1. IDENTIFICATION

Product name: Titanium(IV) Chloride (14% in Dichloromethane, ca. 1.0mol/L)
Product code: T2052
Product use: For laboratory research purposes.
Restrictions on use: Not for drug or household use.

Company: TCI America
9211 N. Harborgate Street
Portland, OR 97203 U.S.A.
Telephone: +1-800-423-8616 / +1-503-283-1681
Fax: +1-888-520-1075 / +1-503-283-1987
e-mail: sales-US@TCIchemicals.com
www.TCIchemicals.com

2. HAZARD(S) IDENTIFICATION

OSHA Haz Com: CFR 1910.1200:
WHMIS 2015:

Acute Toxicity - Oral [Category 3]
Eye Damage/Irritation [Category 1]
Carcinogenicity [Category 1B]
Specific Target Organ Toxicity (Single Exposure) [Category 1]
Specific Target Organ Toxicity (Repeated Exposure) [Category 1]
Specific Target Organ Toxicity (Repeated Exposure) [Category 2]
Aquatic Hazard (Acute) [Category 2]
Aquatic Hazard (Long-Term) [Category 2]
Skin Corrosion/Irritation [Category 1B]

Signal word: Danger!

Hazard Statement(s):
Toxic if swallowed
Causes severe skin burns and eye damage
May cause cancer
Toxic to aquatic life
Toxic to aquatic life with long lasting effects
Causes damage to: Respiratory System Central Nervous System
Causes damage to organs through prolonged or repeated exposure: Liver Central Nervous System
May cause damage to organs through prolonged or repeated exposure: Blood

Pictogram(s) or Symbol(s):

Precautionary Statement(s):

[Prevention]
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist, vapors or spray. Avoid release to the environment. Do not eat, drink or smoke when using this product. Wash hands and face thoroughly after handling. Wear protective gloves, protective clothing, face protection.

[Response]
If swallowed: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a poison center or doctor. Wash contaminated clothing before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center or doctor. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor. If exposed: Call a poison center or doctor. Collect spillage.

[Storage]
Store locked up.

[Disposal]
Dispose of contents and container in accordance with local, regional, national regulations (e.g. US: 40 CFR Part 261, EU:91/156/EEC, JP: Waste Disposal and Cleaning Act, etc.).
Titanium(IV) Chloride (14% in Dichloromethane, ca. 1.0mol/L)

Hazards not otherwise classified: May develop pressure

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

- **Substance/mixture:** Mixture
- **Components:** Titanium(IV) Chloride (14% in Dichloromethane, ca. 1.0mol/L)
- **Percent:** ....
- **CAS RN:** 7550-45-0
- **Molecular Weight:** 189.67
- **Chemical Formula:** TiCl₄
- **Synonyms:** Titanium Tetrachloride (14% in Dichloromethane, ca. 1.0mol/L)

### 4. FIRST-AID MEASURES

**Description of first aid measures**

- **Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
- **Skin contact:** Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/physician.
- **Eye contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
- **Ingestion:** Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Do NOT induce vomiting.

**Symptoms/effects:**

- **Acute:** Dizziness. Pain. Redness. Drowsiness.
- **Delayed:** Possibly carcinogenic to humans.

**Indication of any immediate medical attention:** Not available.

**Notes to physician:** No data available

### 5. FIRE-FIGHTING MEASURES

- **Suitable extinguishing media:** Dry chemical, carbon dioxide.
- **Unsuitable extinguishing media:** Water
- **Hazardous combustion products:** These products include: Halogenated compounds Metallic oxides
- **Other specific hazards:** WARNING: Highly toxic HCl gas is produced during combustion.

**Advice for firefighters:** Wear self-contained breathing apparatus if possible.

### 6. ACCIDENTAL RELEASE MEASURES

- **Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.
- **Environmental precautions:** Be careful not to let it flow into rivers, etc., since adverse effects on the environment are concerned.
- **Methods and materials for containment and cleaning up:** Absorb spilled material in a suitable absorbent (e.g. rag, dry sand, earth, saw-dust). In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
- **Prevention of secondary hazards:** Do not allow contact with water. Remove all sources of ignition. Fire-extinguishing devices should be prepared in case of a fire. Use spark-proof tools and explosion-proof equipment.

