Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Product name: TMCS
Product No.: 0088531 0088530

Supplier: In USA:
Pierce
P.O. Box 117
Rockford, IL 61105
USA
815.968.0747 or 1.800.674.3723

In Europe:
Perbio Science
Industriekzone III
Industrielaan 27
9320 Erembodegem-Aalst
Belgium
Tel:+32 53 83 44 04
Fax:+32 53 83 76 38

Manufacturer: Pierce Biotechnology
P.O. Box 117
Rockford, IL 61105
USA
815.968.0747 or 1.800.674.3723

In Case of Emergency:
CALL CHEMTREC:
800.424.9300
OUTSIDE US:
202.483.7616

Synonyms: Trimehtylchlorosilane

Intended Use: Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

Section 2. Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS No.</th>
<th>%</th>
<th>EC Number</th>
<th>Symbol</th>
<th>R-Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) TMCS</td>
<td>75-77-4</td>
<td>98-100</td>
<td>200-900-5</td>
<td>F, C</td>
<td>R11, R14, R35</td>
</tr>
</tbody>
</table>

Section 3. Hazards Identification

United States:
Review the most current and approved institutional guideline, protocol, standard operating procedure(s) and MSDS(s) for the proper handling of institutional materials/equipment associated with the use of this product.

Emergency Overview:
DANGER!
CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: LUNGS, NERVOUS SYSTEM.
MAY BE HARMFUL IF ABSORBED THROUGH SKIN.
Spillage may cause fire or liberate poisonous gas.
Do not get in eyes, on skin or on clothing. Avoid prolonged contact with eyes, skin, and clothing. Do not breathe vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Routes of Entry:
Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects:
Hazardous in case of skin contact (corrosive), of eye contact (corrosive), of ingestion, of inhalation (lung corrosive).
Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath.

Carcinogenic Effects Data:
CARCINOGENIC EFFECTS: Classified None. by NIOSH.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.

Medical Conditions Aggravated by Overexposure:
Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Overexposure / Signs / Symptoms:
Not available.

Classification: R11, R14, R35

Continued on Next Page
Section 4. First Aid Measures

Notice to Reader: Get immediate medical attention.

Effects and symptoms:
- **Inhalation**: Hazardous in case of inhalation (lung corrosive). Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Over-exposure by inhalation may cause respiratory irritation.
- **Ingestion**: May be fatal if swallowed. May cause burns to mouth, throat, and stomach.
- **Skin Contact**: Hazardous in case of skin contact (corrosive). Skin contact may produce burns.
- **Eye Contact**: Hazardous in case of eye contact (corrosive).

Aggravating conditions: Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

First-Aid Measures:
- **Inhalation**: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
- **Ingestion**: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.
- **Skin Contact**: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
- **Eye Contact**: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

Notes to Physician:
Not available.

Protection of first-aiders:
Not available.

Section 5. Fire Fighting Measures

Flammability of the Product: Flammable.

Flash Points: CLOSED CUP: -17.8°C (0°F). OPEN CUP: -7°C (19.4°F).

Fire Hazards in Presence of Various Substances:
Not available.

Fire Fighting Media and Instructions:
- Flammable liquid.
- SMALL FIRE: Use DRY chemical powder.
- LARGE FIRE: Use alcohol foam, water spray or fog.

Protective Clothing (Fire):
Be sure to use an approved/certified respirator or equivalent.

Special Remarks on Fire Hazards:
- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- Vapors form explosive mixtures with air: indoors, outdoors, and sewers explosion hazards.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapors may travel to source of ignition and flash back.
- Substance will react with water (some violently) releasing flammable, toxic or corrosive gases and runoff.
- Contact with metals may evolve flammable hydrogen gas.
- Containers may explode when heated or if contaminated with water.

Hazardous thermal (de)composition products:
These products are carbon oxides (CO, CO2), halogenated compounds. Some metallic oxides.
Section 6. Accidental Release Measures

**Personal precautions**  

**Environmental Precautions and Clean-up Methods**  
Flammable liquid. Corrosive liquid.  
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

**Small Spill and Leak**  
Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Section 7. Handling and Storage

**Handling**  
Avoid prolonged contact with eyes, skin, and clothing. Do not breathe vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

**Storage**  
Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep from any possible contact with water. Do not allow water to get into container because of violent reaction.

**Intended Use**  
Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

**Packaging materials**  
Suitable / Not suitable  
Use original container.

Section 8. Exposure Controls/Personal Protection

**Engineering Controls**  
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Exposure Limit Values**

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>Occupational Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>United States</strong></td>
<td></td>
</tr>
<tr>
<td>1) TMCS</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Sweden</strong></td>
<td></td>
</tr>
<tr>
<td>1) TMCS</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Denmark</strong></td>
<td></td>
</tr>
<tr>
<td>1) TMCS</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Norway</strong></td>
<td></td>
</tr>
<tr>
<td>1) TMCS</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>France</strong></td>
<td></td>
</tr>
<tr>
<td>1) TMCS</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Netherlands</strong></td>
<td></td>
</tr>
<tr>
<td>1) TMCS</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Germany</strong></td>
<td></td>
</tr>
<tr>
<td>1) TMCS</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Personal Protection**

- **Eyes**  
  Splash goggles.

