

SAFETY DATA SHEET



Ti-Pure™ R-104 Titanium Dioxide Pigment

Version 1.15 Revision Date: 28.09.2023 SDS Number: 1560703-00016 Date of last issue: 11.04.2023
Date of first issue: 21.04.2017

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ti-Pure™ R-104 Titanium Dioxide Pigment

SDS-Identcode : 130000030906

Manufacturer or supplier's details

Company name of supplier : The Chemours Company México S. DE R.L. DE C.V.

Address : Lago Zurich, no. 219 int. 205 Ampliación Granada, C.P. 11529 Miguel Hidalgo
Mexico City RFC: DPM000525554

Telephone : 55 5125 4907 in D.F. and metropolitan area - 800 737 5623 inside the Republic.

Emergency telephone : (ANIQ - SETIQ) 55 5559 1588 in CDMX and metropolitan area; 800 002 1400 inside the Republic.

E-mail address : Infolatam@chemours.com

Recommended use of the chemical and restrictions on use

Recommended use : Coloring agent
Pigment

Restrictions on use : For industrial use only.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS label elements

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Titanium dioxide	13463-67-7	≥ 90 - ≤ 100

SECTION 4. FIRST AID MEASURES

If inhaled : If inhaled, remove to fresh air.

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- Get medical attention if symptoms occur.
- In case of skin contact : Wash with water and soap as a precaution.
Get medical attention if symptoms occur.
- In case of eye contact : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention if symptoms occur.
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : irritant effects
- Protection of first-aiders : No special precautions are necessary for first aid responders.
- Notes to physician : Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Not applicable
Will not burn
- Unsuitable extinguishing media : Not applicable
Will not burn
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : No hazardous combustion products are known
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
- Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.

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Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Sweep up or vacuum up spillage and collect in suitable container for disposal.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.

Conditions for safe storage : Keep in properly labeled containers.
Store in accordance with the particular national regulations.

Materials to avoid : No special restrictions on storage with other products.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Titanium dioxide	13463-67-7	VLE-PPT	10 mg/m ³	NOM-010-STPS-2014
		TWA (Respirable particulate matter)	2.5 mg/m ³ (Titanium dioxide)	ACGIH

Engineering measures : Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.

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Personal protective equipment

Respiratory protection	:	If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Filter type	:	Particulates type
Hand protection	:	
Remarks	:	Wash hands before breaks and at the end of workday.
Eye protection	:	Wear the following personal protective equipment: Safety glasses
Skin and body protection	:	Skin should be washed after contact.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	crystalline
Color	:	white
Odor	:	odorless
Odor Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	1,843 °C
Initial boiling point and boiling range	:	3,000 °C
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Will not burn Not expected to form explosive dust-air mixtures.
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	Not applicable

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Relative vapor density	: Not applicable
Relative density	: 3.6 - 4.3
Solubility(ies) Water solubility	: insoluble
Partition coefficient: n-octanol/water	: Not applicable
Autoignition temperature	: No data available
Decomposition temperature	: The substance or mixture is not classified self-reactive.
Viscosity Viscosity, kinematic	: Not applicable
Explosive properties	: Not explosive
Oxidizing properties	: The substance or mixture is not classified as oxidizing.
Particle size	: No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Not classified as a reactivity hazard.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: None known.
Conditions to avoid	: None known.
Incompatible materials	: None.
Hazardous decomposition products	: No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Components:

Titanium dioxide:

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Acute oral toxicity	: LD50 (Rat): > 5,000 mg/kg Method: OECD Test Guideline 425
Acute inhalation toxicity	: LC50 (Rat): > 6.82 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	: Acute toxicity estimate (Rat): > 2,000 mg/kg Method: Expert judgment Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Not classified based on available information.