### 7. HANDLING AND STORAGE

- **Precautions for safe handling:** Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent generation of vapour or mist. Wash hands and face thoroughly after handling. Use a closed system if possible. Use a ventilation, local exhaust if vapour or aerosol will be generated. Avoid all contact! May develop pressure. Open carefully.
- **Conditions for safe storage, including any incompatibilities**
  - **Storage conditions:** Keep container tightly closed. Store in a refrigerator. Store under inert gas. Protect from moisture. Store locked up. Store away from incompatible materials such as oxidizing agents. Heat-sensitive Moisture-sensitive
  - **Packaging material:** Comply with laws.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: (Dichloromethane)
ACGIH TLV(TWA): 50 ppm

Appropriate engineering controls: Follow safe industrial engineering/laboratory practices when handling any chemical. Install a closed system or local exhaust. Also install safety shower and eye bath.

Personal protective equipment

Respiratory protection: Half or full facepiece respirator, self-contained breathing apparatus (SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.

Hand protection: Impervious gloves.

Eye protection: Safety goggles. A face-shield, if the situation requires.

Skin and body protection: Impervious protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid
Form: Clear
Colour: Colorless - Reddish yellow
Odour: Characteristic
Odor threshold: No data available
Odour threshold: No data available

Melting point/freezing point:
(Dichloromethane) -95°C
Boiling point/range:
(Dichloromethane) 39°C
Decomposition temperature:
No data available
Relative density:
1.37
Kinematic viscosity:
No data available
Log Pow:
No data available
Log Pow:
(Dichloromethane) 1.25
Flash point:
No data available
Flammability(solid, gas):
No data available
Solubility(ies):
[Water] No data available
[Other solvents] No data available

pH: No data available
Vapour pressure: No data available.
Vapour density: No data available
Dynamic Viscosity: No data available
Evaporation rate(Butyl Acetate=1): No data available
Autoignition temperature: No data available
Flammability or explosive limits:
Lower: No data available
Upper: No data available

10. STABILITY AND REACTIVITY

Reactivity: No data available
Chemical stability: Stable under proper conditions.
Possibility of hazardous reactions: Decomposes in contact with water and liberates toxic gases.
Conditions to avoid: Moisture
Incompatible materials: Oxidizing agents, Strong bases, Light metals
Hazardous decomposition products: Carbon monoxide, carbon dioxide etc
11. TOXICOLOGICAL INFORMATION

Acute Toxicity:
No data available

Skin corrosion/irritation:
No data available

Serious eye damage/irritation:
No data available

Respiratory or skin sensitization:
No data available

Germ cell mutagenicity:
No data available

Carcinogenicity:
No data available

IARC: No data available  NTP: No data available  OSHA: No data available

Reproductive toxicity:
No data available

Target organ(s):
Causes damage to: Respiratory System Central Nervous System
Causes damage to organs through prolonged or repeated exposure: Liver Central Nervous System
May cause damage to organs through prolonged or repeated exposure: Blood

12. ECOLOGICAL INFORMATION

Ecotoxicity:
Fish: No data available
Crustacea: No data available
Algae: No data available

Persistence / degradability: No data available
Bioaccumulative potential (BCF): No data available
Mobility in soil
Log Pow: No data available
Soil adsorption (Koc): No data available
Henry’s Law (PaM^3/mol): No data available

13. DISPOSAL CONSIDERATIONS

Disposal of product: Recycle to process if possible. It is the generator’s responsibility to comply with Federal, State and Local rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.

Disposal of container: Dispose of as unused product. Do not re-use empty containers.

Other considerations: Observe all federal, state and local regulations when disposing of the substance.
14. TRANSPORT INFORMATION

DOT (US)

<table>
<thead>
<tr>
<th>UN number</th>
<th>Proper Shipping Name</th>
<th>Class or Division</th>
<th>Subrisk(s)</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN3289</td>
<td>Toxic liquid, corrosive, inorganic, n.o.s</td>
<td>6.1 Toxic material.</td>
<td>8 Corrosive material</td>
<td>II</td>
</tr>
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IATA

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IMDG

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</tr>
</tbody>
</table>

EmS number: F-A, S-B

15. REGULATORY INFORMATION

Toxic Substance Control Act (TSCA 8b.):
This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

US Federal Regulations

CERCLA Hazardous substance and Reportable Quantity:
- SARA 313: Listed
- SARA 302: Listed

State Regulations

State Right-to-Know
- Massachusetts: Listed
- New Jersey: Listed
- Pennsylvania: Listed

California Proposition 65: Not Listed

Other Information

NFPA Rating: Health: 4, Flammability: 0, Instability: 0
HMIS Classification: Health: 4, Flammability: 0, Physical: 2

International Inventories

Canada: DSL On DSL
EC-No: 231-441-9

16. OTHER INFORMATION

Revision date: 07/06/2018
Revision number: 1

TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.