Material Safety Data Sheet

LA8732
Titanium Dioxide TI PURE® R-706

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA8732
Product Name: Titanium Dioxide TI PURE® R-706
Synonyms: None
Chemical Family: None Known
Application: Pigment. Coatings.

Distributed By:
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Prepared By: The Safety, Health and Environment Department of Univar Canada Ltd.
Preparation date of MSDS: 27 January 2012
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
Titanium Dioxide 13463-67-7	80-98	Oral LD50 (Rat) 10000 mg/kg Dermal ALD (Rabbit) >10000 mg/m^3 Inhalation 4-hour ALC (Rat) >6.82 mg/L
Amorphous Silica 7631-86-9	7-13	Dermal LD50 (Rabbit) 2000 mg/kg Oral LD50 (Rat) 5000 mg/kg
Aluminum Hydroxide 21645-51-2	5-10	Oral LD50 (Rat) > 5000 mg/kg

Note: No additional remark.

3. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: Contact with the product may cause eye irritation with discomfort, tearing, or blurring of vision.
Skin Contact: Repeated skin contact with Titanium Dioxide may cause drying or cracking of the skin in sensitive individuals.

3. HAZARDS IDENTIFICATION

Inhalation: Short-term overexposure by inhalation to Titanium Dioxide may cause irritation of nose, throat, and lungs with cough, difficulty breathing or shortness of breath. Long-term inhalation of high concentrations of pigmentary (powdered) or ultrafine titanium dioxide may cause lung cancer, based on animal evidence.
Ingestion: Not a hazard under normal use conditions.

4. FIRST AID MEASURES

Eye Contact: In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Skin Contact: Wash with soap and water.
Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion: Not toxic by ingestion, however , may result in Gastro-intestinal irritation and may produce diarrhea. Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.
Notes to Physician: Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash Point: None.
Flash Point Method: Not applicable.
Autoignition Temperature: Not available.
Flammable Limits in Air (%): Not Available.
Extinguishing Media: Use extinguishing media appropriate for surrounding fire.
Special Exposure Hazards: Not flammable.
Hazardous Decomposition/Combustion Materials (under fire conditions): None.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 0, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 0, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Consult local authorities.
Procedure for Clean Up: Avoid raising dust. Do not dry-sweep. Whenever possible, wet down with a water spray to minimize the amount of dust or use a vacuum equipped with HEPA filters. Scoop or vacuum (with hepa filtered equipment) spilled material and place in container. Wash spill site with water when material pickup is complete.
SPECIAL INSTRUCTIONS FOR DRY PRODUCT GRADE R-104, R-105, R-108 AND R-350
Due to the fact that R-104, R-105, R-108 and R-350 are hydrophobic (water repellent), do not use water in the clean-up of spills; do not flush residue to the wastewater treatment system.

7. HANDLING AND STORAGE

Handling: 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. 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. If slurry product is allowed to dry, avoid breathing dust.
Storage: Protect against physical damage. Keep slurry product from freezing. Based on DuPont's product storage experience, we recommend the following guidelines for safely stacking pallets of "TI-PURE" Titanium Dioxide: Mid-size containers (1102 lb./500 kg.) and semi-bulk containers (2204 lb./1000 kg.) for all grades should not be stacked more than two pallets high. "TI-PURE" Titanium Dioxide grade R-100, R-101 and R-931 packed in bags should not be stacked more than two pallets high. All other "TI-PURE" Titanium Dioxide grades packaged in paper or plastic bags should not be stacked more than three pallets high.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Provide mechanical general and/or local exhaust ventilation to prevent release of dust into work environment.
Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Air purifying respirator with high efficiency particulate filter (P100).
Gloves:

Appropriate chemical resistant gloves should be worn. 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.
Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.
Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.
Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Titanium Dioxide	10 mg/m^3 TLV-TWA	10 mg/m^3 TWA	5000 mg/m^3
Amorphous Silica	Observe particulate limits. ACGIH TLA: TWA 10 mg/m^3 inhalable particulate, 3 mg/m^3 respirable particulate.	Observe particulate limits. OSHA PEL: TWA 15 mg/m^3 total dust, 5 mg/m^3 respirable fraction.	3000 mg/m^3
Aluminum Hydroxide	Not available.	Not available.	Not Available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Crystalline
Colour: White
Odour: Odourless
pH Not Available.
Specific Gravity: 3.6 - 4.3
Boiling Point: Not Available.
Freezing/Melting Point: Not Available.
Vapour Pressure: Not Available.
Vapour Density: Not Available.
% Volatile by Volume: Not Available.
Evaporation Rate: Not Available.
Solubility: Insoluble in water.
VOCs: Not Available.
Viscosity: Not Available.
Molecular Weight: Not Available.
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: None known.
Materials to Avoid: None known
Hazardous Decomposition Products: Not available.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Not a hazard under normal use conditions.

