

Material Safety Data Sheet

TITANIUM DIOXIDE PIGMENT OF ANPEAK-SCM (HONG KONG) LTD.

◆ MATERIAL IDENTIFICATION

Formula : TiO₂
CAS No : 13463-67-7
Grade : See Tradenames and Synonyms (Remarks)

◆ GRADES COVERED BY THIS MSDS INCLUDE:

R916, R2213

◆ COMPANY PHONE NUMBERS/ COMPANY ADDRESS

ANPEAK-SCM (HONG KONG) LTD.

◆ SURFACE TREATMENT INGREDIENTS

Ingredients	CAS No.
Silicon dioxide	7631-86-9
Aluminium dioxide	1344-28-1
Zirconium dioxide	1314-23-4

◆ COMPOSITION/INFORMATION ON INGREDIENTS

Product code	TiO ₂ content (%)	Ingredients & content (%)
R916	≥93	ZrO ₂ 0-1.0; Al ₂ O ₃ 0-3.0
R2213	≥96	Al ₂ O ₃ 0-1.0 ; modified with organic compounds

*Our pigments consist essentially of titanium dioxide particles. Most Grades have a surface coating of other metal oxides (or hydrated oxide) and A surface treatment of organic which are not classified as hazardous to health.

◆ HAZARDS IDENTIFICATION

▼POTENTIAL HEALTH EFFECTS

Eye contact may cause eye irritation with tearing, pain or blurred vision.

Repeated skin contact with Titanium Dioxide may cause drying or cracking of the skin in sensitive individuals.

Short-term overexposure by inhalation to Titanium Dioxide may cause irritation of nose, throat, and lungs with cough, difficulty breathing or shortness of breath. Results of a Global epidemiology study showed that employees who had been exposed to Titanium Dioxide were at no greater risk of developing lung cancer than were employees who had not been exposed to Titanium Dioxide. No pulmonary fibrosis was found in any of the employees and no association was observed between Titanium Dioxide exposure and

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chronic respiratory disease or x-ray abnormalities. Based on the results of this study Global concludes that Titanium Dioxide will not cause lung cancer or chronic respiratory disease in humans at concentrations experienced in the workplace.

Inhalation of Amorphous Silica may cause drying of mucous membranes and irritation of nose, throat, and lungs with nosebleeds, cough, difficulty breathing or shortness of breath. Based on animal experiments, long term exposures to high doses could lead to pulmonary inflammation and subsequent development of chronic lung disease. Amorphous Silica does not induce the lung effects associated with crystalline silica.

Epidemiology studies have not shown any evidence of fibrosis in workers exposed to Amorphous Silica dust levels ranging from 2 to 7 mg/m³.

Increased susceptibility to the effects of Amorphous Silica may be observed in persons with pre-existing disease of the lungs.

▼CARCINOGENICITY INFORMATION

None of the components present in this material at concentrations equal to or greater than 0.1% are listed as a carcinogen.

◆ INHALATION

▼IF INHALED

remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

▼SKIN CONTACT

The compound is not likely to be hazardous by skin contact but cleansing the skin after use is advisable.

▼EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

▼INGESTION

No specific intervention is indicated as compound is not likely to be hazardous by ingestion. However, if symptoms occur, consult a physician.

◆ FIRE FIGHTING MEASURES

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Flammable Properties	Will not burn.
Extinguishing Media	Any media as appropriate for combustibles in area.
Fire Fighting Instructions	None.

◆ ACCIDENTAL RELEASE MEASURES

▼SAFEGUARDS (Personnel)

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

For dry product, shovel into covered container for disposal. Flush residue to wastewater treatment system.

