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Material Safety Data Sheet

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SAFETY DATA SHEET

08/20/2001

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE
COMPANY/UNDERTAKING

YILLONG CHEMICAL GROUP LIMITED YueDa International Plaza, No 1118,
B/20H, Changshou Rd, Shanghai,
P. R. China, 200042

24 HOUR EMERGENCY RESPONSE NUMBER : +86-13775376769
For product information: +86-21-65266643

Product Name: TIONOX R935 - TIONOX R936 - TIONOX R937 - TIONOX R938 - TIONOX A100
Synonyms: Titanium (IV) Oxide; C.I. 77891; CAS No.: 13463-67-7 Molecular Weight:
79.87 Chemical Formula: TiO₂

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS No	Percent	Hazardous
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Titanium Dioxide	13463-67-7	99 - 100%	Yes

3. HAZARDS IDENTIFICATION

Emergency Overview

CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. MAY AFFECT LUNGS.

Health Rating: 3 - moderate
Flammability Rating: 0 - None
Reactivity Rating: 0 - None
Contact Rating: 3 - Moderate
Lab Protective Equip: GOGGLES; LAB COAT
Storage Color Code: Orange (General Storage)

Potential Health Effects

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Inhalation:

May cause mild irritation to the respiratory tract.

Ingestion:

Not expected to be a health hazard via ingestion.

Skin Contact:

May cause mild irritation and redness.

Eye Contact:

May cause mild irritation, possible reddening.

Chronic Exposure:

Long-term exposure to titanium dioxide dust may result in mild fibrosis (scarring of the lungs). Aggravation of Pre-existing Conditions:

Persons with pre-existing lung disease may be more susceptible to the effects of this substance.

4. FIRST-AID MEASURES

Inhalation:

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:

Not expected to require first aid measures. If large amounts were swallowed, give water to drink and get medical advice.

Skin Contact:

Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. FIRE FIGHTING MEASURES

Fire:

Not considered to be a fire hazard.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

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In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

7. HANDLING AND STORAGE

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Limits:

Titanium Dioxide:

- OSHA Permissible Exposure Limit (PEL) - 15 mg/m³ (TWA).
- ACGIH Threshold Limit Value (TLV) - 10 mg/m³ (TWA), A4 - Not classifiable as a human carcinogen. Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

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Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White Powder.
Odor:	Odorless.
Solubility:	Insoluble in water.
Specific Gravity:	4.26
pH:	ca. 6 - 7
% Volatiles by volume @ 21C (70F):	0
Boiling Point:	2500 - 3000C (4532 - 5432F)
Melting Point:	1855C (3371F)
Vapor Density (Air=1):	Not applicable.
Vapor Pressure (mm Hg):	Not applicable.
Evaporation Rate (BuAc=1):	No information found.

10. STABILITY AND REACTIVITY

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

No information found.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

For Titanium Dioxide: A violent reaction with lithium occurs around 200C (392F) with a flash of light; the temperature can reach 900C. Violent or incandescent reaction may also occur with other metals such as aluminum, calcium, magnesium, potassium, sodium, and zinc.

Conditions to Avoid:

Dusting and incompatibles.

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11. TOXICOLOGICAL INFORMATION

Toxicological Data:

No LD50/LC50 information found relating to normal routes of occupational exposure. Investigated as a tumorigen and mutagen.

Carcinogenicity:

NIOSH considers this substance to be a potential occupational carcinogen.

-----\Cancer Lists\-----

---NTP Carcinogen---

Ingredient	Known	Anticipated	IARC Category
Titanium Dioxide (13463-67-7)	Yes	Yes	3

12. ECOLOGICAL INFORMATION

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

Product is not classified for any mode of transportation.

15. REGULATORY INFORMATION

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
Titanium Dioxide (13463-67-7)	Yes	Yes	Yes	Yes

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-----\Chemical Inventory Status - Part 2\-----

Ingredient	--Canada--			
	Korea	DSL	NDSL	Phil.
Titanium Dioxide (13463-67-7)	Yes	Yes	No	No

-----\Federal, State & International Regulations - Part 1\-----

Ingredient	-SARA 302-		-----SARA 313-----	
	RQ	TPQ	List	Chemical Catg.
Titanium Dioxide (13463-67-7)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----

Ingredient	-RCRA-	-TSCA-	
	CERCLA	261.33	8 (d)
Titanium Dioxide (13463-67-7)	No	No	No

Chemical Weapons Convention: No
 TSCA 12(b): No
 CDTA: No
 SARA 311/312:
 Acute: Yes
 Chronic: Yes
 Fire: No
 Pressure: No
 Reactivity: No (Pure / Solid)

16. OTHER INFORMATION

NFPA Ratings: Health: 3 Flammability: 0 Reactivity: 0
 Label Hazard Warning: CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. MAY AFFECT LUNGS.
 Label Precautions:
 Avoid contact with eyes, skin and clothing.
 Wash thoroughly after handling.
 Avoid breathing dust.
 Keep container closed.
 Use with adequate ventilation.

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Label First Aid:

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 16.

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