

# SAFETY DATA SHEETS

According to the UN GHS revision 10

Version: 1.1  
Creation Date: July 15, 2024  
Revision Date: March 23, 2025

## SECTION 1: Identification

### 1.1 GHS Product identifier

Product name Titanium(IV) oxide, anatase

### 1.2 Other means of identification

Product number C1214307

Other names -

### 1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

### 1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

### 1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Not classified.

### 2.2 GHS label elements, including precautionary statements

Pictogram(s) No symbol.

Signal word No signal word

Hazard statement(s) none

Precautionary statement(s)

Prevention none

Response none

Storage none

Disposal none

### 2.3 Other hazards which do not result in classification

no data available

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

| Chemical name               | Common names and synonyms   | CAS number | EC number | Concentration |
|-----------------------------|-----------------------------|------------|-----------|---------------|
| Titanium(IV) oxide, anatase | Anatase (TiO <sub>2</sub> ) | 1317-70-0  | 215-280-1 | ≈ 99%         |

## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

**Following ingestion**

Rinse mouth.

**4.2 Most important symptoms/effects, acute and delayed**

Exposure Routes: inhalation Symptoms: Lung fibrosis; [potential occupational carcinogen] Target Organs: respiratory system (NIOSH, 2016)

**4.3 Indication of immediate medical attention and special treatment needed, if necessary**

Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises.

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**SECTION 5: Fire-fighting measures**

**5.1 Suitable extinguishing media**

In case of fire in the surroundings, use appropriate extinguishing media.

**5.2 Specific hazards arising from the chemical**

Literature sources indicate that this chemical is noncombustible. (NTP, 1992)

**5.3 Special protective actions for fire-fighters**

Wear self-contained breathing apparatus for firefighting if necessary.

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**SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**6.2 Environmental precautions**

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers.

**6.3 Methods and materials for containment and cleaning up**

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers.

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**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling**

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

**7.2 Conditions for safe storage, including any incompatibilities**

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

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**SECTION 8: Exposure controls/personal protection**

**8.1 Control parameters**

**Occupational Exposure limit values**

|                  |                                                                                                                                                                                                     |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Component</b> | Anatase (TiO <sub>2</sub> )                                                                                                                                                                         |
| <b>CAS No.</b>   | 1317-70-0                                                                                                                                                                                           |
|                  | NIOSH considers titanium dioxide to be a potential occupational carcinogen.<br>NIOSH usually recommends that occupational exposures to carcinogens be limited to the lowest feasible concentration. |

**Biological limit values**

no data available

**8.2 Appropriate engineering controls**

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

**8.3 Individual protection measures, such as personal protective equipment (PPE)**

**Eye/face protection**

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

**Skin protection**

Wear fire/ flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Thermal hazards

no data available

## SECTION 9: Physical and chemical properties and safety characteristics

|                                                          |                                                                                                                |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Physical state                                           | PHYSICAL DESCRIPTION: Odorless white powder. Tasteless. pH 7.5. Occurs in three crystalline forms. (NTP, 1992) |
| Colour                                                   | White, tetragonal crystals                                                                                     |
| Odour                                                    | Odorless                                                                                                       |
| Melting point/freezing point                             | 1840°C                                                                                                         |
| Boiling point or initial boiling point and boiling range | 2900°C                                                                                                         |
| Flammability                                             | Noncombustible Solid                                                                                           |
| Lower and upper explosion limit/flammability limit       | no data available                                                                                              |
| Flash point                                              | none                                                                                                           |
| Auto-ignition temperature                                | no data available                                                                                              |
| Decomposition temperature                                | no data available                                                                                              |
| pH                                                       | SUSPENSION IN WATER (1 IN 10) IS NEUTRAL TO LITMUS                                                             |
| Kinematic viscosity                                      | no data available                                                                                              |
| Solubility                                               | less than 1 mg/mL at 68° F (NTP, 1992)                                                                         |
| Partition coefficient n-octanol/water                    | no data available                                                                                              |
| Vapour pressure                                          | 0 mm Hg at 68° F Essentially (NTP, 1992)                                                                       |
| Density and/or relative density                          | 3.9g/mL at 25°C(lit.)                                                                                          |
| Relative vapour density                                  | no data available                                                                                              |
| Particle characteristics                                 | no data available                                                                                              |

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

5000 mg/cu m; NIOSH considers titanium dioxide to be a potential occupational carcinogen.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

Noncombustible TITANIUM DIOXIDE is incompatible with strong oxidizers and strong acids. Violent or incandescent reactions may occur with metals (e.g. aluminum, calcium, magnesium, potassium, sodium, zinc and lithium). (NTP, 1992).

