OMTI016 - BIS(PENTAMETHYLCYCLOPENTADIENYL)TITANIUM DICHLORIDE

BIS(PENTAMETHYLCYCLOPENTADIENYL)TITANIUM DICHLORIDE
Safety Data Sheet OMTI016
Date of issue: 02/19/2016 Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Physical state : Solid
Substance name : BIS(PENTAMETHYLCYCLOPENTADIENYL)TITANIUM DICHLORIDE
Product code : OMTI016
Formula : C20H30Cl2Ti
Synonyms : DECAMETHYLTIATANOCENE DICHLORIDE
Chemical family : METAL COMPOUND

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Chemical intermediate
For research use only

1.3. Details of the supplier of the safety data sheet

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification
Skin Irrit. 2 H315
Eye Irrit. 2A H319
Full text of H statements : see section 16

2.2. Label elements

GHS-US labelling
Hazard pictograms (GHS-US) : 

Signal word (GHS-US) : Warning
Hazard statements (GHS-US) : H315 - Causes skin irritation
H319 - Causes serious eye irritation
Precautionary statements (GHS-US) : P280 - Wear protective gloves/protective clothing/eye protection/face protection
P264 - Wash hands thoroughly after handling
P302+P352 - If on skin: Wash with plenty of soap and water
P332+P313 - If skin irritation occurs: Get medical advice/attention
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337+P313 - If eye irritation persists: Get medical advice/attention
P321 - Specific treatment (see first aid instructions on this label)
P362+P364 - Take off contaminated clothing and wash it before reuse

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Substance type : Mono-constituent
Name: BIS(PENTAMETHYL CYCLOPENTADIENYL)TITANIUM DICHLORIDE

CAS No: 11136-36-0

<table>
<thead>
<tr>
<th>Name</th>
<th>Product Identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
</table>
| Bis(pentamethylcyclopentadienyl)titanium dichloride | (CAS No) 11136-36-0 | 95 - 100 | Skin Irrit. 2, H315
|                                           |                    |        | Eye Irrit. 2A, H319         |

3.2. Mixture
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact: Wash with plenty of soap and water. Get medical advice/attention.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion: Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation: May cause irritation to the respiratory tract.

Symptoms/injuries after skin contact: Causes skin irritation.

Symptoms/injuries after eye contact: Causes serious eye irritation.

Symptoms/injuries after ingestion: May be harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media: None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard: Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Advice for firefighters

Firefighting instructions: Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment: Wear protective equipment as described in Section 8.

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection”.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up: Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.
SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Avoid contact with skin and eyes. Do not breathe dust. Avoid dust formation. Provide local exhaust or general room ventilation to minimize exposure to dust.

Hygiene measures: Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed.

Incompatible materials: Oxidizing agent.

Storage area: Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Exposure controls

Appropriate engineering controls: Provide local exhaust or general room ventilation.

Personal protective equipment: Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection: Neoprene or nitrile rubber gloves.

Eye protection: Chemical goggles. Contact lenses should not be worn.

Skin and body protection: Wear suitable protective clothing.

Respiratory protection: Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (teal cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Solid
Appearance: Crystalline solid.
Molecular mass: 389.23 g/mol
Color: Dark brown.
Odor: No data available
Odor threshold: No data available
Refractive index: No data available
pH: No data available
Relative evaporation rate (butyl acetate=1): No data available
Melting point: 190 °C decomposes
Freezing point: No data available
Boiling point: No data available
Flash point: > 110 °C
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): No data available
Vapor pressure: No data available
Relative vapor density at 20 °C: No data available
Relative density: > 1
VOC content: < 3 %
Solubility: Insoluble in water.
Log Pow: No data available
Log Kow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidizing properties: No data available
Explosion limits: No data available
### SECTION 10: Stability and reactivity

<table>
<thead>
<tr>
<th><strong>10.1. Reactivity</strong></th>
<th>No additional information available</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10.2. Chemical stability</strong></td>
<td>Stable in sealed containers.</td>
</tr>
<tr>
<td><strong>10.3. Possibility of hazardous reactions</strong></td>
<td>No additional information available</td>
</tr>
<tr>
<td><strong>10.4. Conditions to avoid</strong></td>
<td>Avoid high concentrations of dust.</td>
</tr>
<tr>
<td><strong>10.5. Incompatible materials</strong></td>
<td>Oxidizing agent.</td>
</tr>
</tbody>
</table>

