

Section 1: Product and Company Identification

Middlesex Gases & Technologies

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Product Code: Dichlorosilane

Section 2: Hazards Identification



Danger

Hazard Classification:

Acute Gas Inhale Toxicity (Category 2)
Gases Under Pressure
Skin Corrosion (Category 1.B)

Hazard Statements:

Causes severe skin burns and eye damage
Contains gas under pressure; may explode if heated
Fatal if inhaled

Precautionary Statements

Prevention:

Wash thoroughly after handling.
Do not breathe dust/fume/gas/mist/ vapors/spray..
Use only outdoors or in a well-ventilated area.
[In case of inadequate ventilation] wear respiratory protection.
Wear protective gloves, protective clothing, eye protection and face protection.

Response:

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Immediately call a poison center or doctor.
Specific treatment is urgent.
If swallowed: Rinse mouth. Do NOT induce vomiting.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If inhaled: Remove person to fresh air and keep comfortable for breathing.

Storage:

Store in a well-ventilated place. Keep container tightly closed.
Protect from sunlight.
Store locked up.

Disposal:

Dispose of contents and/or container in accordance with applicable regulations.

Section 3: Composition/Information on Ingredients

CAS #

4109-96-0

Chemical Substance	Chemical Family	Trade Names
DICHLOROSILANE	silicon, hydrides	DICHLOROSILICANE; UN 2189

Section 4: First Aid Measures

Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
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.	Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	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.	For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
If safe to do so, stop the flow of gas. Let fire burn if gas flow cannot be stopped. Otherwise, carbon dioxide, regular dry chemical. Avoid, water, most foams, halocarbons, dry chemical extinguishers, cationic and anionic surfactants.	Thermal decomposition forms silane, chlorosilane, silicon, hydrogen chloride gas and hydrogen gas.	<ul style="list-style-type: none"> ▪ Respiratory protection may be needed for frequent or heavy exposure. Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. ▪ Respiratory protection may be needed for frequent or heavy exposure.

Section 6: Accidental Release Measures

Personal Precautions	Environmental Precautions	Methods for Containment
Keep unnecessary people away, isolate hazard area and deny entry. Do not touch spilled material.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water inside container. Remove sources of ignition.

Methods for Cleanup	Other Information
Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal.	None

Section 7: Handling and Storage

Handling	Storage
Store and handle in accordance with all current regulations and standards.	Keep separated from incompatible substances.

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines
DICHLOROSILANE: No occupational exposure limits established.

Engineering Controls

Handle only in fully enclosed systems.

Eye Protection	Skin Protection	Respiratory Protection
Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	Wear appropriate chemical resistant clothing.	Respiratory protection may be needed for frequent or heavy exposure. Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Gas	Colorless	Colorless	N/A	Gas	Irritating odor	N/A

Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
-35 F (-37 C)	Not available	Not available	97 F (36 C)	0.99	0.041

Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
46 F (8 C)	-188 F (-122 C)	1252 mm Hg @ 20 C	3.5 (Air =1)	1.2	Reacts violently with water	Acidic in solution	Not available; releases very toxic and corrosive hydrogen chloride gas on contact with humid air or water	Not applicable (gas). Liquefied gas rapidly returns to the gaseous state at room temperature.	Not available

Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
101.0	H2-Si-CL2	3.5 (air=1)	Not available	100%	Not applicable	Soluble: Benzene, carbon tetrachloride, ether

Section 10: Stability and Reactivity

Stability	Conditions to Avoid	Incompatible Materials
May polymerize violently or explosively. Avoid contact with incompatible materials. May ignite spontaneously in air.	May polymerize violently or explosively. Avoid contact with incompatible materials. May ignite spontaneously in air.	Combustible materials, halo carbons, oxidizing materials

Hazardous Decomposition Products	Possibility of Hazardous Reactions
Acid halides, halogenated compounds, crystalline silica, acid halides, oxides of silicon. Hydrolysis in water forms very toxic and corrosive hydrogen chloride gas, extremely flammable hydrogen gas, and polymeric prosiloxanes that may ignite spontaneously. Thermal decomposition in presence of air produces hydrogen chloride gas, hydrogen gas, silicon, silicon oxides (e.g. amorphous silica), and polymeric prosiloxanes that may ignite spontaneously. Thermal decomposition in the absence of air or in closed systems produces silicon, hydrogen chloride gas, chlorine gas, polychlorosilanes, silane, extremely flammable hydrogen gas, and polysilanes. The thermal decomposition mixture may ignite immediately on exposure to air.	May polymerize violently or explosively. Avoid contact with incompatible materials.

Section 11: Toxicology Information

Acute Effects

Oral LD50	Dermal LD50	Inhalation
LC50, 1 hr, rat = 314 ppm	Not available	Burns, difficulty breathing, headache, dizziness, bluish skin color, lung congestion

Eye Irritation	Skin Irritation	Sensitization
Irritation (possibly severe)	Burns	Respiratory tract burns, skin burns, eye burns, mucous membrane burns

Chronic Effects

Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Not available	Not available	Not available	No data

Section 12: Ecological Information

Fate and Transport

Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available

Section 13: Disposal Considerations

Dispose in accordance with all applicable regulations.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Dichlorosilane	UN2189	2.3	Not applicable	2.3; 2.1; 8	Forbidden	Forbidden	Toxic-Inhalation Hazard Zone B

Canadian Transportation of Dangerous Goods

Shipping Name	UN Number	Class	Packing Group / Risk Group
Dichlorosilane	UN2189	2.3; 2.1; 8	Not applicable

Section 15: Regulatory Information

U.S. Regulations

CERCLA Sections	SARA 355.30	SARA 355.40
Not regulated.	Not regulated.	Not regulated.

SARA 370.21

Acute	Chronic	Fire	Reactive	Sudden Release
Yes	No	Yes	Yes	Yes

SARA 372.65

Not regulated.

OSHA Process Safety

2500 LBS TQ

State Regulations

CA Proposition 65
Not regulated.

Canadian Regulations

WHMIS Classification
ABD1F

National Inventory Status

US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Listed on inventory.	Not listed.	Not determined.

Section 16: Other Information

NFPA Rating
HEALTH=4 FIRE=4 REACTIVITY=2

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard