

TITANIUM DIOXIDE (TEXTILE GRADE)

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

TITANIUM DIOXIDE  
Titania; C.I. Pigment White 6; TiO2  
CAS: 13463-67-7

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: white pigment/delustrant for textile fibre (viscose, polyester, nylon) manufacture; also used in paints, coatings, plastics and paper. For industrial/commercial user only.  
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS  
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India  
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1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:  
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

|                |                                                                                                                      |
|----------------|----------------------------------------------------------------------------------------------------------------------|
| Not classified | Not classified as hazardous under GHS physical, health or environmental hazard core criteria based on available data |
|----------------|----------------------------------------------------------------------------------------------------------------------|

2.2 GHS label elements, including precautionary statements:

GHS: No signal word (Not classified as hazardous)

Hazard statements:

None.

Precautionary statements:

P261: Avoid breathing dust.  
P271: Use only outdoors or in a well-ventilated area.  
P280: Wear protective gloves/eye protection.  
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P501: Dispose of the contents/containers in accordance with local regulations.

2.3 Other hazards which do not result in classification:

Titanium dioxide powder containing 1% or more of particles with aerodynamic diameter ≤10 µm is classified in the EU (CLP Regulation, Carc. 2, H351 – inhalation route only) as a substance suspected of causing cancer by inhalation of respirable dust; IARC classifies titanium dioxide as Group 2B (possibly carcinogenic to humans), based on animal inhalation studies at very high dust concentrations. This does not apply to the product as supplied/handled under normal conditions (non-respirable form, bound in textile processing); avoid generating and inhaling fine airborne dust as a matter of good practice (see sections 8 and 11).

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Titanium Dioxide (rutile/anatase crystal form)  
In accordance with Annex 4.3.3 of the GHS, the product contains:

| Identification  | Chemical Name / Classification                                                                                                             | Concentration                     |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| CAS: 13463-67-7 | Titanium Dioxide (rutile/anatase crystal form) — Not classified under core GHS hazard categories; see section 2.3 for respirable-dust note | ≥98% TiO2 (textile/pigment grade) |

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance immediately, showing the SDS of this product.

By inhalation:

Remove the person affected from the area of exposure and provide fresh air. Seek medical attention if irritation or discomfort persists.

By skin contact:

Wash affected skin with plenty of water and soap. Remove contaminated clothing.

By eye contact:

Rinse eyes with plenty of water for several minutes, holding eyelids open, to remove particulate matter. Seek medical attention if irritation persists.

By ingestion/aspiration:

Rinse mouth with water. Not expected to require first aid measures beyond general hygiene; seek medical attention if a large quantity is swallowed or discomfort occurs.

4.2 Most important symptoms/effects, acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

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

Not relevant

SECTION 5: FIRE-FIGHTING MEASURES

**5.1 Suitable extinguishing media:**  
**Suitable:** Product itself is non-combustible; use extinguishing media appropriate to the surrounding fire (water spray/fog, foam, dry chemical powder, carbon dioxide)  
**Unsuitable:** None known

**5.2 Specific hazards arising from the chemical:**  
Non-combustible, non-flammable inorganic solid. Does not itself burn or support combustion.

**5.3 Special protective actions for fire-fighters:**  
No specific fire-fighting measures required for this product; fight the surrounding fire using standard techniques and self-contained breathing apparatus where smoke is present.

**Additional provisions:**  
Use water spray to cool fire-exposed containers. Prevent fire-fighting water from entering drains or watercourses. Approach the fire from upwind where possible.

SECTION 6: ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions, protective equipment and emergency procedures:**  
**For non-emergency personnel:**  
Isolate leaks provided there is no additional risk for the people performing this task. Personal protection equipment must be used against potential contact with the spilt product (see section 8). Evacuate the area and keep out those who do not have protection.

**For emergency responders:**  
Wear protective equipment. Keep unprotected persons away. See section 8.

**6.2 Environmental precautions:**  
Not classified as an environmental hazard; nonetheless avoid unnecessary release of dust or powder to drains, watercourses or soil as good practice.