◆ HANDLING AND STORAGE

▼ HANDLING (Personnel)

In the manufacture of titanium dioxide, product is packaged at temperatures of approximately 100 to 120 Centigrade (212 to 248 Fahrenheit). When pigment is shipped shortly after manufacture, it may stay hot for a very long time depending on ambient temperatures and inventory storage practices. Due to the potential of elevated pigment temperature, caution should be used while handling pigment and in solvent applications. Each work environment must be assessed to determine hazards. The following caution is provided for grades packaged in plastic bags:

CAUTION: Plastic bag material may cause static ignition hazard in the presence of flammable or explosive vapor/air mixtures. Do not handle or use bags in the presence of flammable or explosive vapor/air mixtures.

For dry product avoid breathing dust.
Use dust filter respirator if exposure limits are exceeded (see Personal Protective Equipment).

▼Storage

Based on Global's product storage experience, we recommend the following guidelines for safely stacking pallets of "GLOBAL" Titanium Dioxide:

* All "GLOBAL" Titanium Dioxide grades packaged in paper or plastic bags should not be stacked more than three pallet high.

Protect containers of dry product from damage.

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◆ EXPOSURE CONTROLS/PERSONAL PROTECTION

▼ENGINEERING CONTROLS

Good general ventilation should be provided to keep dust concentrations below the exposure limits.

▼ PERSONAL PROTECTIVE EQUIPMENT

If exposure limits are exceeded for dust or dried-down product, a NIOSH approved air purifying respirator with appropriate particulate filter should be used. Protective gloves should be worn to prevent prolonged skin contact with alkaline slurries. For dry product or dried-down product use a protective barrier cream and/or protective gloves to prevent skin contamination. Eye protection (minimum: safety glasses with side shields) is also required when handling titanium dioxide.

▼EXPOSURE GUIDELINES

Applicable Exposure Limits

TITANIUM DIOXIDE

PEL (OSHA)	: 15 mg/m ³ , total dust, 8 Hr. TWA
TLV (ACGIH)	: 10 mg/m ³ , total dust, 8 Hr. TWA, A4
AEI * (Global)	: 10 mg/m ³ , total dust, 8 Hr. TWA 5 mg/m ³ , respirable dust, 8 Hr. TWA

▼AMORPHOUS SILICA

(Applicable Exposure Limits - Continued)

PEL (OSHA)	: 80 mg/m ³ / % SiO ₂ - 8 Hr TWA
TLV (ACGIH)	: 10 mg/m ³ , total dust, 8 Hr. TWA Notice of Intended Changes (2005) Withdraw entry and adopted TLV
AEI * (Global)	: 3 mg/m ³ , 8 & 12 Hr. TWA, respirable dust

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

◆ PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Boiling Point	: Not applicable
Vapor Pressure	: Not volatile
Vapor Density	: Not volatile
Melting Point	: 1850°C
Evaporation Rate	: Not volatile
Solubility in Water	: Insoluble
pH (water extract)	: 6.0-10
Odor	: None

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Form : Powder, solid
Color : White
Specific Gravity : 3.9-4.2

◆ STABILITY AND REACTIVITY

Stable Incompatibility with Other Materials None reasonably foreseeable.

Decomposition Decomposition will not occur.

Polymerization Polymerization will not occur.

◆ TOXICOLOGICAL INFORMATION

▼ ANIMAL DATA

Some (but not all) grades of "GLOBAL" Titanium Dioxide contain Amorphous Silica.

"GLOBAL" Titanium Dioxide

Oral ALD : >24,000 mg/kg in rats

Dermal ALD : >10,000 mg/m³ in rabbits

Inhalation 4-hour ALC: >6.82 mg/L in rats

Amorphous Silica

Oral LD50 : >10,000 mg/kg in rats

The product contains Titanium Dioxide which is a slight or moderate eye irritant and a slight skin irritant, but is not a skin sensitizer in animals.

This product may contain Amorphous Silica which is a mild eye irritant and is negligible to slight skin irritant when tested as a 50% aqueous paste in animals. Amorphous Silica dust is not expected to be a skin irritant. Animal testing indicates Amorphous Silica is not a skin sensitizer.

