1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.  Emergency Contact:
150 Allen Road Suite 302 CHEMTREC 1-800-424-9300
Basking Ridge, New Jersey 07920 Calls Originating Outside the US:
Information: 1-800-416-2505 703-527-3887 (Collect Calls Accepted)

SUBSTANCE: TRICHLOROSILANE

TRADE NAMES/SYNONYMS:
MTG MSDS 83; SILICOCHLOROFORM; TRICHLOROMONOSILANE; SILICON CHLORIDE HYDRIDE; UN 1295; CL3HSI; MAT23890; RTECS VV5950000

CHEMICAL FAMILY: hydrides

PRODUCT USE: industrial

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: TRICHLOROSILANE
CAS NUMBER: 10025-78-2
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3  FIRE=4  REACTIVITY=2

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: fuming liquid
ODOR: irritating odor
MAJOR HEALTH HAZARDS: harmful if inhaled, respiratory tract burns, skin burns, eye burns, mucous membrane burns
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. May react on contact with air, heat, light or water.
POTENTIAL HEALTH EFFECTS:

INHALATION:
SHORT TERM EXPOSURE: burns, difficulty breathing, headache, dizziness, bluish skin color, lung congestion
LONG TERM EXPOSURE: digestive disorders

SKIN CONTACT:
SHORT TERM EXPOSURE: burns
LONG TERM EXPOSURE: same as effects reported in short term exposure

EYE CONTACT:
SHORT TERM EXPOSURE: burns, blurred vision
LONG TERM EXPOSURE: same as effects reported in short term exposure

INGESTION:
SHORT TERM EXPOSURE: burns, vomiting, diarrhea
LONG TERM EXPOSURE: same as effects reported in short term exposure

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. Give large amounts of water or milk. Allow vomiting to occur. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

NOTE TO PHYSICIAN: For inhalation, consider oxygen. Avoid gastric lavage or emesis.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. May ignite on exposure to air.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

FIRE FIGHTING: Do not get water inside container. Do not scatter spilled material with high-pressure
water streams. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks.

**FIRE FIGHTING PROTECTIVE EQUIPMENT:** Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

**FLASH POINT:** 7 F (-14 C) (CC)  
**LOWER FLAMMABLE LIMIT:** 1.2%  
**UPPER FLAMMABLE LIMIT:** 90.5%  
**AUTOIGNITION:** 219 F (104 C)  
**FLAMMABILITY CLASS (OSHA):** IA

---

### 6. ACCIDENTAL RELEASE MEASURES

**OCCUPATIONAL RELEASE:**  
Avoid contact with combustible materials. Do not touch spilled material. Do not get water inside container. Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material. Only personnel trained for the hazards of this material should perform clean up and disposal. Dike for later disposal. Do not use water. Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.

### 7. HANDLING AND STORAGE


**HANDLING:** Do not breathe gas, fumes, vapor, or spray. Wash thoroughly after handling. When using, do not eat, drink or smoke.

### 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

**EXPOSURE LIMITS:**  
**TRICHLOROSILANE:**  
No occupational exposure limits established.

**VENTILATION:** Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**EYE PROTECTION:** Wear splash resistant safety goggles with a faceshield. Provide an emergency eye
CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid
COLOR: colorless
PHYSICAL FORM: fuming liquid
ODOR: irritating odor
MOLECULAR WEIGHT: 135.45
MOLECULAR FORMULA: Cl₃-H-Si
BOILING POINT: 90 F (32 C)
FREEZING POINT: -197 F (-127 C)
DECOMPOSITION POINT: Not available
VAPOR PRESSURE: 400 mmHg @ 15 C
VAPOR DENSITY (air=1): 4.7
SPECIFIC GRAVITY (water=1): 1.3
WATER SOLUBILITY: reacts
PH: acidic in solution
VOLATILITY: Not available
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not available
VISCOSITY: 0.397 cP @ 0 C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: benzene, ether, heptane, chloroform, carbon tetrachloride
10. STABILITY AND REACTIVITY

REACTIVITY: May react violently with water at normal temperature and pressure. May ignite on exposure to air.

CONDITIONS TO AVOID: Avoid contact with water. Avoid contact with air. Dangerous gases may accumulate in confined spaces. Keep out of water supplies and sewers.

INCOMPATIBILITIES: combustible materials, amines, oxidizing materials, peroxides, metals

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: chlorine, hydrogen chloride

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

TRICHLOROSILANE:
TOXICITY DATA: 1 gm/m3 inhalation-mammal LC50; 1030 mg/kg oral-rat LD50
LOCAL EFFECTS:
Corrosive: inhalation, skin, eye, ingestion
ACUTE TOXICITY LEVEL:
Highly Toxic: inhalation
Moderately Toxic: ingestion
TARGET ORGANS: respiratory system
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory disorders

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: No data available.

INVERTEBRATE TOXICITY: No data available.

ALGAL TOXICITY: No data available.

FATE AND TRANSPORT:
BIODEGRADATION: No data available.

BIOCONCENTRATION: This material is not believed to bioconcentrate.
13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. D003.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Trichlorosilane
ID NUMBER: UN1295
HAZARD CLASS OR DIVISION: 4.3
PACKING GROUP: I
LABELING REQUIREMENTS: 4.3; 3; 8
QUANTITY LIMITATIONS:
PASSENGER AIRCRAFT OR RAILCAR: Forbidden
CARGO AIRCRAFT ONLY: Forbidden

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Trichlorosilane
UN NUMBER: UN1295
CLASS: 4.3; 3; 8
PACKING GROUP/CATEGORY: I

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.


SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: No
FIRE: Yes
REACTIVE: Yes
SUDDEN RELEASE: No

OSHA PROCESS SAFETY (29 CFR 1910.119):  
TRICHLOROSILANE: 5000 LBS TQ

STATE REGULATIONS:  
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:  
WHMIS CLASSIFICATION: ABD1EF

NATIONAL INVENTORY STATUS:  
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

“RTECS®” is a United States trademark owned and licensed under authority of the U.S. Government, by and through Symyx Software, Inc. Portions ©Copyright 2001, U.S. Government. All rights reserved.

©Copyright 1984-2009 ChemADVISOR, Inc. All rights reserved.

MATHESON TRI-GAS, INC. MAKES NO EXPRESS OR IMPLIED WARRANTIES, GUARANTEES OR REPRESENTATIONS REGARDING THE PRODUCT OR THE INFORMATION HEREIN, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR USE. MATHESON TRI-GAS, INC. SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY, PROPERTY OR OTHER DAMAGES OF ANY NATURE, WHETHER COMPENSATORY, CONSEQUENTIAL, EXEMPLARY, OR OTHERWISE, RESULTING FROM ANY PUBLICATION, USE OR RELIANCE UPON THE INFORMATION HEREIN.