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## pSECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Trade name	Dichlorosilane
Chemical description	Dichlorosilane
CAS N°	4109-96-0
CE N°	223-888-3
Index N°	--
Registration n°	01-2120776028-49
Chemical formula	SiH <sub>2</sub> Cl <sub>2</sub>

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

Relevant identified uses	Industrial and professional Test gas/Calibration gas Chemical reaction / Synthesis Use for manufacture of electronic/photovoltaic components Laboratory use Contact supplier for more information on uses
Uses advised against	Consumer use not recommended

### 1.3. Details of the supplier of the safety data sheet

Company identification	MULTIGAS Route de l'Industrie 102 CH-1564 Domdidier
Phone number	+41 (0) 26 676 94 94
E-mail address	<a href="mailto:info@multigas.ch">info@multigas.ch</a>

### 1.4. Emergency telephone numbers

145 (Toxicology Centre Zurich) or +41 (0) 44 251 51 51  
 +41 (0) 26 676 94 94 (Multigas)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Physical hazards	Flammable gases, Category 1	H220
	Gases under pressure : Liquefied gas	H280





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<b>Health hazards</b>	Skin corrosion/irritation, Category 1B	H314
	Severe eye damage/eye irritation, category 1	H318
	Acute toxicity (inhalation: gas) Category 2	H330

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

## 2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

<b>Hazard pictograms</b>					
	GHS02	GHS04	GHS05	GHS06	
	<b>Signal word</b>	Danger			
	<b>Hazard statements</b>	<p>H220                   Extremely flammable gas</p> <p>H280                   Contains gas under pressure; may explode if heated</p> <p>H314                   Causes severe skin burns and eye damage</p> <p>H330                   Fatal if inhaled</p> <p>EUH071               Corrosive to the respiratory tract</p>			
<b>Precautionary statements</b>	<p>P210                   Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking</p> <p>P260                   Do not breathe gas, vapours</p> <p>P280                   Wear protective gloves, protective clothing, eye protection, face protection</p> <p>P303+P361+P353+P315   IF ON SKIN: (or hair) Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get immediate medical advice / attention</p> <p>P304+P340+P315       IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice / attention</p> <p>P305+P351+P338+P315   IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice / attention</p> <p>P377                   Leaking gas fire: Do not extinguish, unless leak can be stopped safely</p> <p>P381                   In case of leakage, eliminate all ignition sources</p> <p>P410+P403           Protect from sunlight. Store in a well-ventilated place</p> <p>P405                   Store locked up</p>				

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### 2.3. Other hazards

None

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	Concentration	Classification
Dichlorosilane	(CAS-No.) 4109-96-0 (EC-No.) 223-888-3 (EC Index-No.) --- (Registration-No.) 01-2120776028-49	<= 100%	Flam. Gas 1, H220 Press. Gas (Liq.), H280 Acute Tox. 2 (Inhalation: gas), H330 Skin Corr. 1B, H314 Eye Dam. 1, H318

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

Contains no other components or impurities which will influence the classification of the product

### 3.2. Mixtures

Not established

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

<b>General advices</b>	See a doctor. Show this safety data sheet to the attending physician
<b>In case of inhalation</b>	In case of inhalation, remove the person from the contaminated area. In case of respiratory arrest, give artificial respiration. See a doctor
<b>In case of skin contact</b>	Remove contaminated clothing and shoes immediately. Wash with soap and plenty of water. Take victim immediately to hospital. See a doctor
<b>In case of eyes contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes and consult a doctor
<b>In case of ingestion</b>	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. See a doctor

### 4.2. Most important symptoms and effects, both acute and delayed

May cause severe chemical burns to the skin and cornea. Provide first aid treatment immediately available. Ask for medical advice before using the product Destructive material of mucosal tissues and trachea. Cough, shortness of breath, headache, nausea

Refer to Section 11

### 4.3. Indication of any immediate medical attention and special treatment needed

Data not available

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## SECTION 5: Firefighting measures

### **5.1. Extinguishing media**

<b>Suitable extinguishing media</b>	Water spray or fog, dry powder
<b>Unsuitable extinguishing media</b>	Carbone dioxide Do not use water jet to extinguish

