Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name • **Dichlorosilane (EU Region Only)**

Synonyms • Dichlorosilicon dihydride

CAS Number • 4109-96-0

Product Code • 20046; 4109-96-0/E-2

SDS Number • EL-1001-03926

EC Number • 223-888-3

Molecular Formula • :H 2:Si 1:Cl 2:

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s) • Silicon-precursor gas used in chemical vapor deposition in semiconductor manufacturing.

1.3 Details of the supplier of the safety data sheet

Manufacturer • Air Liquide
2700 Post Oak Blvd.
Houston, TX 77056 US
www.us.airliquide.com
sds@airliquide.com

Telephone (Technical) • 713-896-2896

Telephone (Technical) • 800-819-1704

Only Representative • NCEC, Ricardo-AEA
The Gemini Building
Fermi Avenue
Didcot, Oxfordshire
OX11 OQR, UK

Telephone • +44 (0) 1235 753654

Email • ncec@ricardo-aea.com

1.4 Emergency telephone number

Manufacturer • 800-424-9300 - CHEMTREC

Manufacturer • +1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

According to EU Directive 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP • Flammable Gases 1 - H220
Liquefied Gas - H280
Skin Corrosion 1A - H314
Serious Eye Damage 1 - H318
Acute Toxicity Inhalation 2 - H330
EUH071

DSD/DPD • Extremely Flammable (F+)

Toxic (T)

Corrosive (C)
R12, R23, R35

2.2 Label Elements

CLP

DANGER

Hazard statements

- H220 - Extremely flammable gas
  H280 - Contains gas under pressure; may explode if heated
  H314 - Causes severe skin burns and eye damage
  H318 - Causes serious eye damage
  H330 - Fatal if inhaled
  EUH071 - Corrosive to the respiratory tract.

Precautionary statements

Prevention

- P210 - Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
  P233 - Keep container tightly closed.
  P260 - Do not breathe fume/gas.
  P262 - Do not get in eyes, on skin, or on clothing.
  P264 - Wash thoroughly after handling.
  P270 - Do not eat, drink or smoke when using this product.
  P271 - Use only outdoors or in a well-ventilated area.
  P280 - Wear protective gloves/protective clothing/eye protection/face protection.
  P284 - Wear respiratory protection.

Response

- P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
  P381 - Eliminate all ignition sources if safe to do so.
  P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
  P310 - Immediately call a POISON CENTER or doctor/physician.
  P320 - Specific treatment is urgent, see supplemental first aid information.
  P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  P321 - Specific treatment, see supplemental first aid information.
  P363 - Wash contaminated clothing before reuse.
  P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage/Disposal

- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
  P405 - Store locked up.
  P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD

Risk phrases

- R12 - Extremely flammable.
  R23 - Toxic by inhalation.
  R35 - Causes severe burns.

Safety phrases

- S9 - Keep container in a well ventilated place
  S16 - Keep away from sources of ignition - No Smoking.
  S36 - Wear suitable protective clothing.
  S37 - Wear suitable gloves.
  S39 - Wear eye/face protection.
  S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3 Other Hazards

CLP

- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered

hazardous.

DSD/DPD

- This product is considered dangerous according to the European Directive 67/548/EEC.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS2012

- Flammable Gases 1 - H220
  Liquefied Gas - H280
  Skin Corrosion 1A - H314
  Serious Eye Damage 1 - H318
  Acute Toxicity Inhalation 2 - H330

2.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements

- Extremely flammable gas - H220
  Contains gas under pressure; may explode if heated - H280
  Causes severe skin burns and eye damage - H314
  Causes serious eye damage - H318
  Fatal if inhaled - H330

Precautionary statements

Prevention

- Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking. - P210
  Keep container tightly closed. - P233
  Do not breathe fume/gas. - P260
  Do not get in eyes, on skin, or on clothing. - P262
  Wash thoroughly after handling. - P264
  Do not eat, drink or smoke when using this product. - P270
  Use only outdoors or in a well-ventilated area. - P271
  Wear protective gloves/protective clothing/eye protection/face protection. - P280
  In case of inadequate ventilation wear respiratory protection. - P285