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

The reaction of lithium and titanium dioxide occurs around 200 deg C with a flash of light; the temperature can reach 900 deg C.

### 10.6 Hazardous decomposition products

no data available

## SECTION 11: Toxicological information

#### Acute toxicity

- Oral: LD50 Rat oral > 10,000 mg/kg body weight
- Inhalation: no data available
- Dermal: no data available

#### 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**

Cancer in humans: There is inadequate evidence in humans for the carcinogenicity of titanium dioxide. Cancer in experimental animals: There is sufficient evidence in experimental animals for the carcinogenicity of titanium dioxide. Overall evaluation: Titanium dioxide is possibly carcinogenic to humans (Group 2B).

**Reproductive toxicity**

no data available

**STOT-single exposure**

no data available

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

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## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: LC50; Species: Danio rerio (Zebra danio) age <24 hr juvenile wild type; Conditions: freshwater, renewal, pH 8.2, hardness 142 mg/L, dissolved oxygen 8.5-8.9 mg/L; Concentration: >10000 ug/L for 48 hr />99% purity
- Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water flea) age < or =24 hr neonate; Conditions: freshwater, static, 20-21 deg C, pH 7.1-8.7, dissolved oxygen > or =3 mg/L; Concentration: >100000 ug/L for 48 hr; Effect: intoxication, immobilization /99.4% purity
- Toxicity to algae: EC50; Species: Pseudokirchneriella subcapitata (Green algae) exponential growth phase; Conditions: freshwater, static, 24 deg C; Concentration: 35900 ug/L for 72 hr (95% confidence interval: 31400-41700 ug/L); Effect: increased growth rate /100% purity
- Toxicity to microorganisms: no data available

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

no data available

### 12.4 Mobility in soil

no data available

### 12.5 Other adverse effects

no data available

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## SECTION 13: Disposal considerations

### 13.1 Disposal methods

**Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

**Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

### 14.1 UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### 14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

#### 14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

#### 14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

#### 14.6 Special precautions for user

no data available

#### 14.7 Transport in bulk according to IMO instruments

no data available

### SECTION 15: Regulatory information

#### 15.1 Safety, health and environmental regulations specific for the product in question

| Chemical name                                                            | Common names and synonyms   | CAS number | EC number   |
|--------------------------------------------------------------------------|-----------------------------|------------|-------------|
| Anatase (TiO <sub>2</sub> )                                              | Anatase (TiO <sub>2</sub> ) | 1317-70-0  | 215-280-1   |
| European Inventory of Existing Commercial Chemical Substances (EINECS)   |                             |            | Listed.     |
| EC Inventory                                                             |                             |            | Listed.     |
| United States Toxic Substances Control Act (TSCA) Inventory              |                             |            | Listed.     |
| China Catalog of Hazardous chemicals 2015                                |                             |            | Not Listed. |
| New Zealand Inventory of Chemicals (NZIoC)                               |                             |            | Listed.     |
| Philippines Inventory of Chemicals and Chemical Substances (PICCS)       |                             |            | Listed.     |
| Vietnam National Chemical Inventory                                      |                             |            | Listed.     |
| Chinese Chemical Inventory of Existing Chemical Substances (China IECSC) |                             |            | Listed.     |
| Korea Existing Chemicals List (KECL)                                     |                             |            | Listed.     |

### SECTION 16: Other information

#### Information on revision

Creation Date July 15, 2024  
Revision Date March 23, 2025

#### Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

#### References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Any questions regarding this SDS, Please send your inquiry to [info@cato-chem.com](mailto:info@cato-chem.com)

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