

# MATERIAL SAFETY DATA SHEET

## SECTION 1: PRODUCT IDENTIFICATION

|   |  |
|---|--|
| <b>MANUFACTURER</b><br><br>ISHIHARA SANGYO, KAISHA, LTD.<br>3-15 EDOBORI, 1-CHOME<br>NISHI-KU, OSAKA<br>JAPAN | <b>U. S. DISTRIBUTOR</b><br><br>ISHIHARA CORPORATION (U. S. A.)<br>601 MONTGOMERY ST., STE 1700<br>SAN FRANCISCO, CA 94108<br>(415) 421-8207 |
| <b>EMERGENCY TELEPHONE NUMBER : (800) 424-9300 (CHEMTREC)</b>   |  |

|                            |   |
|----------------------------|---|
| Chemical Name and Synonyms | Titanium Dioxide, Titanium White, Titania |
| Trade Name and Synonyms    | TIPAQUE R-630                             |
| C A S No.                  | 1 3 4 6 3 - 6 7 - 7                       |
| Chemical Family            | Inorganic Oxide                           |
| Formula                    | TiO <sub>2</sub>                          |

## SECTION 2: HAZARDOUS INGREDIENTS

| MATERIAL OR COMPONENT  | CAS. NO    | %         | PEL (OSHA)  | TLV (ACGIH)    |
|--|------------|-----------|---|----------------|
| Titanium Dioxide   | 13463-67-7 | Min. 94.0 | 15mg/cu. m. (total)<br>5mg/cu. m.<br>(Respirable) | 10mg/cu. m.    |
| Aluminum Hydroxide   | 21645-51-2 | Max. 4.0  | Non established                                   | 2mg(Al)/cu. m. |
| Titanium Dioxide is listed in Group 2B (Possibly Carcinogenic to human) by IARC. |            |           |   |                |

## SECTION 3: PHYSICAL DATA

|                                 |                |                       |                |
|---------------------------------|----------------|-----------------------|----------------|
| Appearance (Solid, Liquid, Gas) | Powder         | Boiling Point         | Not applicable |
| Color                           | White          | Specific Gravity      | 3.9 ~ 4.2      |
| Solubility in Water             | Insoluble      | Bulk Density          | 0.2 ~ 1.2      |
| Volatile by Volume              | Not applicable | Vapor Density (Air=1) | Not applicable |

SECTION 4 : FIRE AND EXPLOSION HAZARD DATA

|                                    |               |
|------------------------------------|---------------|
| Flash Point                        | Incombustible |
| Flammable Limits                   | Incombustible |
| Extinguishing Media                | Not required  |
| Special Fire Fighting Procedures   | Not required  |
| Unusual Fire and Explosion Hazards | None          |

SECTION 5 : HEALTH HAZARD DATA

|                                    |  |
|------------------------------------|--|
| Effects of Overexposure            | Irritating to respiratory system   |
| Emergency and First Aid Procedures | <p>Eye: Wash gently with water</p> <p>Skin: Wash with water and soap</p> <p>Inhalation: Remove Person from dust contaminated area</p> <p>Ingestion: In case of excessive ingestion, drink a quart or more of water, followed by a glass of milk and call physician</p> |

SECTION 6 : TOXICOLOGICAL INFORMATION

- (1) Skin Corrosion : No specific records available.
- (2) Irritants
  - Dermal : Very slight irritation to the skin could occur. 1)
  - Respiratory :Gross overexposure by inhalation may include mild and temporary upper respiratory irritation. 2)
- (3) Acute Toxicity
  - Oral Administration : LD<sub>50</sub> >12000mg/Kg in rats. 3), 4)
  - Intramuscular Injection : TDLo 360mg/Kg/2 years in rats. 5)
  - TD 260mg/Kg/84weeks in rats. 6)
  - Inhalation : No evidence of lung disease in humans and animals under long-term exposure to respirable TiO<sub>2</sub>. 7)
  - TCLo 250mg/m<sup>3</sup>/6Hrs/2years in rats. 8)
- (4) Chronic Toxicity
  - No specific signs of toxicity were observed in dogs, cats, rabbits and pigs after ingestion of TiO<sub>2</sub> over 390 days. 4)
- (5) Carcinogenicity
  - IARC : Group 2B (Possibly carcinogenic to humans) 7)
- (6) Mutagenic Activity
  - No literature available.

