

ALFAA39756

## Lead titanium oxide, polymeric precursor

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**产品说明:** 钛酸铅, 聚合物前体, 氧 >30 wt%  
**Product Description:** Lead titanium oxide, polymeric precursor

**Cat No. :** 39756

**Supplier** Avocado Research Chemicals Ltd.  
(Part of Thermo Fisher Scientific)  
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Lancashire, LA3 2XY,  
United Kingdom  
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**Emergency Telephone Number** For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

**E-mail address** begel.sdsdesk@thermofisher.com

**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available

### SECTION 2. HAZARD IDENTIFICATION

**Physical State**  
Liquid Viscous liquid

**Appearance**  
Brown

**Odor**  
No information available

#### Emergency Overview

Highly flammable liquid and vapor. Harmful if swallowed. Causes serious eye irritation. Harmful if inhaled. May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects. Moisture sensitive.

#### Classification of the substance or mixture

|  |             |
|--|-------------|
| Flammable liquids.                                   | Category 2  |
| Acute Oral Toxicity                                  | Category 4  |
| Acute Inhalation Toxicity - Vapors                   | Category 4  |
| Serious Eye Damage/Eye Irritation                    | Category 2  |
| Reproductive Toxicity                                | Category 1A |
| Specific target organ toxicity - (repeated exposure) | Category 2  |
| Acute aquatic toxicity                               | Category 1  |
| Chronic aquatic toxicity                             | Category 1  |

#### Label Elements

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**Signal Word****Danger****Hazard Statements**

H225 - Highly flammable liquid and vapor  
 H319 - Causes serious eye irritation  
 H373 - May cause damage to organs through prolonged or repeated exposure  
 H410 - Very toxic to aquatic life with long lasting effects  
 H302 + H332 - Harmful if swallowed or if inhaled  
 H360 - May damage fertility or the unborn child

**Precautionary Statements****Prevention**

P270 - Do not eat, drink or smoke when using this product  
 P271 - Use only outdoors or in a well-ventilated area  
 P201 - Obtain special instructions before use  
 P202 - Do not handle until all safety precautions have been read and understood  
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
 P233 - Keep container tightly closed  
 P240 - Ground and bond container and receiving equipment  
 P242 - Use non-sparking tools  
 P243 - Take action to prevent static discharges  
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray  
 P264 - Wash face, hands and any exposed skin thoroughly after handling  
 P280 - Wear eye protection/ face protection

**Response**

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell  
 P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower  
 P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 P308 + P313 - IF exposed or concerned: Get medical advice/attention  
 P330 - Rinse mouth  
 P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

**Storage**

P403 + P235 - Store in a well-ventilated place. Keep cool

**Disposal**

P501 - Dispose of contents/ container to an approved waste disposal plant

**Physical and Chemical Hazards**

Highly flammable. Vapors may cause flash fire or explosion.

**Health Hazards**

Harmful if swallowed. Causes serious eye irritation. Harmful if inhaled. May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.

**Environmental hazards**

Very toxic to aquatic life with long lasting effects. Is not likely mobile in the environment due its low water solubility. Spillage unlikely to penetrate soil.

This product does not contain any known or suspected endocrine disruptors.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component                                | CAS No | Weight % |
|--|--------|----------|
| Lead titanium oxide, polymeric precursor | N/A    | <=100    |

**SECTION 4. FIRST AID MEASURES****General Advice**

If symptoms persist, call a physician.

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

**Ingestion**

Clean mouth with water and drink afterwards plenty of water.

**Most important symptoms and effects**

Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**Self-Protection of the First Aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**

Treat symptomatically.

**SECTION 5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

Carbon dioxide (CO<sub>2</sub>). Powder. Water spray. Water mist may be used to cool closed containers.

**Extinguishing media which must not be used for safety reasons**

No information available.

**Specific Hazards Arising from the Chemical**

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Do not allow run-off from fire-fighting to enter drains or water courses.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges.

