TCI AMERICA
SAFETY DATA SHEET

Revision number: 1
Revision date: 07/06/2018

1. IDENTIFICATION

Product name: Tetrabutyl Orthotitanate
Product code: B0742

Product use: For laboratory research purposes.
Restrictions on use: Not for drug or household use.

Company:
TCI America
9211 N. Harborgate Street
Portland, OR 97203 U.S.A.
Telephone:
+1-800-423-8616 / +1-503-283-1681
Fax:
+1-888-520-1075 / +1-503-283-1987
e-mail:
sales-US@TCIchemicals.com
www.TCIchemicals.com

Emergency telephone number:
Chemical Emergencies:
TCI America (8:00am - 5:00pm) PST
+1-503-286-7624
Transportation Emergencies:
Chemtrec 24-Hour
+1-800-424-9300 (U.S.A.)
+1-703-527-3887 (International)
Responsible department:
TCI America
Environmental Health Safety and Security
+1- 503-286-7624

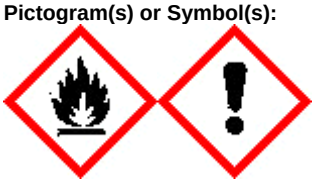
2. HAZARD(S) IDENTIFICATION

OSHA Haz Com: CFR 1910.1200: Skin Corrosion/Irritation [Category 2]
WHMIS 2015: Eye Damage/Irritation [Category 2A]
Flammable Liquids [Category 3]

Signal word: Warning!

Hazard Statement(s):
Flammable liquid and vapor
Causes skin irritation
Causes serious eye irritation

Pictogram(s) or Symbol(s):



Precautionary Statement(s):

[Prevention] Keep away from heat, sparks, open flames and hot surfaces. – No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wash hands and face thoroughly after handling. Wear protective gloves, eye protection.

[Response] If on skin: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention. In case of fire: Use dry chemical, dry sand or foam to extinguish.

[Storage] Store in a well-ventilated place. Keep cool.

[Disposal] Dispose of contents and container in accordance with local, regional, national regulations (e.g. US: 40 CFR Part 261, EU:91/156/EEC, JP: Waste Disposal and Cleaning Act, etc.).

Hazards not otherwise classified: [HNOC] May cause polymerization. May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture: Substance
Components: Tetrabutyl Orthotitanate
Percent: ....
CAS RN: 5593-70-4
Molecular Weight: 340.33
Chemical Formula: $C_{16}H_{36}O_4Ti$
Synonyms: Butyl Titanate , Tetrabutoxy Titan , Tetrabutyl Titanate , Titanium Butoxide

4. FIRST-AID MEASURES

Description of first aid measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

Skin contact: Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion: Get medical advice/attention if you feel unwell. Rinse mouth.

Symptoms/effects:

Acute: Redness.

Delayed: No data available

Indication of any immediate medical attention:
Not available.
Notes to physician:
No data available

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Dry chemical, foam, carbon dioxide.
Unsuitable extinguishing media: Water (It may scatter and spread fire.)

Specific hazards arising from the chemical: This substance may polimerize explosively when heated or involved in a fire. Container may explode when heated. Combat fire from a sheltered position.
Hazardous combustion products: These products include: Carbon oxides Metallic oxides
Other specific hazards: Closed containers may explode from heat of a fire.

Advice for firefighters: Wear self-contained breathing apparatus if possible.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use extra personal protective equipment (self-contained breathing apparatus). Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.

Environmental precautions: Prevent product from entering drains.

Methods and materials for containment and cleaning up: Absorb spilled material in dry sand or inert absorbent before recovering it into a covered container. In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

Prevention of secondary hazards: Remove all sources of ignition. Fire-extinguishing devices should be prepared in case of a fire. Use spark-proof tools and explosion-proof equipment.

7. HANDLING AND STORAGE

Precautions for safe handling: Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent generation of vapour or mist. Keep away from heat/sparks/open flame/hot surfaces. -No smoking. Take measures to prevent the build up of electrostatic charge. Use explosion-proof equipment. Wash hands and face thoroughly after handling.
Use a closed system if possible. Use a ventilation, local exhaust if vapour or aerosol will be generated.
Avoid contact with skin, eyes and clothing.

Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed. Store in a cool, dark and well-ventilated place.
Store under inert gas. Protect from moisture.
Store away from incompatible materials such as oxidizing agents.
Moisture-sensitive

Packaging material: Comply with laws.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Appropriate engineering controls: Follow safe industrial engineering/laboratory practices when handling any chemical. Install a closed system or local exhaust. Also install safety shower and eye bath.

Personal protective equipment

- **Respiratory protection:** Vapor respirator. Follow local and national regulations.
- **Hand protection:** Protective gloves.
- **Eye protection:** Safety glasses. A face-shield, if the situation requires.
- **Skin and body protection:** Protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid
Form: Clear
Colour: Colorless - Pale yellow
Odour: Alcoholic
Odor threshold: No data available
Odour threshold: No data available

Melting point/freezing point:	-40°C (-40°F)	pH:	No data available
Boiling point/range:	185°C /1.3kPa (365°F)	**Vapour pressure:**	No data available.
Decomposition temperature:	No data available	**Vapour density:**	11.7
Relative density:	1.00	**Dynamic Viscosity:**	No data available
Kinematic viscosity:	No data available		
Log Pow:	No data available	**Evaporation rate(Butyl Acetate=1):**	No data available
Flash point:	46°C (115°F)	**Autoignition temperature:**	No data available
Flammability(solid, gas):	No data available	**Flammability or explosive limits:**	
		Lower:	2%
		Upper:	12%

Solubility(ies):
[Water] Soluble (Decomposes)
[Other solvents]
Soluble: Many organic solvents

10. STABILITY AND REACTIVITY

Reactivity: No data available
Chemical stability: Polymerization may occur under the influences of heat, light or on contact with polymerization initiators such as peroxides etc.
Possibility of hazardous reactions: No special reactivity has been reported.
Conditions to avoid: Heat, Spark, Open flame, Static discharge, Light
Incompatible materials: Oxidizing agents, Strong acids, Water
Hazardous decomposition products: Carbon monoxide, carbon dioxide etc

11. TOXICOLOGICAL INFORMATION

RTECS Number: XR1585000

Acute Toxicity:
orl-rat LD50:3122 mg/kg ivn-mus LD50:180 mg/kg

Skin corrosion/irritation:
No data available

Serious eye damage/irritation:
No data available

Respiratory or skin sensitization:
No data available

Germ cell mutagenicity:
No data available

Carcinogenicity:
No data available

IARC: No data available **NTP:** No data available **OSHA:** No data available

Reproductive toxicity:
No data available

Target organ(s): No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish:	No data available
Crustacea:	No data available
Algae:	No data available

Persistence / degradability:	85% (by BOD) , 97% (by TOC)
Bioaccumulative potential(BCF):	No data available
Mobility in soil	
Log Pow:	No data available
Soil adsorption (Koc):	No data available
Henry's Law (PaM ^{3}/mol):	No data available

13. DISPOSAL CONSIDERATIONS

Disposal of product:	Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.
Disposal of container:	Dispose of as unused product. Do not re-use empty containers.
Other considerations:	Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION

DOT (US)

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN1993	Flammable liquids, n.o.s	3 Flammable liquid	III

IATA

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN1993	Flammable liquid, n.o.s	3 Flammable liquid	III

IMDG

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN1993	Flammable liquid, n.o.s	3 Flammable liquid	III

EmS number: F-E, S-E

15. REGULATORY INFORMATION

Toxic Substance Control Act (TSCA 8b.):
This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

US Federal Regulations

CERCLA Hazardous substance and Reportable Quantity:

SARA 313:	Not Listed
SARA 302:	Not Listed

State Regulations

State Right-to-Know

Massachusetts	Not Listed
New Jersey	Not Listed
Pennsylvania	Not Listed
California Proposition 65:	Not Listed

Other Information

NFPA Rating:		HMIS Classification:	
Health:	2	**Health:**	2
Flammability:	2	**Flammability:**	2
Instability:	0	**Physical:**	0

International Inventories

Canada: DSL	On DSL
EC-No:	227-006-8

16. OTHER INFORMATION

Revision date: 07/06/2018
Revision number: 1

TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.