SECTION 7: SPECIAL PROTECTION INFORMATION

|   |  |
|---|--|
| Respiratory Protection<br>( Specify Type) | If exposure limits may be exceeded, use OSHA permissible respirator            |
| Protective Gloves                         | Optional : May be worn to protect skin if there is any drying effect from dust |
| Eye Protection                            | Safety glasses or goggles are suggested if dust is present                     |
| Other Protective Equipment                | Not required   |

SECTION 8: REACTIVITY DATA

|   |  |
|---|--|
| Stability                                       | Inert to most chemicals, reagents. Stable under all conditions |
| Incompatibility<br>(Materials to Avoid)         | None   |
| Hazardous decomposition<br>or byproducts        | None ( No Decomposition products)                              |
| Hazardous Polymerization<br>conditions to avoid | Will not occur<br>None   |

SECTION 9: PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled:

Use any feasible mechanical means to remove "spilled" material, such as broom, brush, scoop, vacuum, or wet absorbent materials, but avoid spreading dust during clean up.

Waste disposal method

Comply with Federal, State and local regulations

Precautions to be taken in handling and storing

Store in clean, dry place. Keep work area free of spill.  
Avoid ingestion as a common sense measure.

SECTION 10: SPECIAL PRECAUTIONS

|                             |   |
|-----------------------------|---|
| HMIS Rating                 |   |
| Health                      | 1 |
| Flammability                | 0 |
| Reactivity                  | 0 |
| Maximum Personal Protection | E |

## SECTION 11: REGULATORY INFORMATION

|   |  |
|---|--|
| T S C A   | All component are listed on TSCA inventory.  |
| TSCA 12b(Export)                                      | Notification not required.   |
| Canadian DSL  | All component are listed on DSL inventory.   |
| SARA III<br>Section 311<br>Section 312<br>Section 313 | No<br>No<br>No   |
| Calif. Proposition 65                                 | WARNING : This product contains a chemical known to the State of California to cause cancer. The listing of titanium dioxide (airborne, unbound particles of respirable size) is effective September 2, 2011. The listing does not cover titanium dioxide when it remains bound within a product matrix. |
| CERCLA RQ   | None   |
| IATA  | Not regulated  |
| DOT   | Not regulated  |

## REFERENCES

- 1) Cutaneous Toxicity V. A. Drill and P. Iasar. eds. , New York, Academic Press p127(1977)
- 2) TITANIUM DIOXIDE (Japan Titanium Dioxide Industry Association) P. 1 No62(1988)
- 3) FRAGRANCE JOURNAL P. 4 No80(1986)
- 4) IPCS Environmental Health Criteria 24. Titanium(1982)
- 5) Progress Report for Contract No. PH-43-64-886, Submitted to the National Cancer Institute by the Institute of Chemical Biology, University of San Francisco. , AUG(1968)
- 6) Progress Report for Contract No. PH-43-64-886, Submitted to the National Cancer Institute by the Institute of Chemical Biology, University of San Francisco. , AUG(1969)
- 7) IARC RECENTLY EVALUATED 「TITANIUM DIOXIDE」 5. SUMMERY OF DATA REPORTED POSTED 27 FEBRUARY 2006
- 8) Toxicology and Applied Phamacology, 79, p179(1985)

Although the information contained herein was believed to be accurate at the time of preparation, ISHIHARA SANGYO KAISYA makes no guarantees and assume no responsibility for how this information is used. Users of this product should independently research data that may be pertinent to their application.

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