**Environmental Precautions**

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.

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### Methods for Containment and Clean Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7. HANDLING AND STORAGE

### Handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

### Storage

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks and flame.

### Specific Use(s)

Use in laboratories

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

### Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS70 General methods for sampling airborne gases and vapours MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography MDHS6/3 Lead and inorganic compounds of lead in air Laboratory method using flame or electrothermal atomic absorption spectrometry MDHS 91 Metals and metalloids in workplace air by X-ray fluorescence spectrometry MDHS 99 Metals in air by ICP-AES

### Exposure Controls

### Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

### Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments        |
|----------------|-------------------|-----------------|-------------|-----------------------|
| Natural rubber | See manufacturers | -               | EN 374      | (minimum requirement) |
| Nitrile rubber | recommendations   |                 |             |                       |
| Neoprene       |                   |                 |             |                       |
| PVC            |                   |                 |             |                       |

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

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|  |   |
|--|---|
| <b>Skin and body protection</b>        | Long sleeved clothing   |
| <b>Respiratory Protection</b>          | When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.<br>To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly   |
| <b>Large scale/emergency use</b>       | Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced<br><b>Recommended Filter type:</b> Particulates filter conforming to EN 143 or Inorganic gases and vapours filter Type B Grey conforming to EN14387 |
| <b>Small scale/Laboratory use</b>      | Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.<br><b>Recommended half mask:-</b> Particle filtering: EN149:2001<br>When RPE is used a face piece Fit Test should be conducted                |
| <b>Hygiene Measures</b>                | Handle in accordance with good industrial hygiene and safety practice.  |
| <b>Environmental exposure controls</b> | Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.   |

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

|  |                          |   |
|--|--------------------------|---|
| <b>Appearance</b>                              | Brown                    |   |
| <b>Physical State</b>                          | Liquid Viscous liquid    |   |
| <b>Odor</b>                                    | No information available |   |
| <b>Odor Threshold</b>                          | No data available        |   |
| <b>pH</b>                                      | No information available |   |
| <b>Melting Point/Range</b>                     | No data available        |   |
| <b>Softening Point</b>                         | No data available        |   |
| <b>Boiling Point/Range</b>                     | No information available |   |
| <b>Flash Point</b>                             | 12 °C / 53.6 °F          | <b>Method -</b> No information available    |
| <b>Evaporation Rate</b>                        | No data available        |   |
| <b>Flammability (solid,gas)</b>                | Not applicable           | Liquid                                      |
| <b>Explosion Limits</b>                        | No data available        |   |
| <b>Vapor Pressure</b>                          | 23 hPa @ 20 °C           |   |
| <b>Vapor Density</b>                           | No data available        | (Air = 1.0)                                 |
| <b>Specific Gravity / Density</b>              | No data available        |   |
| <b>Bulk Density</b>                            | Not applicable           | Liquid                                      |
| <b>Water Solubility</b>                        | Immiscible               |   |
| <b>Solubility in other solvents</b>            | No information available |   |
| <b>Partition Coefficient (n-octanol/water)</b> |                          |   |
| <b>Autoignition Temperature</b>                | No data available        |   |
| <b>Decomposition Temperature</b>               | No data available        |   |
| <b>Viscosity</b>                               | No data available        |   |
| <b>Explosive Properties</b>                    |                          | Vapors may form explosive mixtures with air |
| <b>Oxidizing Properties</b>                    | No information available |   |

### SECTION 10. STABILITY AND REACTIVITY

|                            |                               |
|----------------------------|-------------------------------|
| <b>Stability</b>           | Moisture sensitive.           |
| <b>Hazardous Reactions</b> | None under normal processing. |

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|                                 |   |
|---------------------------------|---|
| <b>Hazardous Polymerization</b> | No information available.   |
| <b>Conditions to Avoid</b>      | Keep away from open flames, hot surfaces and sources of ignition. |
| <b>Materials to avoid</b>       | Oxidizing agent.  |