11. TOXICOLOGICAL INFORMATION

Skin Contact: Repeated skin contact with Titanium Dioxide may cause drying or cracking of the skin in sensitive individuals.
Inhalation: Short-term overexposure by inhalation to Titanium Dioxide may cause irritation of nose, throat, and lungs with cough, difficulty breathing or shortness of breath. Long-term inhalation of high concentrations of pigmentary (powdered) or ultrafine titanium dioxide may cause lung cancer, based on animal evidence.
Eye Contact: Contact with the product may cause eye irritation with discomfort, tearing, or blurring of vision.

Additional Information: A number of epidemiology studies evaluating >20,000 TiO2 industry workers in Europe and the United States have been reported. Workers employed for at least six months in TiO2 production were assessed using company records and quality controls, taking into account the different manufacturing procedures used at the sites as well as the actual relative levels of exposure to respirable TiO2. Exposure categories such as job site, title, and calendar years on the job were examined. Findings from each of the studies were similar, in that the authors concluded that the results did not suggest a carcinogenic effect of TiO2 dust on the human lung, and mortality from other chronic diseases, including other respiratory diseases, was not associated with exposure to TiO2 dust. Based upon the results of these studies, DuPont 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/m^3. Increased susceptibility to the effects of Amorphous Silica may be observed in persons with pre-existing disease of the lungs. Epidemiology studies do not suggest an increased risk of cancer in humans from exposure to titanium dioxide pigment.

Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Titanium Dioxide	Group 2B	A4
Amorphous Silica	Group 3	Not listed.
Aluminum Hydroxide	Not listed.	Not listed.

Carcinogenicity Comment: The International Agency for Research on Cancer (IARC) has determined that titanium dioxide is possibly carcinogenic to humans (Group 2B) based on inadequate evidence in humans and sufficient evidence in experimental animals. This conclusion relates to long-term inhalation exposure to high concentrations of pigmentary (powdered) or ultrafine titanium dioxide. The available human studies do not suggest an association between occupational exposure to titanium dioxide and risk for cancer. Four studies from North America and western Europe are available in the literature. The largest study showed a slightly increased risk of lung cancer in titanium dioxide production workers in 6 European countries compared to the general population. However, there was no evidence of an exposure-response relationship. No increase in the death rates for kidney cancer was found when the occupational exposure group was compared to the general population. The other studies, conducted in Canada and the US, did not report an increased risk of lung and/or kidney cancer. All of the studies had design limitations. Animal evidence shows that high concentrations of pigment-grade (powdered) and ultrafine titanium dioxide dust can cause respiratory tract cancer in rats exposed by inhalation and intratracheal instillation. The series of biological events or steps that produce the rat lung cancers (e.g. particle deposition, impaired lung clearance, cell injury, fibrosis, mutations and ultimately cancer) have also been seen in people working in dusty environments. Therefore, the observations of cancer in animals were considered by IARC as relevant to people doing jobs with exposures to titanium dioxide dust.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Not Available.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Titanium Dioxide	Not Available.	Not Available.	Not Available.
Amorphous Silica	LC50 96 h (Brachydanio rerio) 5000 mg/L static	Not Available.	EC50 72 h Pseudokirchneriella subcapitata 440 mg/L
Aluminum Hydroxide	Not Available.	Not Available.	Not Available.

Other Information:
No additional remark.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: Not Regulated.
DOT Hazardous Class Not Applicable.
DOT UN Number: Not Applicable.
DOT Packing Group: Not Applicable.
DOT Reportable Quantity (lbs): Not Available.
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: Not Regulated.
Hazard Class: Not Applicable.
UN Number: Not Applicable.
Packing Group: Not Applicable.
Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

Note: Not available.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Titanium Dioxide	Not Listed.	Not Listed.	Not Listed.
Amorphous Silica	Not Listed.	Not Listed.	Not Listed.
Aluminum Hydroxide	Not Listed.	Not Listed.	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

WHMIS Hazardous Class:
D2A VERY TOXIC MATERIALS

16. OTHER INFORMATION

Additional Information: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

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*****END OF MSDS*****