# MATERIAL SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**MATHESON TRI-GAS, INC.**
**150 Allen Road Suite 302**
**Basking Ridge, New Jersey 07920**
**Information: 1-800-416-2505**

**Emergency Contact:**
**CHEMTREC 1-800-424-9300**
**Calls Originating Outside the US:**
**703-527-3887 (Collect Calls Accepted)**

### SUBSTANCE: DICHLOROSILANE

**TRADE NAMES/SYNONYMS:**
MTG MSDS 27; DICHLOROSILICANE; UN 2189; MAT06970; RTECS VV3050000

**CHEMICAL FAMILY:** silicon, hydrides

**CREATION DATE:** Jan 24 1989
**REVISION DATE:** Sep 13 2007

## 2. COMPOSITION, INFORMATION ON INGREDIENTS

**COMPONENT:** DICHLOROSILANE
**CAS NUMBER:** 4109-96-0
**PERCENTAGE:** 100.0

## 3. HAZARDS IDENTIFICATION

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

**EMERGENCY OVERVIEW:**
**COLOR:** colorless
**PHYSICAL FORM:** gas
**ODOR:** irritating odor
**MAJOR HEALTH HAZARDS:** respiratory tract burns, skin burns, eye burns, mucous membrane burns
**PHYSICAL HAZARDS:** Flammable gas. May cause flash fire. May polymerize. Containers may rupture or explode. 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:** irritation (possibly severe)
**LONG TERM EXPOSURE:** same as effects reported in short term exposure
**INGESTION:**
**SHORT TERM EXPOSURE:** burns
**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 and shoes 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:** If a large amount is swallowed, get medical attention.

**NOTE TO PHYSICIAN:** For inhalation, consider oxygen.

## 5. FIRE FIGHTING MEASURES

**FIRE AND EXPLOSION HAZARDS:** Severe fire hazard. Gas/air mixtures are explosive. The gas is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

**EXTINGUISHING MEDIA:** carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

**FIRE FIGHTING:** 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. For fires in cargo or storage area: If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first.

Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Do not get water directly on material. Large fires: Flood with fine water spray. Reduce vapors with water spray. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

**FLASH POINT:** -35 F (-37 C)
**LOWER FLAMMABLE LIMIT:** 4.1%
**UPPER FLAMMABLE LIMIT:** 99%
**AUTOIGNITION:** 136 F (58 C)

## 6. ACCIDENTAL RELEASE MEASURES

**OCCUPATIONAL RELEASE:**
Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water inside container. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry.

## 7. HANDLING AND STORAGE

**STORAGE:** Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances.

## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

**EXPOSURE LIMITS:**
**DICHLOROSILANE:**
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 wash fountain and quick drench shower in the immediate work area.

**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.

**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:** gas
**COLOR:** colorless
**ODOR:** irritating odor
**MOLECULAR FORMULA:** H2-SI-CL2
**BOILING POINT:** 46 F (8 C)
**FREEZING POINT:** -188 F (-122 C)
**VAPOR PRESSURE:** 1.7 atm @ 20 C
**VAPOR DENSITY (air=1):** 3.5
**SPECIFIC GRAVITY (water=1):** 1.2
**WATER SOLUBILITY:** reacts
**PH:** acidic in solution
**VOLATILITY:** Not applicable
**ODOR THRESHOLD:** Not available
**EVAPORATION RATE:** Not applicable
**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not applicable
**SOLVENT SOLUBILITY:**
**Soluble:** benzene, carbon tetrachloride, ether

## 10. STABILITY AND REACTIVITY

**REACTIVITY:** May polymerize violently or explosively. Avoid contact with incompatible materials.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Keep out of water supplies and sewers.

**INCOMPATIBILITIES:** combustible materials, halo carbons, oxidizing materials

**HAZARDOUS DECOMPOSITION:**
Thermal decomposition products: acid halides, halogenated compounds, crystalline silica, acid halides, oxides of silicon

**POLYMERIZATION:** May polymerize violently or explosively. Avoid contact with incompatible materials.

## 11. TOXICOLOGICAL INFORMATION

**DICHLOROSILANE:**
**TOXICITY DATA:** 215 ppm inhalation-rat LC50
**LOCAL EFFECTS:**
Corrosive: inhalation, skin, eye, ingestion
**ACUTE TOXICITY LEVEL:**
Toxic: inhalation

## 12. ECOLOGICAL INFORMATION

Not available

## 13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

## 14. TRANSPORT INFORMATION

**U.S. DOT 49 CFR 172.101:**
**PROPER SHIPPING NAME:** Dichlorosilane
**ID NUMBER:** UN2189
**HAZARD CLASS OR DIVISION:** 2.3
**LABELING REQUIREMENTS:** 2.3; 2.1; 8
**QUANTITY LIMITATIONS:**
**PASSENGER AIRCRAFT OR RAILCAR:** Forbidden
**CARGO AIRCRAFT ONLY:** Forbidden
**ADDITIONAL SHIPPING DESCRIPTION:** Toxic-Inhalation Hazard Zone B

**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**
**SHIPPING NAME:** Dichlorosilane
**UN NUMBER:** UN2189
**CLASS:** 2.3; 2.1; 8

## 15. REGULATORY INFORMATION

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

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):** Not

regulated.

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):** Not regulated.

**SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):**
ACUTE: Yes
CHRONIC: No
FIRE: Yes
REACTIVE: Yes
SUDDEN RELEASE: Yes

**SARA TITLE III SECTION 313 (40 CFR 372.65):** Not regulated.

**OSHA PROCESS SAFETY (29CFR1910.119):**
**DICHLOROSILANE:** 2500 LBS TQ

**STATE REGULATIONS:**
**California Proposition 65:** Not regulated.

**CANADIAN REGULATIONS:**
**WHMIS CLASSIFICATION:** ABD1F

**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

**MSDS SUMMARY OF CHANGES**
8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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