Response

- Leaking gas fire: Do not extinguish, unless leak can be stopped safely. - P377
  Eliminate all ignition sources if safe to do so. - P381
  IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
  Immediately call a POISON CENTER or doctor/physician. - P310
  Specific treatment is urgent, see supplemental first aid information. - P320
  IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. - P303+P361+P353
  Specific measures, see supplemental first aid information. - P322
  Wash contaminated clothing before reuse. - P363
  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
  IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. - P301+P330+P331

Storage/Disposal

- Store in a well-ventilated place. Keep container tightly closed. - P403+P233
  Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

2.3 Other hazards

OSHA HCS2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Compressed Gas - A
  Flammable Gases - B1
  Very Toxic - D1A
  Corrosive - E

2.2 Label elements

WHMIS

- Compressed Gas - A
  Flammable Gases - B1
  Very Toxic - D1A
  Corrosive - E

2.3 Other hazards

WHMIS

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

2.4 Other information

NFPA

Section 3 - Composition/Information on Ingredients

3.1 Substances

Hazardous Components					
Chemical Name	**Identifiers**	**%(weight)**	**LD50/LC50**	**Classifications According to Regulation/Directive**	**Comments**
Dichlorosilane	**CAS:**4109-96-0 **EINECS:**223-888-3	100%	Inhalation-Rat LC50 • 215 ppm	**EU DSD/DPD:** Self classified- C, R35, F+, R12; T, R23; **EU CLP:** Self classified - Flam. Gas 1, H220; Press. Gas - Liq., H280; Eye Dam. 1 H318; Skin Corr. 1, H314; Acute Tox 2 (Inhalation), H330; EUH071 **OSHA HCS 2012:** Press. Gas - Liq; Flam Gas. 1; Eye Dam 1; Skin Corr. 1; Acute Tox 2 (Inhalation)	NDA

3.2 Mixtures

- Material does not meet the criteria of a mixture in accordance with Regulation (EC) No 1272/2008.

See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

Skin
- If frostbite has occurred, seek medical attention immediately; do NOT rub the affected area(s) or flush them with water. In order to prevent further tissue damage, do NOT attempt to remove frozen clothing from frostbitten areas. If frostbite has not occurred, immediately and thoroughly wash contaminated skin with soap and water.

Eye
- If eye tissue is frozen, seek medical attention immediately; if tissue is not frozen, immediately and thoroughly flush the eyes with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation, pain, swelling, lacrimation or photophobia persist, get medical attention as soon as possible.

Ingestion
- If frostbite has occurred, seek medical attention immediately; do NOT rub the affected area(s) or flush them with water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician
- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

4.4 Other information

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO GASES WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn. Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media
- SMALL FIRES: Dry chemical or CO_2.
  LARGE FIRES: Water spray or fog.

Unsuitable Extinguishing Media
- No data available

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- EXTREMELY FLAMMABLE
  Will form explosive mixtures with air.
  Vapors may travel to source of ignition and flash back.
  Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
  Containers may explode when heated.
  Ruptured cylinders may rocket.

Hazardous Combustion Products
- No data available

5.3 Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
  Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.
  Wear positive pressure self-contained breathing apparatus (SCBA).

DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED
Move containers from fire area if you can do it without risk.
FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.
FIRE INVOLVING TANKS: ALWAYS stay away from tanks engulfed in fire.
FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
FIRE INVOLVING TANKS: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out.
FIRE INVOLVING TANKS: Do not direct water at source of leak or safety devices; icing may occur.
FIRE INVOLVING TANKS: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not touch or walk through spilled material. Ventilate the area before entry.