In short term inhalation studies of Titanium Dioxide mixtures containing 6% Aluminum Hydroxide and 8% Silicon Dioxide, a slight fibrogenic response occurred in animals exposed to 1,300 mg/m³ for 4 weeks respirable dust. A typical dust cell reaction but no fibrogenic response was noted in animals similarly exposed to Titanium Dioxide, or Titanium Dioxide mixtures containing from 1% to 3% Aluminum Hydroxide, and 2.7 to 6% Silicon Dioxide. Repeated inhalation exposure to Amorphous Silica caused pulmonary changes including reversible inflammation. Long-term exposure caused pulmonary changes including reversible inflammation, vascular obstruction and emphysema. Guinea pigs exposed to Aluminum

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Hydroxide by inhalation exhibited no evidence of injurious effects but did show progressive accumulation of aluminum in the lungs.

Repeated and long term ingestion of Titanium Dioxide caused no significant toxicological effects. Single, repeated and long-term exposure by ingestion to Amorphous Silica caused no significant toxicological effects. Ingestion of Aluminum Hydroxide caused growth impairment, and bone changes due to phosphate depletion in animals but ingestion of phosphate eliminates these changes; no evidence of other toxicity was noted.

In lifetime inhalation studies of respirable Titanium Dioxide at levels up to 250 mg/m³, no compound-related clinical signs of toxicity were seen in the exposed animals. Slight pulmonary fibrosis was seen at 50 and 250 mg/m³ respirable dust levels but

not at 10 mg/m³. There was no evidence of cancer in animals exposed to 10 or 50 mg/m³ respirable Titanium Dioxide. Microscopic lung tumors were seen in 17 percent of the rats exposed to 250 mg/m³ respirable Titanium Dioxide. The lung tumors seen in the rat were different from common human lung cancers, relative to anatomic type and location, occurred only at dust levels which overwhelmed the animals lung clearance mechanism and, therefore, are of questionable biological relevance for man.

In lifetime animal feeding tests at levels up to 50,000 ppm, Titanium Dioxide showed no evidence of cancer or other significant adverse effects in either rats or mice. No animal data are available to define the developmental or reproductive toxicity of Titanium Dioxide. Tests have shown that Titanium Dioxide does not cause genetic damage in bacterial or mammalian cell cultures, or in animals. Animal testing indicates Amorphous Silica does not

have carcinogenic or reproductive effects. Amorphous Silica has not produced genetic damage in bacterial cultures.

◆ ECOLOGICAL INFORMATION

Ecotoxicological Information	Aquatic Toxicity
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96 hour LC50, fathead minnows:	>1,000 mg/L
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◆ DISPOSAL CONSIDERATIONS

Comply with country and local regulations. If approved, remove to land disposal area.

◆ TRANSPORTATION INFORMATION

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▼SHIPPING INFORMATION

Not regulated as a hazardous material by DOT, IMO, or IATA.

Shipping Containers:

Flexible Intermediate Bulk Containers
Bags

◆ REGULATORY INFORMATION

Inventory Status : Reported/Included.
Acute : Yes
Chronic : No
Fire : No
Reactivity : No
Pressure : No

LISTS:

Extremely Hazardous Substance -No
CERCLA Hazardous Substance -No
Toxic Chemical -No

◆ OTHER INFORMATION

HMIS Rating
Health : 1
Flammability : 0
Reactivity : 0
Personal Protection rating to be supplied by user depending on use conditions.

◆ ADDITIONAL INFORMATION

MEDICAL USE: CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications see Global CAUTION Bulletin.

The required testing has not been done to qualify any of our products for direct inclusion in food, drugs, or cosmetic formulations.

For more specific information on composition and properties, see Our Titanium Dioxide literature.

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*The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS

ANPEAK-SCM (HONG KONG) LTD.
Issuing date: JAN-02-2018;