

## MATERIAL SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Bis(cyclopentadienyl)titanium dichloride

Synonym(s): Titanocene dichloride

Product Code: NP-5870

General Use: Catalyst

Product Description: Not Available

MSDS Number: 5870EU060405

MANUFACTURER: Company Name: NICHIA CORPORATION

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IMPORTER/DISTRIBUTOR ESTABLISHED in EU

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IMPORTER/DISTRIBUTOR ESTABLISHED in Japan

(Company name) NICHIA CORPORATION TOKYO SALES OFFICE

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108-0014, JAPAN

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### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical formula:  $(C_5H_5)_2TiCl_2$

Component	Chemical name	Wt%	CAS Registry#	EINECS No.
$(C_5H_5)_2TiCl_2$	Bis(cyclopentadienyl)titanium dichloride	99.0	1271-19-8	215-035-9

### 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Causes eye and skin irritation. Causes digestive and respiratory tract irritation. Moisture sensitive.

POTENTIAL HEALTH EFFECTS:

Inhalation: Causes respiratory tract irritation.

Eye: Causes eye irritation.

Skin: Causes skin irritation.

Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea.

POTENTIAL ENVIRONMENTAL EFFECTS: No information available.

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### 4. FIRST AID MEASURES

**INHALATION:** Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

**EYE:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**SKIN:** Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

**INGESTION:** Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

**PROTECTION TO FIRST-AIDERS:** Treat symptomatically and supportively.

### 5. FIRE FIGHTING MEASURES

**FLAMMABLE PROPERTIES:** This product is nonflammable.

**EXTINGUISHING MEDIA:** Use water spray, dry chemical, carbon dioxide, or chemical foam.

**FIREFIGHTING INSTRUCTIONS:** Wear full fire fighting turn-out gear (full-bunker gear) and respiratory protection (self-contained breathing apparatus).

### 6. ACCIDENTAL RELEASE MEASURES

**LAND SPILL:** Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section.

**WATER SPILL:** After dissolving in Acid or Alkali, it must be neutralized. Titanium Hydroxide will settle on the bottom. It can be taken out as it is. It can also be burnt with flammable solvent to get Titanium Oxide. Either waste must be disposed in accordance with industrial waste regulations.

### 7. HANDLING AND STORAGE

**HANDLING:** Wash thoroughly after handling. Wash hands before eating. Use with adequate ventilation. Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes.

Avoid ingestion and inhalation.

**STORAGE:** Store in a cool, dry place. Store in a tightly closed container.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**EXPOSURE LIMIT VALUE:** Not Established.

**ACGIH:** Not Established.

#### EXPOSURE CONTROLS

##### OCCUPATIONAL EXPOSURE CONTROLS

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

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### Personal Protection

Respiratory Protection: Follow European Standard EN 149. Always use a European Standard EN 149 approved respirator when necessary.

Eye Protection: Safety glasses are required.

Skin Protection: Protective gloves are recommended.

Environmental Exposure Controls: No information found.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Appearance

Physical State: Solid

Color: red

Odor: Odorless

pH: Not available.

Melting Point: 289 - 291 deg C

Flash Point: Not available.

Flammability: Not available.

Specific Gravity: 1.596g/cm<sup>3</sup>(20 )

Solubility in Water: Reacts. 20g/L(25 )

### 10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Not available.

STABILITY: Stable under normal temperatures and pressures.

MATERIALS TO AVOID: Ignition sources, exposure to moist air or water.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, vanadium oxide (VOx) gases.

### 11. TOXICOLOGICAL INFORMATION

Acute Toxicity: ims-rat TD<sub>01</sub> : 720 mg/kg/2Y-I orl-rat TD<sub>01</sub> : 26 gm/kg/2Y-I i ms-mus

TD<sub>01</sub> : 75 mg/kg ims-rat TD : 900 mg/kg/2Y-I ims-r at TD : 430 mg/kg/81W-I

Eye Irritation: No information available.

Skin Irritation: No information available.

Sensitization: No information available.

Mutagenicity: No information available.

### 12. ECOLOGICAL INFORMATION

ECOTOXICITY: No information available.

PERSISTENCE AND DEGRADABILITY: No information available.

BIOACCUMULATIVE POTENTIAL: No information available.

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### 13. DISPOSAL CONSIDERATIONS

Comply with all EU, national and local regulations.

Do not dump this material into sewers, on the ground or into any body of water.

### 14. TRANSPORT INFORMATION:

#### LAND TRANSPORT

##### ADR, RID

Class: Not Applicable.

Packing Group(PG): Not Applicable.

UN Number: Not Applicable.

Proper Shipping Name: Not Applicable.

#### SEA TRANSPORT

##### IMDG

Class: Not Applicable.

Packing Group(PG): Not Applicable.

UN Number: Not Applicable.

Proper Shipping Name: Not Applicable.

Marine Pollutant: Not Applicable.

#### AIR TRANSPORT

##### ICAO/IATA

Class: Not Applicable.

Packing Group(PG): Not Applicable.

UN Number: Not Applicable.

Proper Shipping Name: Not Applicable.

### 15. REGULATORY INFORMATION

Please refer to any other EU, national and local measures.

### 16. OTHER INFORMATION

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