Emergency Procedures

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area) As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Stop leak if you can do it without risk. Keep unauthorized personnel away. Keep out of low areas. Stay upwind. LARGE SPILL: Consider initial downwind evacuation for at least 800 meters (1/2 mile)

6.2 Environmental precautions

- No data available

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- All equipment used when handling the product must be grounded.
  Stop leak if you can do it without risk.
  If possible, turn leaking containers so that gas escapes rather than liquid.
  Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.
  Do not direct water at spill or source of leak.
  Isolate area until gas has dispersed.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Keep away from heat and ignition sources – No Smoking. Take precautionary measures against static charges. All equipment used when handling the product must be grounded. Use only non-sparking tools. Use only with adequate ventilation. Ventilate closed spaces before entering. Be aware of any signs of dizziness or fatigue, especially if work is done in a poorly ventilated area; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to olfactory fatigue or oxygen deficiency. Cylinders should be firmly secured to prevent falling or being knocked-over. Use explosion-proof - electrical, ventilating and/or lighting equipment. Do not attempt to repair, adjust, or in any other way modify cylinders. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Empty containers retain product residue and can be hazardous. Do not cut, weld, puncture or incinerate container.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Do not allow area where cylinders are stored to exceed 52C (125F). Cylinders must be protected from the environment, and preferably kept at room temperature approximately 21C (70F). Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over. Store locked up.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use explosion-proof - electrical, ventilating and/or lighting equipment.

Personal Protective Equipment

Respiratory

- Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear safety glasses.

Skin/Body

- Wear leather gloves when handling cylinders.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless gas with acrid odor.
Color	Colorless	Odor	Acrid
Odor Threshold	Data lacking		
General Properties			
Boiling Point	8 C(46.4 F)	Melting Point	-122 C(-187.6 F)
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	Data lacking	Water Solubility	Slightly Soluble
Viscosity	Data lacking	Explosive Properties	Not explosive.
Oxidizing Properties:	Not an oxidizer.		
Volatility			
Vapor Pressure	1230 mmHg (torr) @ 20 C(68 F)	Vapor Density	3.48 Air=1
Evaporation Rate	Data lacking	VOC (Wt.)	Data lacking
Flammability			
Flash Point	-18 C(-0.4 F)	UEL	98.8 %
LEL	4.1 %	Autoignition	100 C(212 F)

Flammability (solid, gas)	Flammable gas.		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- No data available

10.4 Conditions to avoid

- No data available

10.5 Incompatible materials

- No data available

10.6 Hazardous decomposition products

- No data available

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Dichlorosilane 4109-96-0								
Test Type	**Dosage**	**Route**	**Species**	**Duration**	**Results**	**Test Class**	**Target Organs**	**Comments**
Acute Toxicity	= 215 ppm	Inhalation	Rat	NDA	LC50	NDA	NDA	NDA

GHS Properties	Classification
Acute toxicity	**EU/CLP** • Acute Toxicity 2 (Inhalation) **OSHA HCS 2012** • Acute Toxicity 2 (Inhalation)
Aspiration Hazard	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Carcinogenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Germ Cell Mutagenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Skin corrosion/Irritation	**EU/CLP** • Skin Corrosion 1A **OSHA HCS 2012** • Skin Corrosion 1A
Skin sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met

STOT-RE	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
STOT-SE	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Toxicity for Reproduction	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Respiratory sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Serious eye damage/Irritation	**EU/CLP** • Serious Eye Damage 1 **OSHA HCS 2012** • Serious Eye Damage 1

Potential Health Effects

Inhalation

Acute (Immediate) • May be harmful if inhaled.

Chronic (Delayed) • No data available.

Skin

Acute (Immediate) • Causes severe skin burns and eye damage. Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.

Chronic (Delayed) • No data available.

Eye

Acute (Immediate) • Causes serious eye damage.

Chronic (Delayed) • No data available.

Ingestion

Acute (Immediate) • Ingestion is not considered a potential route of exposure due to the physical form of this product.

Chronic (Delayed) • No data available.

Section 12 - Ecological Information

12.1 Toxicity

- Dichlorosilane can be harmful or fatal to contaminated aquatic plant and animal life. Upon contact with water, this gas can generate hydrogen chloride and hydrochloric acid solutions. Hydrogen chloride is very soluble in water, and even low concentrations of hydrogen chloride in water is detrimental to aquatic life. If a release this product occurs near a river or other body of water, the release has the potential to kill fish and other aquatic life.