Components:

Titanium dioxide:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Titanium dioxide:

Species	: Rabbit
Result	: No eye irritation
Method	: OECD Test Guideline 405

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Components:

Titanium dioxide:

Test Type	: Buehler Test
Routes of exposure	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative

Test Type	: Local lymph node assay (LLNA)
Routes of exposure	: Skin contact
Species	: Mouse

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Method	: OECD Test Guideline 429
Result	: negative

Routes of exposure	: Inhalation
Species	: Mouse
Result	: negative

Routes of exposure	: Inhalation
Species	: Humans
Result	: negative

Germ cell mutagenicity

Not classified based on available information.

Components:**Titanium dioxide:**

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative
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Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Test Type: comet assay
Method: OPPTS 870.5140
Result: positive

Genotoxicity in vivo	: Test Type: In vivo mammalian alkaline comet assay Species: Rat Application Route: intratracheal Method: OECD Test Guideline 489 Result: negative
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Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative

Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Mouse
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 475
Result: negative

Test Type: Transgenic rodent germ cell gene mutation assay
Species: Mouse

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Application Route: Intravenous injection
Method: OECD Test Guideline 488
Result: negative

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity

Not classified based on available information.

Product:

Remarks : In lifetime inhalation studies rats were exposed for 2 years to respectively 10, 50 and 250 mg/m³ of respirable TiO₂. Slight lung fibrosis was observed at 50 and 250 mg/m³ levels. Microscopic lung tumours were also observed in 13 percent of the rats exposed to 250 mg/m³, an exposure level that caused lung overloading and impairment of rat lungs clearance mechanisms.

In further studies, these tumours were found to occur only under particle overload conditions in a uniquely sensitive species, the rat, and have little or no relevance for humans. The pulmonary inflammatory response to TiO₂ particles exposure was also found to be much more severe in rats than in other rodent species.

In February 2006, IARC has re-evaluated Titanium dioxide as pertaining to Group 2B: "possibly carcinogenic to humans", based upon inadequate evidence in humans and sufficient evidence in experimental animals for the carcinogenicity of titanium dioxide. IARC evaluation guidelines consider the generation of tumours, in 2 different studies within the same animal species, to be adequate criteria for an assessment of sufficient evidence.

The conclusions of several epidemiology studies on more than 20000 TiO₂ industry workers in Europe and the USA did not suggest a carcinogenic effect of TiO₂ dust on the human lung. Mortality from other chronic diseases, including other respiratory diseases, was also not associated with exposure to TiO₂ dust.

Based upon all available study results, Chemours scientists conclude that titanium dioxide will not cause lung cancer or chronic respiratory diseases in humans at concentrations experienced in the workplace.

Components:

Titanium dioxide:

Species	: Rat
Application Route	: inhalation (dust/mist/fume)
Exposure time	: 2 Years
Result	: negative

Species	: Rat
Application Route	: Ingestion
Exposure time	: 105 weeks

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Result	:	negative
Species	:	Mouse
Application Route	:	Ingestion
Exposure time	:	103 weeks
Result	:	negative
Carcinogenicity - Assessment	:	Weight of evidence does not support classification as a carcinogen

Reproductive toxicity

Not classified based on available information.

Components:

Titanium dioxide:

Effects on fertility	:	Test Type: One-generation reproduction toxicity study Species: Rat Application Route: Ingestion Method: OECD Test Guideline 443 Result: negative
Effects on fetal development	:	Test Type: Prenatal development toxicity study (teratogenicity) Species: Rat Application Route: Ingestion Method: OECD Test Guideline 414 Result: negative
Reproductive toxicity - Assessment	:	Weight of evidence does not support classification for reproductive toxicity

STOT-single exposure

Not classified based on available information.

Components:

Titanium dioxide:

Routes of exposure	:	Skin contact
Assessment	:	No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less
Routes of exposure	:	Ingestion
Assessment	:	No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less
Routes of exposure	:	inhalation (dust/mist/fume)
Assessment	:	No significant health effects observed in animals at concentrations of 5.0 mg/l/4h or less

STOT-repeated exposure

Not classified based on available information.

