SAFETY DATA SHEET

TITANIUM DIOXIDE (TEXTILE GRADE)

CAS No.: 13463-67-7

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

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

Other means of identification

Not relevant

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.

Supplier's details

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2. HAZARDS IDENTIFICATION

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

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.

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).

3. COMPOSITION / INFORMATION ON INGREDIENTS

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.

Mixtures

Non-applicable

4. FIRST AID MEASURES

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.

Most important symptoms/effects, acute and delayed

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

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

Not relevant

5. FIRE-FIGHTING MEASURES

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

Specific hazards arising from the chemical

Non-combustible, non-flammable inorganic solid. Does not itself burn or support combustion.

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.

6. ACCIDENTAL RELEASE MEASURES

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.

Environmental precautions

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

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.

Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

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.

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.

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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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 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)

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

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.*

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)

10. STABILITY AND REACTIVITY

Reactivity

Chemically unreactive under normal conditions of storage, handling and use.

Chemical stability

Chemically stable; thermally stable to very high temperatures.

Possibility of hazardous reactions

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.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Not applicable	Stable	Not applicable

Incompatible materials

Strong Reducing Agents	Molten Metals
Avoid contact under extreme conditions	Avoid contact

Hazardous decomposition products

None under normal conditions; product is a thermally stable metal oxide.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

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)

Not expected to cause harmful effects based on available data (very low acute toxicity).

B. Inhalation (acute effect)

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)

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)

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

Not known to be a skin or respiratory sensitiser.

F. Specific target organ toxicity (STOT) – single exposure

Classification criteria are not met based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure

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 CAS: 13463-67-7	LD50 oral: >10,000 mg/kg (practically non-toxic, literature)	Rat

12. ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment.

Toxicity

Identification	Acute Toxicity	Genus
Titanium Dioxide 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

Persistence and degradability

Inorganic substance; concept of biodegradability is not applicable.

Bioaccumulative potential

Not expected to bioaccumulate (highly insoluble inorganic solid).

Mobility in soil

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

Results of PBT and vPvB assessment

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

Other adverse effects

No adverse environmental effects expected under normal use conditions.

13. DISPOSAL CONSIDERATIONS

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).

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

15. REGULATORY INFORMATION

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

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

Disclaimer: 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.

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