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

- PBT and vPvB assessment has not been conducted for this material.

12.6 Other adverse effects

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN2189	Dichlorosilane	2.3,2.1,8	NDA	NDA
TDG	UN2189	DICHLOROSILANE	2.3,2.1,8	NDA	NDA
IMO/IMDG	UN2189	DICHLOROSILANE	2.3,2.1,8	NDA	NDA
IATA/ICAO	UN2189	Dichlorosilane	2.3,2.1,8	NDA	NDA

14.6 Special precautions for user
- Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
- Not relevant.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications
- Acute, Fire, Pressure(Sudden Release of)

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Dichlorosilane	NDA	No	No	No

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Dichlorosilane	NDA	No	No	No	No	No

Inventory (Con't.)			
Component	**CAS**	**Japan ENCS**	**TSCA**
Dichlorosilane	NDA	No	No

Australia

Labor

Australia - Work Health and Safety Regulations - Hazardous Substances Requiring Health Monitoring

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Australia - High Volume Industrial Chemicals List

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Australia - List of Designated Hazardous Substances - Classification

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Environment

Australia - National Pollutant Inventory (NPI) Substance List

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Australia - Ozone Protection Act - Scheduled Substances

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Australia - Priority Existing Chemical Program

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Canada - WHMIS - Ingredient Disclosure List

• Dichlorosilane	4109-96-0	100%	1 %
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Environment

Canada - CEPA - Priority Substances List

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

China - Ozone Depleting Substances - Second Schedule

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

China - Ozone Depleting Substances - Third Schedule

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

China - Dangerous Goods List

• Dichlorosilane	4109-96-0	100%	UN2189
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

China - Export Control List - Part I Chemicals

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Germany

Environment

Germany - TA Luft - Types and Classes

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Germany - Water Classification (VwVwS) - Annex 1

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes

• Dichlorosilane	4109-96-0	100%	ID Number 557, hazard class 1 - low hazard to waters (footnote 13)
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Germany - Water Classification (VwVwS) - Annex 3

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Portugal

Other

Portugal - Prohibited Substances

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

United Kingdom

Environment

United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

United Kingdom - Substances Contained in Dangerous Substances or Preparations

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

Other

United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

United Kingdom - The Red List - Dangerous Substances in Water

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Dichlorosilane	4109-96-0	100%	2500 lb TQ
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Dichlorosilane	4109-96-0	100%	Not Listed

- Silane, dichloro- as Polychlorinated alkanes 100% Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

- Dichlorosilane 4109-96-0 100% Not Listed
- Silane, dichloro- as Polychlorinated alkanes 100% Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

- Dichlorosilane 4109-96-0 100% Not Listed
- Silane, dichloro- as Polychlorinated alkanes 100% Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

- Dichlorosilane 4109-96-0 100% Not Listed
- Silane, dichloro- as Polychlorinated alkanes 100% Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

- Dichlorosilane 4109-96-0 100% Not Listed
- Silane, dichloro- as Polychlorinated alkanes 100% Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

- Dichlorosilane 4109-96-0 100% Not Listed
- Silane, dichloro- as Polychlorinated alkanes 100% Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII

- Dichlorosilane 4109-96-0 100% Not Listed
- Silane, dichloro- as Polychlorinated alkanes 100% Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Constituents for Detection Monitoring

- Dichlorosilane 4109-96-0 100% Not Listed
- Silane, dichloro- as Polychlorinated alkanes 100% Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - List for Hazardous Constituents

- Dichlorosilane 4109-96-0 100% Not Listed
- Silane, dichloro- as Polychlorinated alkanes 100% Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• Dichlorosilane	4109-96-0	100%	Not Listed
• Silane, dichloro- as Polychlorinated alkanes		100%	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date	• 05/February/2013
Preparation Date	• 04/February/2013
Disclaimer/Statement of Liability	• To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.