

MATERIAL SAFETY DATA SHEET

MSDS Report

Date: 18th Jan 2011

1. Product and Company information

Product name : nanoYo (photo-catalytic coating liquid)
 Company name : nanoYo Japan Co., Ltd.
 Address : 52, Shimmachi, Hannan City, Osaka, Japan 599-0205
 Telephone : 8172-471-6067
 Fax : 8172-471-6217
 Email : bkaod409@rinku.zaq.ne.jp
 Emergency call : 8172-471-6067

2. Composition, ingredient information

Category as a single product/mixture: Mixture

Chemical	Chemical formula	Content (Wt %)
Titanium dioxide	T i O ₂	0.5
Isopropyl Alcohol	C ₃ H ₈ O	4.0
Water	H ₂ O	95.5

TiO₂: Titanium Dioxide

CAS No.: 13463-67-7

3. Summary of hazard and balefulness

Emergency Overview

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

<Danger information>

Safety : Stable under normal condition.
 Reactivity : no hazardous material.

<Balefulness information>

Acute toxicity : None.
 Balefulness : None.
 Environmental influence: None.

<Physical and chemical danger>

Stable under normal handling situations.

<Potential Health Effect>

Skin Contact:

May cause mild irritation, possible redness.

Eye Contact:

May cause mild irritation, possible reddening.

Inhalation:

May cause mild irritation to the respiratory skin.

Ingestion:

Not expected to be a health hazard via ingestion.

Chronic Exposure:

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

Aggravation of Pre-existing Conditions:

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

4. Emergency action

When contact with skin : Clean affected area with clean water. Get medical attention if irritation develops.

When contact with eye : Wash eyes using clean water. Get medical attention if irritation persists.

When inhale : Clean nose with water and gargle to dean throat by clean water. Get medical attention for any breathing difficulty.

When swallow : gargle with clean water and drink clean water. Get medical advice.

5. Fire

Flammability : None.

6. Accidental Leakage Measures

Small quantity : No particular treatment.

Large quantity : Ventilate area of leak or spill. Wash out with water.

7. Handling and Attention during Storage

Keep in a tightly closed container, stored in a cool, dry ventilated area, and avoid direct sunlight and rainwater.

8. Attention when disposing the product

No particular treatment needed.

9. Protection measures

Tools for protection : When it is scattered in the form of a mist during application of the product, it is desirable to wear a gauze mask and protective glasses for protection.

Protective clothes : Unnecessary during application.

Protective gloves : Unnecessary during application.

Airborne Exposure Limits:

Titanium Dioxide:

- OSHA Permissible Exposure Limit (PEL) - 15mg/m²(TWA)
- ACGIH Threshold Limit Value (TLV) - 10mg/m³ (TWA),A4 – Not classifiable as 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 detail.

Personal Respirators (NIOSH Approved)

If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to the 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 full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirator do not protect workers in oxygen-deficient atmospheres.

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 solution is possible. Maintain eye wash fountain and quick-drench facilities in work area.

10. Physical and chemical properties

Appearance	: Liquid
Boiling point	: 100 °C
Melting point	: _ °C
Specific gravity	: 1.0 (at 20 degrees Celsius)
Solubility	: It dissolves easily when water is added – any proportion

11. 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 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.

12. 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 TiO2 to be a potential occupational carcinogen.

13. Ecological Information

No negative effects are known.

14. Transport Information

No Hazardous

15. Relevant laws and regulations (TiO2)

----- Chemical Inventory Status – Part 1 -----

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

----- Chemical Inventory Status – Part 2 -----

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

----- Federal, States & International Regulations – Part 1 -----

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

----- Federal, States & 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

Australian Hazchem Code: No information found.

Position Schedule: No information found.

16. Other Information

Label Hazard Warning:

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

Label Precautions:

Avoid contact with eyes and skin.
Washing thoroughly after handling.
Avoid breathing mist.
Keep container closed.
Use with adequate ventilation.

Label First Aid:

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

Disclaimer:

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