHS Classification
Acute toxicity: Oral (Category 4)
Skin irritation (Category 3)
Serious eye damage (Category 1)
GHS Label elements, including precautionary statements
Pictogram
Signal word: Danger
Hazard statement(s)
H302: Harmful if swallowed.
H316: Causes mild skin irritation.
H318: Causes serious eye damage.
Precautionary statement(s)
P260: Wear protective gloves/eye protection/face protection.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continues rinsing.

NFPA Rating
Health hazard: 3
Fire: 1
Reactivity Hazard: 0
Potential Health Effects
Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and the upper respiratory tract.
Skin: May be harmful if absorbed through skin. Causes skin burns.
Eyes: Causes eye burns.
Ingestion: Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Titanium oxide
Form: Solid
Molecular Weight: 79.57 g/mol

Component | Classification | Concentration
--- | --- | ---
Titanium oxide | CAS No. 13463-67-7 | 30 - 60 %
EC-No. 236-675-5 | 30 - 60 %
Ethylene glycol | CAS No. 107-21-1 | Acute Tox. 4; H302
EC-No. 203-473-3 | 30 - 60 %
Index No. 603-027-00-1 | 30 - 60 %
2-(2-Butoxyethoxy)ethanol | CAS No. 112-34-5 | Eye Irrit. 2; H319
EC-No. 203-881-9 | 30 - 60 %
Index No. 603-038-00-8 | 5 - 10 %
[2-(2-Methoxyethoxy)ethoxy]acetic acid | CAS No. 16024-58-1 | 240-162-1 | 5 - 10 %
EC-No. 240-162-1

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If swallowed
If swallowed, vomit if person ingested, and fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Wash off splash with soap and plenty of water. Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
If swallowed
Never give anything by mouth to an unconscious persons. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability

Aldrich - 700355
Delivery: 06/04/2016 00:00:00 Purchase Order: CC.013113:SCHRANK
Not flammable or combustible.

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

Special protective equipment for fire fighters
Wear self-contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions: Carbon oxides, titanium/titanium oxides

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions
Do not let product enter drains.

Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Light sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium dioxide</td>
<td>13463-67-7</td>
<td>TWA 16 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td>Lower Respiratory Tract Irritation Not classifiable as a human carcinogen</td>
<td></td>
</tr>
</tbody>
</table>

| TWA 15 mg/m³ | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| TWA 10 mg/m³ | USA. ACGIH - Table Z-1 Limits for Air Contaminants - 1910.1000 |
| Ethylene glycol | 107-21-1 | C 50 ppm | USA. OSHA -Table Z-1 Limits for Air Contaminants - 1910.1000 |
| C 100 mg/m³ | USA. ACGIH Threshold Limit Values (TLV) |

Remarks
Eye & Upper Respiratory Tract Irritation Not classifiable as a human carcinogen
See Appendix D - Substances with No Established RELs

Personal protective equipment
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a half-face respirator with multi-purpose combination (US) or type AB2K (EN 14387) 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).

Hand 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.

Eye protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and body protection
Complete skin protection against chemical. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form: Viscous
Colour: White

Safety data
pH: No data available
Melting point: No data available
Boiling point: > 200 °C (492 °F) at 1.013 hPa (760 mmHg)
Flash point: > 100 °C (212 °F)
Ignition temperature: No data available
Autoignition temperature: No data available
Lower explosion limit: No data available
Upper explosion limit: No data available
Vapour pressure: No data available
Density: 1.600 g/cm³
10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Strong bases, Light metals, Strong oxidizing agents, Strong acids, Aldehydes, Aluminum

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Titanium/titanium oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50
no data available

Inhalation LC50
no data available

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: 2B - Group 2B: Possibly carcinogenic to humans (Titanium dioxide)
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

12. ECOLOGICAL INFORMATION

Toxicity
no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with a scrubber.

Contaminated packaging
Disposal of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods
15. REGULATORY INFORMATION

OSHA Hazards
Carcinogen, Targeted Organ Effect, Harmful by ingestion, Corrosive, Teratogen

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
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Chemical</th>
<th>Revision Date</th>
</tr>
</thead>
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<td>107-21-1</td>
<td>Ethylene glycol</td>
<td>2007-07-01</td>
</tr>
<tr>
<td>11-2-34-5</td>
<td>2-(2-Butoxyethoxy)ethanol</td>
<td>1995-01-01</td>
</tr>
</tbody>
</table>

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

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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<td>1995-01-01</td>
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<td>115-34-5</td>
<td>2-(2-Butoxyethoxy)ethanol</td>
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New Jersey Right To Know Components

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<td>1995-01-01</td>
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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

Text of H-code(s) and R-phrase(s) mentioned in Section 3

Acute Tox. Acute toxicity
Eye Irrit. Eye irritation
H3522 Harmful if swallowed.
H319 Causes serious eye irritation.

Further Information
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