**6.3 Methods and materials for containment and cleaning up:**  
Sweep or vacuum up dry material avoiding dust generation; collect in suitable containers for disposal or reuse.

**6.4 Reference to other sections:**  
See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

**7.1 Precautions for safe handling:**  
**A. General precautions for safe use:**  
Avoid generating and inhaling dust. Provide adequate ventilation and, where dusting is significant, local exhaust ventilation.

**B. Technical recommendations for the prevention of fires and explosions:**  
Not flammable/combustible; no specific fire or explosion precautions required beyond routine housekeeping to limit dust accumulation.

**C. Technical recommendations on general occupational hygiene:**  
Do not eat, drink or smoke while handling. Wash hands after use.

**D. Technical recommendations to prevent environmental risks:**  
Avoid unnecessary release of dust to the environment.

**7.2 Conditions for safe storage, including any incompatibilities:**  
**A. Specific storage requirements:**

|               |                              |
|---------------|------------------------------|
| Minimum Temp. | Ambient (no specific limit)  |
| Maximum Temp. | Ambient (no specific limit)  |
| Maximum time  | Indefinite under dry storage |

**B. General conditions for storage:**  
Store in closed containers/bags in a dry place, away from moisture ingress. For additional information see subsection 10.5.

**7.3 Specific end use(s):**  
Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

**8.1 Control parameters:**  
Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987):

| Identification                      | Occupational Exposure Limit Type                                  | Value                                                                  |
|-------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------|
| Titanium Dioxide<br>CAS: 13463-67-7 | Time Weighted Average concentration (8 hrs), total inhalable dust | 10 mg/m³ (general particulate-not-otherwise-classified guidance value) |
|                                     | Respirable fraction                                               | 4 mg/m³ (general particulate-not-otherwise-classified guidance value)  |

**8.2 Appropriate engineering controls:**  
It is recommended to use localized extraction in the work area as a collective protection measure to avoid exceeding occupational exposure limits, in addition to individual protective equipment (PPE) as needed. Consult the manufacturer's information leaflet for storage, use, cleaning and maintenance of PPE. Minimise dust generation during bag handling and transfer.

**B. Respiratory protection:**  
Not normally required with adequate ventilation. Where dust levels are elevated, use a particulate filter respirator (FFP2/P2 type or higher).

**C. Specific protection for the hands:**  
Protective gloves recommended for prolonged/repeated handling.

**D. Eye and face protection:**  
Safety glasses or goggles recommended where dust is generated.

**E. Bodily protection:**  
Standard work clothing; coveralls recommended for dusty operations.

**F. Additional emergency measures:**  
Emergency shower (ANSI Z358-1, ISO 3864-1:2011, ISO 3864-4:2011) and eyewash stations (DIN 12 899, ISO 3864-1:2011, ISO 3864-4:2011) should be available.

**Environmental exposure controls:**  
Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**9.1 Information on basic physical and chemical properties:**

| Appearance             |                     |
|------------------------|---------------------|
| Physical state at 20°C | Solid (fine powder) |
| Appearance             | Fine powder         |
| Color                  | White               |

|                                            |                                                  |
|--------------------------------------------|--------------------------------------------------|
| Odor                                       | Odourless                                        |
| Odour threshold                            | Not relevant *                                   |
| Volatility                                 |                                                  |
| Boiling point at atmospheric pressure      | ~2972°C (literature)                             |
| Vapour pressure at 20°C                    | Negligible                                       |
| Evaporation rate at 20°C                   | Not relevant (solid)                             |
| Product Description                        |                                                  |
| Density / Relative density at 20°C         | ~3.9–4.2 g/cm³ (crystal-form dependent)          |
| Dynamic / Kinematic viscosity              | Not applicable (solid)                           |
| Concentration                              | See section 3                                    |
| pH                                         | Neutral (~6–8 in aqueous suspension, literature) |
| Vapour density at 20°C                     | Not relevant (solid)                             |
| Partition coefficient n-octanol/water 20°C | Not applicable (inorganic solid)                 |
| Solubility in water at 20°C                | Insoluble                                        |
| Decomposition temperature                  | Not relevant (thermally stable inorganic oxide)  |
| Melting point/freezing point               | 1843°C (literature)                              |
| Flammability                               |                                                  |
| Flash Point                                | Non-applicable (inorganic solid)                 |
| Flammability (solid, gas)                  | Non-flammable                                    |
| Autoignition temperature                   | Non-applicable                                   |
| Lower / Upper flammability limit           | Non-applicable                                   |
| Particle Characteristics                   |                                                  |
| Median equivalent diameter                 | Available on request (grade dependent)           |

