

GHS Safety Data Sheet

SDS No. : TIR01LAEG

Date Issued: 2004/09/02

Last update: 2016/03/09

Section 1. Identification of the substance or mixture and of the supplier

1.1 Product Information

Product name: **Ti(O-i-C₃H₇)₄ Titanium(IV) tetra-i-propoxide**

Product number	Purity	Form
TIR03LB	99%(2N)	liquid
TIR04LB	99.999%(5N)	liquid

1.2 Company Information:

Manufacturer : Kojundo Chemical Laboratory Co., Ltd.

1-28, 5-chome, Chiyoda, Sakado-shi, Saitama Japan 350-0284

Phone: +81-49-284-1511 Fax: +81-49-284-1351

Emergency Phone : +81-49-284-1511

Section 2. Hazards identification

GHS Classification

Health Hazards	Environmental Hazards	Physical Hazards
Serious eye damage/ eye irritation: Category 2A	No data available	Flammable liquids : Category 3 Substances and mixtures which, in contact with water, emit flammable gases : Not classified

GHS Label: F,W



Pictograms or symbols

Warning word: **WARNING**

Hazard information	Description of precaution
Flammable liquid and vapour Causes serious eye irritation.	Keep away from heat/sparks/open flames/hot surfaces.-No smoking. Use explosion-proof equipment(e.g.: electrical /lighting/ventilating). Take precautionary measures static discharge. Wear protective gloves/protective clothing/eye protection /respiratory protection/ face protection during handling. Avoid breathing dust/mist/gas/fume/vapours/spray. Do not eat, drink or smoke when using this product, and wash hands thoroughly after handling. Take off the contaminated clothing and wash before reuse. Keep container or bottle tightly closed when not in use. IN CASE OF FIRE: Use Carbon dioxide, Dry chemical powder,Water fog or foam for extinction. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN: Remove immediately all contaminated clothing and rinse skin with water/shower. Then wash skin with plenty of soap and water. If skin irritation occurs, get medical advice/attention. Protect from sunlight. Store in a cool, dry and well ventilated place. Keep container tightly closed. Dispose of contents/ container in accordance with local/national regulations.

Additional hazard information :

With respect to additional hazard information, see Section 11.

Section 3. Composition / information on ingredients

Chemical or common name:	Titanium(IV) tetraisopropoxide
Single Substance or Compound:	Single substance
Chemical formula:	Ti[OCH(CH ₃) ₂] ₄
Composition:	100%
CAS #:	546-68-9
RTECS#:	NT8060000
TSCA inventory :	listed
EINECS#:	2089096

Section 4. First aid measures

Eye contact:	Promptly rinse eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.
Skin contact:	Remove immediately all contaminated clothing. Wipe off the product immediately by tissue or soft cloth, etc. Promptly flush contaminated skin with soap or mild detergent and water. Contact physician if irritation continues.
Ingestion:	Rinse mouth and throat with water. Get medical attention immediately.
Inhalation:	Remove the exposed person immediately and provide fresh air. Get medical attention.

Section 5. Fire fighting measures

Chemical Name	Flash Point	Autoignition Temperature	Explosion Level (Lower-Upper)	Vapour Pressure
Ti[OCH(CH ₃) ₂] ₄	46°C	—	—	13Pa/21°C

Extinguishing agents:	Carbon dioxide, Dry chemical powder, water spray, fog or alcohol-resistant foam. DO NOT use a direct water stream.
Fire fighting:	Flammable material. Remove containers to safe place if possible. Use water spray to Cool down nearby structures and containers. Self-contained breathing apparatus and full protective clothing should be used, if the material is involved in fire.
Explosion hazards:	Heating may cause an explosion.
Combustion products:	Carbon monoxide, carbon dioxide, metallic oxide of titanium and toxic organic fumes.

Section 6. Accidental release measures

Personal Precaution:	Workers should use protective wears to prevent contact with the spilt adhesive and inhalation of its vapour.
Environmental hazard precaution:	Shut off leak if without risk. Prevent flow out to river, etc. so as not to badly affect.
Methods for containment and cleaning up:	Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves. Wear disposable coveralls and discard them after use. Remove all sources of ignition. Avoid unnecessary contacts with spills.

