

ALFAA77137

## Titanium(IV) methoxide

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

**产品说明:**  
**Product Description:** 四甲醇钛(IV)  
Titanium(IV) methoxide

**Cat No. :** 77137  
**CAS No** 992-92-7  
**Molecular Formula** Ti(OCH3)4.(CH3 OH)x , x<1

**Supplier** Avocado Research Chemicals Ltd.  
(Part of Thermo Fisher Scientific)  
Shore Road, Heysham  
Lancashire, LA3 2XY,  
United Kingdom  
Office Tel: +44 (0) 1524 850506  
Office Fax: +44 (0) 1524 850608

**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**  
Solid Crystalline

**Appearance**  
White

**Odor**  
No information available

#### Emergency Overview

Flammable solid. Harmful if swallowed. Harmful in contact with skin. Causes skin irritation. Causes serious eye damage. May cause respiratory irritation.

#### Classification of the substance or mixture

|  |            |
|--|------------|
| Flammable solids.                                  | Category 1 |
| Acute Oral Toxicity                                | Category 4 |
| Acute Dermal Toxicity                              | Category 4 |
| Skin Corrosion/Irritation                          | Category 2 |
| Serious Eye Damage/Eye Irritation                  | Category 1 |
| Specific target organ toxicity - (single exposure) | Category 3 |

#### Label Elements

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

H228 - Flammable solid  
 H302 + H312 - Harmful if swallowed or in contact with skin  
 H315 - Causes skin irritation  
 H318 - Causes serious eye damage  
 H335 - May cause respiratory irritation

**Precautionary Statements****Prevention**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
 P240 - Ground and bond container and receiving equipment  
 P261 - Avoid breathing dust/fume/gas/mist/vapors/spray  
 P264 - Wash face, hands and any exposed skin thoroughly after handling  
 P270 - Do not eat, drink or smoke when using this product  
 P271 - Use only outdoors or in a well-ventilated area  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection

**Response**

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
 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  
 P310 - Immediately call a POISON CENTER or doctor  
 P330 - Rinse mouth  
 P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish  
 P362 + P364 - Take off contaminated clothing and wash it before reuse

**Storage**

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

**Disposal**

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

**Physical and Chemical Hazards**

Combustible material.

**Health Hazards**

Harmful if swallowed. Harmful in contact with skin. Causes skin irritation. May cause respiratory irritation.

**Environmental hazards**

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

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

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component                   | CAS No   | Weight % |
|-----------------------------|----------|----------|
| Methanol, titanium(4+) salt | 992-92-7 | <=100    |

### SECTION 4. FIRST AID MEASURES

**General Advice**

If symptoms persist, call a physician.

**Eye Contact**

**Titanium(IV) methoxide**

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. Get medical attention if symptoms occur.

**Most important symptoms and effects**

Causes eye burns. Causes severe eye damage.

**Self-Protection of the First Aider**

No special precautions required.

**Notes to Physician**

Treat symptomatically.

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

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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

No information available.

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors.

**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. Avoid dust formation.

**Environmental Precautions**

Should not be released into the environment. See Section 12 for additional Ecological Information.

**Methods for Containment and Clean Up**

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

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. Avoid ingestion and inhalation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

**Storage**

Keep container tightly closed in a dry and well-ventilated place.

## Titanium(IV) methoxide

**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. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

**Exposure Controls****Engineering Measures**

None under normal use conditions. Ensure that eyewash stations and safety showers are close to the workstation location. .

**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.

**Skin and body protection** Long sleeved clothing

**Respiratory Protection** No protective equipment is needed under normal use conditions.

**Large scale/emergency use** Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced  
**Recommended Filter type:** Particle filter

**Small scale/Laboratory use** Maintain adequate ventilation

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls** No information available.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance** White  
**Physical State** Solid Crystalline

**Odor** No information available  
**Odor Threshold** No data available  
**pH** No information available

## Titanium(IV) methoxide

|  |                                       |  |
|--|---------------------------------------|--|
| <b>Melting Point/Range</b>                     | 200 - 210 °C / 392 - 410 °F           |  |
| <b>Softening Point</b>                         | No data available                     |  |
| <b>Boiling Point/Range</b>                     | 243 °C / 469.4 °F                     |  |
| <b>Flash Point</b>                             | 48 °C / 118.4 °F                      | <b>Method</b> - No information available |
| <b>Evaporation Rate</b>                        | Not applicable                        | Solid                                    |
| <b>Flammability (solid,gas)</b>                | No information available              |  |
| <b>Explosion Limits</b>                        | No data available                     |  |
| <b>Vapor Pressure</b>                          | No data available                     |  |
| <b>Vapor Density</b>                           | Not applicable                        | Solid                                    |
| <b>Specific Gravity / Density</b>              | No data available                     |  |
| <b>Bulk Density</b>                            | No data available                     |  |
| <b>Water Solubility</b>                        | No information available              |  |
| <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>                               | Not applicable                        | Solid                                    |
| <b>Explosive Properties</b>                    | No information available              |  |
| <b>Oxidizing Properties</b>                    | No information available              |  |
| <b>Molecular Formula</b>                       | Ti(OCH3)4.(CH3 OH) <sub>x</sub> , x<1 |  |