\* Not relevant due to the non-volatile, non-odorous nature of this inorganic pigment.

9.2 Other information:

|                         |                                               |
|-------------------------|-----------------------------------------------|
| Explosive properties    | Not relevant (non-explosive)                  |
| Oxidising properties    | Non-oxidising                                 |
| Corrosive to metals     | Not corrosive                                 |
| Heat of combustion      | Not relevant (non-combustible)                |
| Surface tension at 20°C | Not relevant (solid)                          |
| Refraction index        | ~2.6–2.9 (crystal-form dependent, literature) |

SECTION 10: STABILITY AND REACTIVITY

|                                                                                                                                                                                                                                   |                  |                         |          |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|----------|----------------|
| 10.1 Reactivity:<br>Chemically unreactive under normal conditions of storage, handling and use.                                                                                                                                   |                  |                         |          |                |
| 10.2 Chemical stability:<br>Chemically stable; thermally stable to very high temperatures.                                                                                                                                        |                  |                         |          |                |
| 10.3 Possibility of hazardous reactions:<br>No hazardous reactions expected under normal conditions of use. Reacts with strong reducing agents (e.g., molten metals) only under extreme conditions not encountered in normal use. |                  |                         |          |                |
| 10.4 Conditions to avoid:                                                                                                                                                                                                         |                  |                         |          |                |
| Shock/Friction                                                                                                                                                                                                                    | Contact with Air | Increase in Temperature | Sunlight | Humidity       |
| Not applicable                                                                                                                                                                                                                    | Not applicable   | Not applicable          | Stable   | Not applicable |

|                                        |               |
|----------------------------------------|---------------|
| 10.5 Incompatible materials:           |               |
| Strong Reducing Agents                 | Molten Metals |
| Avoid contact under extreme conditions | Avoid contact |

10.6 Hazardous decomposition products:  
None under normal conditions; product is a thermally stable metal oxide.

SECTION 11: TOXICOLOGICAL INFORMATION

|                                                                                                                                                                                                                                                                                                                                                 |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 11.1 Information on toxicological effects:<br>In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:                                                                                           |  |
| A. Ingestion (acute effect):<br>Not expected to cause harmful effects based on available data (very low acute toxicity).                                                                                                                                                                                                                        |  |
| B. Inhalation (acute effect):<br>Prolonged/repeated inhalation of respirable dust may cause mechanical irritation of the respiratory tract; see the inhalation-carcinogenicity note in section 2.3.                                                                                                                                             |  |
| C. Contact with skin and eyes (acute effect):<br>May cause mild, transient mechanical irritation to skin and eyes due to particulate nature; not classified as an irritant.                                                                                                                                                                     |  |
| D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):<br>Not classified as a carcinogen, mutagen or reproductive toxicant under core GHS health hazard criteria based on available data; see the specific inhalation note in section 2.3 regarding respirable dust (EU CLP Carc. 2 H351 inhalation-route only; IARC Group 2B). |  |
| E. Sensitizing effects:<br>Not known to be a skin or respiratory sensitiser.                                                                                                                                                                                                                                                                    |  |
| F. Specific target organ toxicity (STOT) – single exposure:<br>Classification criteria are not met based on available data.                                                                                                                                                                                                                     |  |
| G. Specific target organ toxicity (STOT) – repeated exposure:<br>Classification criteria are not met based on available data.                                                                                                                                                                                                                   |  |
| H. Aspiration hazard:                                                                                                                                                                                                                                                                                                                           |  |

Not relevant (solid).

