



# Materials Safety Data Sheet

Titanium suboxide (Ti<sub>3</sub>O<sub>5</sub>) (Granules,Target)

## 1. Product and Company Identification

Product Name: Titanium suboxide  
Formula: Ti<sub>3</sub>O<sub>5</sub>  
CAS: 12065-65-5  
Synonyms: Magnéli phase titanium oxide

Recommended Use: Scientific research  
Uses advised against: N/A

Supplier: UltraPurMat Group Co., Ltd  
Address: A11, 5th Floor, Building 5, Digital China Xi'an Science Park, No. 20 Zhangba 4th Road, High-tech Zone, Xi'an, Shaanxi, China.  
Tel: +86-29-88993870  
Email: sales@ulpmat.com  
Website: www.ulpmat.com

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## 2. Hazards Identification

### Classification of the substance or mixture

Not classified as hazardous according to Regulation (EC) No 1272/2008 (CLP).

### GHS Label elements, including precautionary statements

Pictogram: None  
Signal Word: None  
Hazard statement(s): None  
Precautionary Statement(s): None

### Other hazards:

Dust may be generated during mechanical processing. Dust may cause mechanical irritation to the respiratory tract, skin, and eyes.

### 3. Composition

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Components	CAS	Classification (H)	Concentration
Titanium suboxide (Ti <sub>3</sub> O <sub>5</sub> )	12065-65-5	None	≤100%

### 4. First Aid Procedures

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#### Description of first aid measures

**General Treatment:** Seek medical attention if symptoms persist.

**Inhalation:** Remove victim to fresh air. Supply oxygen if breathing is difficult.

**Ingestion:** Seek medical attention.

**Skin:** Wash affected area with mild soap and water. Remove any contaminated clothing.

**Eyes:** Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

#### Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

#### Indication of any immediate medical attention and special treatment needed

No data available

### 5. Firefighting Measures

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#### Extinguishing media:

Use extinguishing media appropriate for surrounding fire.

**Unsuitable extinguishing media:** water jet

#### Special hazards arising from the substance or mixture

Thermal decomposition may produce titanium oxide fumes (TiO<sub>2</sub>).

#### Advice for firefighters

Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

#### Further information

No data available

### 6. Accidental Release Measures

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#### Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid generating dust during mechanical processing. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

#### Environmental precautions

Isolate runoff to prevent environmental pollution.

#### Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

#### **Reference to other sections**

For disposal see section 13.

## **7. Handling and Storage**

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### **Precautions for safe handling**

Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid formation of dust. Do not get in eyes, on skin, or on clothing. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Avoid prolonged or repeated exposure to dust.

For precautions see section 2.

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

Store in a cool dry place in a tightly sealed container.

Storage class (TRGS 510): Non-combustible

Store apart from materials and conditions listed in section 10.

### **Specific end use(s)**

Apart from the uses mentioned in section 1 no other specific uses are stipulated

## **8. Exposure Controls/Personal Protection**

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### **Exposure controls**

#### **Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### **Personal protective equipment**

##### **Eye/face protection**

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### **Skin protection**

Protective gloves (The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.)

##### **Body Protection**

Protective work clothing. Wear close-toed shoes and long sleeves/pants.

##### **Respiratory protection**

Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards

##### **Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## **9. Physical and Chemical Characteristics**

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### **Information on basic physical and chemical properties**

Appearance

Form: solid (granules, target)

Colour: Purple-black

Odor: Odorless

pH: Not applicable (solid substance)

Melting point/range: 1800 °C

Boiling point/range: Not applicable (Decomposes)

Flash point: Not applicable

Evaporation rate: Not applicable (solid)

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapor pressure: No data available

Relative density: 4.2 g/cm<sup>3</sup>

Water solubility: practically insoluble

Partition coefficient: n-octanol/water: not relevant (inorganic)

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity: No data available

#### **Other information**

Molecular formula: Ti<sub>3</sub>O<sub>5</sub>

Molecular weight: 223.61 g/mol

## **10. Stability and reactivity**

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### **Reactivity**

This material is not reactive under normal ambient conditions.

### **Chemical stability**

Stable under recommended storage conditions.

### **Possibility of hazardous reactions**

No known hazardous reactions

### **Conditions to avoid**

Avoid formation of fine dust and exposure to high temperatures or open flames.

### **Incompatible materials**

Strong acids, strong oxidizing agents, halogens.

### **Hazardous decomposition products**

Titanium oxides

In the event of fire: see section 5

## **11. Toxicological Information**

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### **Information on toxicological effects**

#### **Acute toxicity**

No data available

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitisation**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: Not listed.

OSHA: Not listed.

**Reproductive toxicity**

No data available

**Specific target organ toxicity -single exposure**

No data available

**Specific target organ toxicity -repeated exposure**

No data available

**Aspiration hazard**

No data available

**Additional Information**

No data available

## 12. Ecological Information

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**Toxicity**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**Other adverse effects**

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

Insoluble inorganic material

No known significant environmental hazards under normal conditions

## 13. Disposal Considerations

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**Waste treatment methods**

Dispose of in accordance with all applicable local and national regulations. Use recovery/recycling where feasible, otherwise incineration is the recommended method of disposal. Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste.

## 14. Transportation Information

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### ADR

Not dangerous goods

### IMDG

Not dangerous goods

### IATA

Not dangerous goods

## 15. Regulatory information

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### Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EC) 1907/2006, REACH, Annex XIV list of substances subject to authorisation: Not applicable

Regulation (EC) 1907/2006, REACH, Annex XVII restrictions on the manufacture, placing on the market and use of certain dangerous substances: Not applicable

Regulation (EC) 1005/2009 on substances that deplete the ozone layer: Not applicable

Regulation (EC) 850/2004 on persistent organic pollutants, amended by (EU) No 2019/1021: Not applicable

Not listed in the ECHA Candidate List of Substances of Very High Concern (SVHC).

### Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance

## 16. Other information

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**Revision Date:** 2025-09-15

### Disclaimer

The information of this safety data sheet is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.