## SECTION 10. STABILITY AND REACTIVITY

|   |                                   |
|---|-----------------------------------|
| <b>Stability</b>                        | Stable under normal conditions.   |
| <b>Hazardous Reactions</b>              | None under normal processing.     |
| <b>Hazardous Polymerization</b>         | No information available.         |
| <b>Conditions to Avoid</b>              | None known.                       |
| <b>Materials to avoid</b>               | No information available.         |
| <b>Hazardous Decomposition Products</b> | None under normal use conditions. |

## SECTION 11. TOXICOLOGICAL INFORMATION

## Product Information

|   |   |
|---|---|
| <b>(a) acute toxicity;</b>                    |   |
| <b>(b) skin corrosion/irritation;</b>         | Category 2  |
| <b>(c) serious eye damage/irritation;</b>     | Category 1  |
| <b>(d) respiratory or skin sensitization;</b> |   |
| <b>Respiratory</b>                            | No data available   |
| <b>Skin</b>                                   | No data available   |
| <b>(e) germ cell mutagenicity;</b>            | No data available   |
| <b>(f) carcinogenicity;</b>                   | No data available   |
|   | There are no known carcinogenic chemicals in this product |

## Titanium(IV) methoxide

|  |                           |
|--|---------------------------|
| <b>(g) reproductive toxicity;</b>                | No data available         |
| <b>(h) STOT-single exposure;</b>                 | Category 3                |
| <b>Results / Target organs</b>                   | Respiratory system        |
| <b>(i) STOT-repeated exposure;</b>               | No data available         |
| <b>Target Organs</b>                             | No information available. |
| <b>(j) aspiration hazard;</b>                    | Not applicable<br>Solid   |
| <b>Symptoms / effects,both acute and delayed</b> | No information available  |

**SECTION 12. ECOLOGICAL INFORMATION**

|   |   |
|---|---|
| <b>Ecotoxicity effects</b>  | Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.   |
| <b>Persistence and Degradability<br/>Degradability</b>  | No information available<br>Not relevant for inorganic substances.  |
| <b>Bioaccumulative Potential</b>  | No information available  |
| <b>Mobility in soil</b>   | No information available  |
| <b>Endocrine Disruptor Information<br/>Persistent Organic Pollutant<br/>Ozone Depletion Potential</b> | This product does not contain any known or suspected endocrine disruptors<br>This product does not contain any known or suspected substance<br>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>                   | Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains.        |

**SECTION 14. TRANSPORT INFORMATION****Road and Rail Transport**

|                                |   |
|--------------------------------|---|
| <b>UN-No</b>                   | UN3181  |
| <b>Proper Shipping Name</b>    | METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S. |
| <b>Technical Shipping Name</b> | (Titanium(IV) methoxide)                            |

**Titanium(IV) methoxide**

**Hazard Class** 4.1  
**Packing Group** III

**IMDG/IMO**

**UN-No** UN3181  
**Proper Shipping Name** METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.  
**Technical Shipping Name** (Titanium(IV) methoxide)  
**Hazard Class** 4.1  
**Packing Group** III

**IATA**

**UN-No** UN3181  
**Proper Shipping Name** METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.\*  
**Technical Shipping Name** (Titanium(IV) methoxide)  
**Hazard Class** 4.1  
**Packing Group** III

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

**SECTION 15. REGULATORY INFORMATION****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).

| Component                   | The Inventory of Hazardous Chemicals (2015 Edition) | List of dangerous goods GB 12268 - 2012 | TCSI | IECSC | EINECS    | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL |
|-----------------------------|---|---|------|-------|-----------|------|-----|-------|------|------|------|------|
| Methanol, titanium(4+) salt | -   | -                                       | X    | -     | 213-596-4 | X    | -   | -     | X    | X    | X    | -    |

**National Regulations****SECTION 16. OTHER INFORMATION**

**Prepared By** Health, Safety and Environmental Department  
**Revision Date** 15-Aug-2024  
**Revision Summary** New emergency telephone response service provider.

**Training Advice**

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

**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

**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

**Titanium(IV) methoxide****KECL** - Korean Existing and Evaluated 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**

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**End of Safety Data Sheet**