- **Body**  
  Lab coat.

*Continued on Next Page*
Section 9. Physical and Chemical Properties

Physical State and Appearance
- Liquid.
- Colorless.

Molecular Weight
- 108.64 g/mole

Molecular Formula
- C₇H₆ClSi

Boiling/Condensation Point
- 56.9°C (134.4°F)

Melting/Freezing Point
- -40.1°C (-40.2°F)

Specific Gravity
- 0.846 (Water = 1)

Vapor Pressure
- 13.3 kPa (@ 20°C)

Vapor Density
- 3.75 (Air = 1)

Dispersion Properties
- Not available.

Solubility
- Not available.

Odor
- Irritant. Acidic. (Strong.)

Taste
- COLORLESS LIQUID WITH A SHARP IRRITATING ODOR

Color
- Colorless.

Section 10. Stability and Reactivity

Stability and Reactivity
- The product is stable.

Conditions to avoid
- Moisture reactive material.

Materials to avoid
- Highly reactive with moisture. Reactive with oxidizing agents, acids, alkalis.

Hazardous Polymerization
- The product reacts violently with water to emit flammable but non toxic gases. Will not occur.

Hazardous Decomposition Products
- These products are carbon oxides (CO, CO₂), halogenated compounds. Some metallic oxides.

Section 11. Toxicological Information

Toxicity to Animals
- Acute oral toxicity (LD₅₀): 4789 mg/kg [Rat].
- Acute dermal toxicity (LD₅₀): 1506 mg/kg [Rabbit].

Chronic Effects on Humans
- CARCINOGENIC EFFECTS: Classified None. by NIOSH. Causes damage to the following organs: lungs, the nervous system.

Other Toxic Effects on Humans
- Hazardous in case of eye contact (corrosive), of ingestion, of inhalation (lung corrosive).

Special Remarks on Toxicity to Animals
- Not available.

Special Remarks on Chronic Effects on Humans
- Not available.

Special Remarks on Other Toxic Effects on Humans
- Not available.
Section 12. Ecological Information

Mobility: Not available.
Persistence/ degradability: Not available.
Bioaccumulative potential: Not available.
Ecotoxicity: Ecotoxicity in water (LC50): 100 to 10 ppm 96 hours [Fish].
Germany water class: VCI WGK: No products were found.

Section 13. Disposal Considerations

Waste Information: Type: Hazardous chemical waste.
Location: not available
Classification: not available
Disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Storage: not available
Recycling: not available
Waste Stream: Not available.

Consult your local or regional authorities.

Section 14. Transport Information

Contact the supplier for all information regarding the proper transportation method for this material.

Section 15. Regulatory Information

Label Requirements (Europe):
- R11: Highly flammable.
- R14: Reacts violently with water.
- R35: Causes severe burns.
- S16: Keep away from sources of ignition - No smoking.
- S27: Take off immediately all contaminated clothing.
- S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

HCS Classification: Flammable liquid having a flash point lower than 37.8°C (100°F).
Corrosive material

U.S. Federal Regulations:
- TSCA 8(b) inventory: TMCS
- TSCA 8(d) H and S data reporting: TMCS
- SARA 302/304 311/312 extremely hazardous substances: TMCS
- SARA 302/304 emergency planning and notification: TMCS
- SARA 302/304 311/312 hazardous chemicals: TMCS
- SARA 311/312 MSDS distribution - chemical inventory - hazard identification: TMCS: fire, reactive, immediate health hazard, delayed health hazard
- SARA 313 toxic chemical notification and release reporting: TMCS
- Clean Water Act (CWA) 307: No products were found.
- Clean Water Act (CWA) 311: No products were found.

Continued on Next Page
Clean air act (CAA) 112 accidental release prevention: TMCS
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: TMCS

WHMIS (Canada)
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
CLASS E: Corrosive liquid.

CEPA DSL: TMCS

International Regulations

EINECS: Not available.

DSCL (EEC)
R11- Highly flammable.
R14- Reacts violently with water.
R35- Causes severe burns.

International Lists
Australia (NICNAS): TMCS

Korea (TCCCL): TMCS

Philippines (RA6699): TMCS

State Regulations
Pennsylvania RTK: TMCS: (environmental hazard, generic environmental hazard)
Massachusetts RTK: TMCS
New Jersey: TMCS
California prop. 65: No products were found.

Section 16. Other Information

Hazardous Material Information System (U.S.A.)

Health

Fire Hazard

Reactivity

Personal Protection

National Fire Protection Association (U.S.A.)

Fire Hazard

Reactivity

Specific Hazard

References
Not available.

History of Document Changes
Any information changes since last document version are marked with a triangle symbol.
Causes severe burns.

Intended Use
Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

Validated by Pierce Administration on 11/6/2002.

Verified by Pierce Administration.

Date of Previous Issue No Previous Validation


Version 0.01

Notice to Reader
To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its 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 materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.