### SECTION 11: Toxicological information

<table>
<thead>
<tr>
<th><strong>11.1. Information on toxicological effects</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
</tr>
<tr>
<td>Carcinogenicity</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
</tr>
<tr>
<td>Aspiration hazard</td>
</tr>
<tr>
<td>Symptoms/injuries after inhalation</td>
</tr>
<tr>
<td>Symptoms/injuries after skin contact</td>
</tr>
<tr>
<td>Symptoms/injuries after eye contact</td>
</tr>
<tr>
<td>Symptoms/injuries after ingestion</td>
</tr>
<tr>
<td>Reason for classification</td>
</tr>
</tbody>
</table>

### SECTION 12: Ecological information

<table>
<thead>
<tr>
<th><strong>12.1. Toxicity</strong></th>
<th>No additional information available</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>12.2. Persistence and degradability</strong></td>
<td>No additional information available</td>
</tr>
<tr>
<td><strong>12.3. Bioaccumulative potential</strong></td>
<td>No additional information available</td>
</tr>
<tr>
<td><strong>12.4. Mobility in soil</strong></td>
<td>No additional information available</td>
</tr>
<tr>
<td><strong>12.5. Other adverse effects</strong></td>
<td></td>
</tr>
<tr>
<td>Other adverse effects</td>
<td>This substance may be hazardous to the environment.</td>
</tr>
<tr>
<td>Effect on ozone layer</td>
<td>No additional information available</td>
</tr>
<tr>
<td>Effect on the global warming</td>
<td>No known ecological damage caused by this product.</td>
</tr>
</tbody>
</table>

### SECTION 13: Disposal considerations

<table>
<thead>
<tr>
<th><strong>13.1. Waste treatment methods</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewage disposal recommendations</td>
</tr>
<tr>
<td>Waste disposal recommendations</td>
</tr>
<tr>
<td>Ecology - waste materials</td>
</tr>
</tbody>
</table>
### SECTION 14: Transport information

14.1. UN number
Not regulated for transport.

14.2. UN proper shipping name
Not applicable

14.3. Additional information

Other information: No supplementary information available.

**Transport by sea**
No additional information available

**Air transport**
No additional information available

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

<table>
<thead>
<tr>
<th><strong>BIS(PENTAMETHYLICYCLOPENTADIENYL)TITANIUM DICHLORIDE (11136-36-0)</strong></th>
<th>CAUTION: This material is supplied for research and development purposes subject to the R&amp;D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a &quot;technically qualified individual&quot; as defined by 40 CFR 720.3(ee). The use of this material for &quot;commercial purposes&quot; as defined by 40 CFR 720.3(r) is not permitted in the United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA Exemption/Exclusion</td>
<td>Bis(pentamethylcyclopentadienyl)titanium dichloride (11136-36-0) Not listed on the United States TSCA (Toxic Substances Control Act) inventory</td>
</tr>
</tbody>
</table>

#### 15.2. International regulations

No additional information available

#### 15.3. US State regulations

<table>
<thead>
<tr>
<th><strong>BIS(PENTAMETHYLICYCLOPENTADIENYL)TITANIUM DICHLORIDE (11136-36-0)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California - Proposition 65 - Carcinogens List</td>
<td>No</td>
</tr>
<tr>
<td>U.S. - California - Proposition 65 - Developmental Toxicity</td>
<td>No</td>
</tr>
<tr>
<td>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</td>
<td>No</td>
</tr>
<tr>
<td>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</td>
<td>No</td>
</tr>
</tbody>
</table>

**Bis(pentamethylcyclopentadienyl)titanium dichloride (11136-36-0)**

<table>
<thead>
<tr>
<th>U.S. - California - Proposition 65 - Carcinogens List</th>
<th>U.S. - California - Proposition 65 - Developmental Toxicity</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</th>
<th>Non-significant risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

### SECTION 16: Other information

**Abbreviations and acronyms**

- ND: Not Determined, No Data
- NA: Not Applicable
- LD: Lethal Dose
- LC: Lethal Concentration
- ATE: Acute Toxicity Estimates
- H: hour
- °: °C unless otherwise stated
- mm: millimeters Hg, torr
- PEL: permissible exposure level
- TWA: time weighted average
- TLV: threshold limit value
- TG: Test Guideline
- NIOSH: National Institute for Occupational Safety and Health
- IARC: International Agency for Research on Cancer
- NTP: National Toxicology Program
- HMIS: Hazardous Material Information System
- CAS No.: Chemical Abstract Service Registration Number
- EC No.: European Commission Registration Number
- OECD: The Organisation for Economic Co-operation and Development

**Full text of H-phrases:**

- H315: Causes skin irritation
- H319: Causes serious eye irritation
HMIS III Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability : 1 Slight Hazard
Physical : 1 Slight Hazard

Prepared by safety and environmental affairs.

Date of issue: 02/19/2016 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

© 2016 Gelest Inc. Morrisville, PA 19067