Indoor leakage: Ventilate as much as possible until the cleaning is completed.
 Outdoor leakage: Work from the windward and evacuate the leeward crowd.
 Absorb or cover with inert material(e.g. vermiculite, sand, earth or other suitable absorbent), then place in closed dry container. Ventilate area and carefully wash spill site with plenty of water after material pick up.

Section 7. Handling and storage

Precautions to be taken in handling:

Safe handling: Handling worker wears suitable protective clothing.
 Handle the material in a dry inert gas atmosphere, utilizing glove bag or glove box.
 Keep away from moisture when handling.
 Keep container or bottle tightly closed when not in use.
 Avoid prolonged or repeated exposure.
 Keep away from heat, sparks and naked flame.
 Electrically ground all equipment when handling this material and use only non-sparking tools.
 Use explosion-proof electrical/ventilating/lighting equipment.

Precautions to be taken in storage:

General precautions: Store the material in a sealed container.
 Store in a cool, dry, well ventilated and dark place away from incompatible materials.
 Keep away from any heat, sparks, and flames.

Section 8. Exposure controls / personal protection

Exposure guideline: ACGIH(2013) TLV : No data available
 OSHA(2006) PEL : No data available

Facility measures: Local ventilation of closed work room or total proper ventilation to prevent inhalation.

Protective ware: Wear appropriate NIOSH/MSHA-approved respirator, safety goggles, impervious gloves, protective wear, protective boots.

Section 9. Physical and chemical properties

Color and Form: Colorless liquid
 Chemical formula: Ti[OCH(CH₃)₂]₄
 Formula weigh 284.2
 Melting point: ca. 20 °C
 Boiling point: 220 °C
 Density: 0.9711 g/cm³
 Water solubility: Decomposes
 Flammable: Flammable substance
 Oxidation: No data available

Section 10. Stability and reactivity

Stability: Stable in an inert gas under room temperature.
 Decomposed by moisture in the air.

Reactivity

Incompatibility: Oxidizing agents

Conditions to avoid: Heat, sparks and flames.
Water, Moisture

Hazard decomposition products :

Carbon monoxide, carbon dioxide, metallic oxide of titanium, and toxic fumes.

Section 11. Toxicological information

Acute toxicity(Oral) :	GHS : Not classified.; Falls below the lowest level. Ti[OCH(CH ₃) ₂] ₄ oral rat LD ₅₀ =7460mg/kg
Acute toxicity(Dermal) :	GHS : Not classified.; Falls below the lowest level. Ti[OCH(CH ₃) ₂] ₄ dermal rabbit LD ₅₀ >16ml/kg
Acute toxicity(Inhalation) :	GHS : No data available
Skin corrosive / irritation:	GHS : Not classified.; Falls below the lowest level.
Serious eye damage / irritation:	GHS : Category 2A ; Causes serious eye irritation.
Respiratory sensitization:	GHS : No data available
Skin sensitization:	GHS : No data available
Germ cell mutagenicity:	GHS : No data available
Carcinogenicity:	GHS : No data available
Reproductive toxicity:	GHS : No data available
Specific target organ toxicity	
– single exposure:	GHS : No data available
– repeated exposure:	GHS : No data available
Aspiration hazard:	GHS : No data available

Section 12. Ecological information

Ecotoxicity:	
Hazards to the aquatic environme	
– acute toxicity:	GHS : No data available
– chronic toxicity:	GHS : No data available
Hazardous the ozone layer:	GHS : No data available No Freon or Halon
Degradability:	No data available
Bioaccumulative potential:	Ti Biological half-life 320 day, Rate of absorption oral=0.0001 , Respiratory tract=0.25
Mobility in soil:	No data available

Section 13. Disposal considerations

Disposal method: User of the product should contract with the local government or licensed 'Industrial Waste Haulers' for disposal of waste.

Section 14. Transport information

UN number:	2413
IATA shipping name:	Tetrapropyl orthotitanate
IATA classification:	Hazardous Class 3 (Flammable liquids)
IATA packing group:	III
HS code:	2905.12
Marine pollution:	None

Section 15. Regulatory information

TSCA inventory : listed

Please refer to any other local / national measures that may be relevant.

Section 16. Other information

The information described above is believed to be correct. However, Kojundo Chemical Lab. makes no representation, warranty nor guarantee of any kind with respect to the information on this data sheet or any use of the product based upon this information.