Product-specific toxicological information:

| Identification                      | Acute Toxicity                                               | Genus |
|-------------------------------------|--------------------------------------------------------------|-------|
| Titanium Dioxide<br>CAS: 13463-67-7 | LD50 oral: >10,000 mg/kg (practically non-toxic, literature) | Rat   |

SECTION 12: ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment.

12.1 Toxicity:

| Identification                      | Acute Toxicity                                                                                                                            | Genus                     |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Titanium Dioxide<br>CAS: 13463-67-7 | No acute toxicity expected up to the limit of water solubility (practically insoluble); specific LC50/EC50 not established for this grade | Fish / Crustacean / Algae |

12.2 Persistence and degradability:

Inorganic substance; concept of biodegradability is not applicable.

12.3 Bioaccumulative potential:

Not expected to bioaccumulate (highly insoluble inorganic solid).

12.4 Mobility in soil:

| Koc            | Henry          | Dry Soil             | Moist Soil           |
|----------------|----------------|----------------------|----------------------|
| Not applicable | Not applicable | Immobile (insoluble) | Immobile (insoluble) |

12.5 Results of PBT and vPvB assessment:

Does not meet PBT/vPvB criteria (inorganic, not organic substance).

12.6 Other adverse effects:

No adverse environmental effects expected under normal use conditions.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Dispose of as general industrial (non-hazardous) solid waste in accordance with local regulations, or recover for reuse where practicable. Avoid generating airborne dust during disposal. Do not discharge directly to drains or watercourses in bulk.

Refer to national and local regulations on waste management (Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016, as amended).

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

|                                                          |                                                 |
|----------------------------------------------------------|-------------------------------------------------|
| 14.1 UN number                                           | Not regulated                                   |
| 14.2 UN proper shipping name                             | Not classified as dangerous goods for transport |
| 14.3 Transport hazard class(es)                          | –                                               |
| 14.4 Packing group                                       | –                                               |
| 14.5 Environmental hazard                                | No                                              |
| 14.6 Special precautions for user                        | Physico-chemical properties: see section 9      |
| 14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code) | Not relevant                                    |

Transport of dangerous goods by sea (IMDG 41-22):

|                                                          |                                                 |
|----------------------------------------------------------|-------------------------------------------------|
| 14.1 UN number                                           | Not regulated                                   |
| 14.2 UN proper shipping name                             | Not classified as dangerous goods for transport |
| 14.3 Transport hazard class(es)                          | –                                               |
| 14.4 Packing group                                       | –                                               |
| 14.5 Environmental hazard                                | No                                              |
| 14.6 Special precautions for user                        | Physico-chemical properties: see section 9      |
| 14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code) | Not relevant                                    |

Transport of dangerous goods by air (IATA/ICAO 2024):

|                                                          |                                                 |
|----------------------------------------------------------|-------------------------------------------------|
| 14.1 UN number                                           | Not regulated                                   |
| 14.2 UN proper shipping name                             | Not classified as dangerous goods for transport |
| 14.3 Transport hazard class(es)                          | –                                               |
| 14.4 Packing group                                       | –                                               |
| 14.5 Environmental hazard                                | No                                              |
| 14.6 Special precautions for user                        | Physico-chemical properties: see section 9      |
| 14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code) | Not relevant                                    |

SECTION 15: REGULATORY INFORMATION

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

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product. Titanium dioxide (respirable powder) is separately noted under EU CLP as Carc. 2, H351 (inhalation route only); see section 2.3.

Other legislation:

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989  
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)  
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996  
Public Liability Insurance Act, 1991

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

**Texts of the legislative phrases mentioned in sections 2 and 3:**

Not applicable – product not classified as hazardous under core GHS categories; see section 2.3 for the respirable-dust carcinogenicity note.

*The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.*

**Advice related to training:**

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

**Principal bibliographical sources:**

United Nations GHS (Rev. 8); ECHA Classification & Labelling Inventory; publicly available peer-reviewed and regulatory toxicological/ecotoxicological literature for this CAS number.

**Abbreviations and acronyms:**

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

**END OF SAFETY DATA SHEET**