**Hazardous Decomposition Products** lead oxides. Titanium oxides.

### SECTION 11. TOXICOLOGICAL INFORMATION

**Product Information**

**(a) acute toxicity;**

**(b) skin corrosion/irritation;** No data available

**(c) serious eye damage/irritation;** Category 2

**(d) respiratory or skin sensitization;**

**Respiratory** No data available  
**Skin** No data available

**(e) germ cell mutagenicity;** No data available

**(f) carcinogenicity;** No data available

There are no known carcinogenic chemicals in this product

**(g) reproductive toxicity;** Category 1A

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** Category 2

**Target Organs** Central nervous system (CNS), Blood, Kidney.

**(j) aspiration hazard;** No data available

**Symptoms / effects, both acute and delayed** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

### SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity effects**

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

**Persistence and Degradability**

Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary  
**Persistence** Immiscible with water, May persist.  
**Degradability** Not relevant for inorganic substances.

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|  |   |
|--|---|
| <b>Degradation in sewage treatment plant</b> | Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants. |
| <b>Bioaccumulative Potential</b>             | May have some potential to bioaccumulate; Product has a high potential to bioconcentrate                        |
| <b>Mobility in soil</b>                      | Spillage unlikely to penetrate soil. Is not likely mobile in the environment due its low water solubility       |
| <b>Endocrine Disruptor Information</b>       | This product does not contain any known or suspected endocrine disruptors                                       |
| <b>Persistent Organic Pollutant</b>          | This product does not contain any known or suspected substance  |
| <b>Ozone Depletion Potential</b>             | This product does not contain any known or suspected substance  |

### SECTION 13. DISPOSAL CONSIDERATIONS

|  |   |
|--|---|
| <b>Waste from Residues/Unused Products</b> | Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.  |
| <b>Contaminated Packaging</b>              | Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.  |
| <b>Other Information</b>                   | Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not let this chemical enter the environment. Do not empty into drains. |

### SECTION 14. TRANSPORT INFORMATION

#### Road and Rail Transport

|                                |                                   |
|--------------------------------|-----------------------------------|
| <b>UN-No</b>                   | UN1993                            |
| <b>Proper Shipping Name</b>    | Flammable liquid, n.o.s.          |
| <b>Technical Shipping Name</b> | (ISOPROPANOL (ISOPROPYL ALCOHOL)) |
| <b>Hazard Class</b>            | 3                                 |
| <b>Packing Group</b>           | III                               |

#### IMDG/IMO

|                                |                                   |
|--------------------------------|-----------------------------------|
| <b>UN-No</b>                   | UN1993                            |
| <b>Proper Shipping Name</b>    | Flammable liquid, n.o.s.          |
| <b>Technical Shipping Name</b> | (ISOPROPANOL (ISOPROPYL ALCOHOL)) |
| <b>Hazard Class</b>            | 3                                 |
| <b>Packing Group</b>           | III                               |

#### IATA

|                                |                                   |
|--------------------------------|-----------------------------------|
| <b>UN-No</b>                   | UN1993                            |
| <b>Proper Shipping Name</b>    | Flammable liquid, n.o.s.          |
| <b>Technical Shipping Name</b> | (ISOPROPANOL (ISOPROPYL ALCOHOL)) |
| <b>Hazard Class</b>            | 3                                 |
| <b>Packing Group</b>           | III                               |

**Special Precautions for User** No special precautions required

### SECTION 15. REGULATORY INFORMATION

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### International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

### National Regulations

## SECTION 16. OTHER INFORMATION

**Prepared By** Health, Safety and Environmental Department  
**Revision Date** 07-Oct-2025  
**Revision Summary** Not applicable.

### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

### Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other

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materials or in any process, unless specified in the text

**End of Safety Data Sheet**