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Components:

Titanium dioxide:

Routes of exposure : Ingestion
Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

Routes of exposure : inhalation (dust/mist/fume)
Assessment : No significant health effects observed in animals at concentrations of 0.2 mg/l/6h/d or less.

Routes of exposure : Ingestion
Assessment : No significant health effects observed in animals at concentrations of 200 mg/kg bw or less.

Repeated dose toxicity

Components:

Titanium dioxide:

Species : Rat, male and female
NOAEL : 24,000 mg/kg
LOAEL : > 24,000 mg/kg
Application Route : Ingestion
Exposure time : 28 Days
Method : OECD Test Guideline 407
Remarks : No significant adverse effects were reported

Species : Rat, male and female
NOAEL : 0.01 mg/l
LOAEL : 0.5 mg/l
Application Route : inhalation (dust/mist/fume)
Exposure time : 24 Months
Method : OECD Test Guideline 453
Remarks : No significant adverse effects were reported

Species : Rat, male and female
NOAEL : 962 mg/kg
LOAEL : > 962 mg/kg
Application Route : Ingestion
Exposure time : 90 Days
Method : OECD Test Guideline 408
Remarks : No significant adverse effects were reported

Aspiration toxicity

Not classified based on available information.

Components:

Titanium dioxide:

No aspiration toxicity classification

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Titanium dioxide:

- Toxicity to fish : LC50 (Fish): > 1,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
- LC50 (Marine species): > 10,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia sp. (Water flea)): > 1,000 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- EC50 (No species specified): > 1,000 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- EC50 (Skeletonema costatum (marine diatom)): > 10,000 mg/l
Exposure time: 72 h
Method: ISO 10253
- NOEC (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 3 d
Method: OECD Test Guideline 201
- NOEC (Skeletonema costatum (marine diatom)): 5,600 mg/l
Exposure time: 3 d
Method: ISO 10253

Persistence and degradability

No data available

Bioaccumulative potential

Components:

Titanium dioxide:

- Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Bioconcentration factor (BCF): 352

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Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Do not dispose of waste into sewer. Dispose of in accordance with local regulations.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

NOM-002-SCT

Not regulated as a dangerous good

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION

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

Federal Law for the control of chemical precursors, essential chemical products and machinery for producing capsules, tablets and pills.	:	Not applicable
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SECTION 16. OTHER INFORMATION

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Chemours™ and the Chemours Logo are trademarks of The Chemours Company.

Before use read Chemours safety information.

For further information contact the local Chemours office or nominated distributors.

These products may not be directly added to food, pharmaceuticals, cosmetics, or cigarette papers/filters for tobacco products.

Do not use or resell Chemours™ materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless agreed to by Seller in a written agreement covering such use. For further information, please contact your Chemours representative.

An electrostatic charge can potentially build up when pouring or conveying product from plastic bags. Do not use plastic bags in the presence of flammable or explosive vapors.

In the manufacture of titanium dioxide, product is packaged at temperatures of approximately 100 to 120°C (212 to 248°F). When pigment is shipped shortly after manufacture, it may stay hot for a very long time depending on ambient temperatures and inventory storage practices. Use caution while handling hot pigment to prevent burns to personnel. Use caution in solvent applications to prevent ignition of solvent.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NOM-010-STPS-2014	:	Mexico. Norm NOM-010-STPS-2014 on Chemicals Polluting the Work Environment - Identification, Assessment and Control - Appendix 1 Occupational Exposure Limits
ACGIH / TWA	:	8-hour, time-weighted average
NOM-010-STPS-2014 / VLE-	:	Time weighted average limit value
PPT	:	

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation,

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Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

The information is considered as correct, but not exhaustive, and will be used only as a guide, which is based in the current knowledge of the substance or mixture, and is applicable to proper safety precautions for the product.

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