



State of the Art Ingredients • Fast Friendly Service

Titanium Dioxide USP Kosher

SECTION 1 :: PRODUCT IDENTIFICATION

Product Name: Titanium Dioxide

Product Use : Pigment

Transport Emergency: CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

SECTION 2 :: HAZARDS IDENTIFICATION

Potential Health Effects

Skin: Repeated exposure may cause skin dryness or cracking.

Eyes: May cause: mechanical irritation with tearing, pain or visual Impairment

Inhalation: May cause nose, throat, and lung irritation.

Carcinogenicity

Material	IARC	NTP	OSHA
Titanium dioxide	2B		

SECTION 3 :: PHYSICAL DATA

Component	CAS-No.	Concentration
Titanium dioxide	13463-67-7	80 - 98 %
Aluminum hydroxide	21645-51-2	0 - 9 %
Silicon dioxide, amorphous	7631-86-9	0 - 11 %

SECTION 4 :: FIRST AID MEASURES

Skin contact: Wash off with soap and water.

Eye contact : Rinse with plenty of water.

Inhalation: Remove person to fresh air. If signs/symptoms continue, get medical attention.

Ingestion: No specific intervention is indicated. Consult a physician if necessary.

SECTION 5 :: FIREFIGHTING MEASURES

Flammable Properties

Flash point : does not flash

Firefighting Instructions: The product itself does not burn. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.



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SECTION 6 :: ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel): Avoid breathing dust.

Spill Cleanup: Pick up and arrange disposal without creating dust. After cleaning, flush away traces with water.

Accidental Release Measures: Do not flush into surface water or sanitary sewer system.

SECTION 7 :: HANDLING AND STORAGE

Handling (Personnel): 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. Avoid breathing dust. Wash hands before breaks and at the end of workday.

Handling (Physical Aspects): This is a fully oxidized mineral product. As such it cannot support combustion or participate in a dust explosion.

Storage: Keep container tightly closed in a dry and well-ventilated place.



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SECTION 8 :: EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: Use sufficient ventilation to keep employee exposure below recommended limits.

Personal protective equipment

Respiratory protection: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection: Additional protection: Gloves

Eye protection: Safety glasses with side-shields

Exposure Guidelines

Exposure Limit Values

Titanium dioxide

PEL (Permissible Exposure Limit)	(OSHA)	15 mg/m ³	8 hr.	TWA Total dust.
TLV (ACGIH)		10 mg/m ³		TWA
AEL * (DUPONT)		10 mg/m ³		8 & 12 hr. TWA Total dust.
AEL * (DUPONT)		5 mg/m ³		8 & 12 hr. TWA Respirable dust.

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9 :: PHYSICAL & CHEMICAL PROPERTIES

Form : powder

Color : white

Odor : none

pH : > 4

Specific Gravity : 3.8 - 4.3

Water solubility : insoluble

SECTION 10 :: STABILITY & REACTIVITY

Stability : Stable

Incompatibility : None.



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SECTION 11 :: TOXICOLOGICAL INFORMATION

Inhalation 4 h ALC : > 6.82 mg/l , rat
Dermal ALD : > 10,000 mg/kg , rabbit
Oral ALD : > 24,000 mg/kg , rat
Skin irritation : slight irritation
Eye irritation : slight irritation
Sensitization : Did not cause sensitization on laboratory animals.
Carcinogenicity : 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 reevaluated 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, Vendor scientists conclude that titanium dioxide will not cause lung cancer or chronic respiratory diseases in humans at concentrations experienced in the workplace.

Mutagenicity : Not mutagenic in Ames Test.

SECTION 12 :: ECOLOGICAL INFORMATION

Aquatic Toxicity
Ti-Pure Titanium Dioxide Pigment - Paint Coatings - Dry Grades
96 h LC50 : Fathead minnow > 1,000 mg/l

SECTION 13 :: DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of in accordance with local regulations.

SECTION 14 :: TRANSPORT INFORMATION

Not regulated in transportation by DOT/IMO/IATA.



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SECTION 15 :: REGULATORY INFORMATION

EINECS Status : On the inventory, or in compliance with the inventory
TSCA Status : On the inventory, or in compliance with the inventory
AICS Status : On the inventory, or in compliance with the inventory
DSL Status : On the inventory, or in compliance with the inventory
ENCS (JP) Status : On the inventory, or in compliance with the inventory
KECI (KR) Status : On the inventory, or in compliance with the inventory
PICCS (PH) Status : On the inventory, or in compliance with the inventory
INV (CN) Status : On the inventory, or in compliance with the inventory
NZ HSNO Status : Exempt

SARA 313 Regulated Chemical(s) :

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65: Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known

PA Right to Know Regulated Chemical(s): Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): Titanium dioxide, Silicon dioxide, amorphous

NJ Right to Know Regulated Chemical(s): Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): Titanium dioxide, Silicon dioxide, amorphous

SECTION 16 :: OTHER INFORMATION

HMIS
Health 1 Flammability 0 Reactivity/ 0 Physical hazard

PPE: Personal Protection rating to be supplied by user depending on use conditions.

Disclaimer

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