### **5.2. Special hazards arising from the substance or mixture**

<b>Specific hazards</b>	In case of fire or excessive heat, hazardous combustion products may be produced Exposure to fire may cause containers to rupture/explode
<b>Hazardous combustion products</b>	In case of fire or excessive heat, hazardous combustion products may be produced such as : hydrogen chloride, gaseous, silica dust (inert - but may irritate respiratory tract and eyes)

### **5.3. Additional information**

Data not available

## SECTION 6: Accidental release measures

### **6.1. Personal precautions, protective equipment and emergency procedures**

Avoid breathing vapours, spray mists or gases  
Provide adequate ventilation  
Evacuate personnel to a safe place  
Personal protective equipment, see section 8

### **6.2. Environmental precautions**

Try to stop the leak  
Decrease vapour by water spray in the form of fog or fine droplets

### **6.3. Methods and material for containment and cleaning up**

Do not rinse with water  
Keep the area clear of all sources of ignition until all spilled liquid has evaporated (frost-free soil)

### **6.4. Reference to other sections**

See also sections 8 and 13

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**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

Avoid contact with skin and eyes  
 Avoid breathing vapour or mist  
 Keep away from sources of ignition - No smoking  
 For precautions, see section 2.2

**7.2. Conditions for safe storage, including any incompatibilities**

Store in a cool place. Keep container tightly closed in a dry and well-ventilated place  
 Never allow the product to come into contact with water during storage  
 Content under pressure

**7.3. Specific end use(s)**

-

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

Components with occupational exposure limits

Component	CAS N°	Exposure value type	Value	Source
Dichlorosilane	4109-96-0	TWA	No occupational exposure limit values	SUVA: Limit values of exposure to workstations
		OEL		

**8.2. Exposure controls**

**8.2.1. Appropriate engineering controls**

Provide adequate general and local exhaust ventilation  
 Gas detectors should be used when toxic gases may be released

**8.2.2. Individual protection measures, e.g. personal protective equipment**

**Eye/face protection**

Wear goggles and a face shield when transfilling or breaking transfer connections. Standard EN 166 - Personal eye-protection - specifications

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#### Skin / hand protection

Wear protective gloves when handling gas cylinders. Standard EN 388- Protective gloves against mechanical hazards

Wear cold insulating gloves when transferring or disconnecting transfer lines Standard EN 511 - Insulating gloves against cold

Wearing chemical resistant gloves Standard EN 374-Protective gloves against chemicals

##### **For short-term use**

Material: Chloroprene rubber

Penetration time:> 60 min

Glove thickness: 0.4 mm

##### **For long-term use**

Material: Fluoroélastomère.

Penetration time:> 480 min

Glove thickness: 0.7 mm

Have appropriate, chemical-resistant protective clothing ready for use in emergencies. Standard EN943-1 - total protective clothing against liquid, solid or gaseous chemicals

#### Respiratory protection

Self-contained breathing apparatus (SCBA) or positive pressure air mask must be used in oxygenated atmospheres. Standard EN 137 - Self-contained compressed air device with a full face mask

### 8.2.3. Environmental exposure controls

Avoid any spill or leak if it is safe

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

- Physical state at 20°C / 101.3kPa Gas

- Colour Colourless

Odour Pungent

Odour threshold Data not available

pH Data not available

Melting point / Freezing point -122°C

Boiling point 8.4°C

Flash point -36.99°C

Evaporation rate Data not available

Flammability (solid, gas) Extremely flammable

Explosive limits 2.5 – 80% vol

Vapour pressure [20°C] 1.6 bar

Vapour pressure [50°C] 3.8 bar

Vapour density Data not available

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<b>Relative density, liquid (water=1)</b>	1.3
<b>Relative density, gas (air=1)</b>	3.5
<b>Water solubility</b>	Data not available (reacts violently with water)
<b>Partition coefficient n-octanol/water (Log Kow)</b>	Data not available
<b>Auto-ignition temperature</b>	175°C (45-185)
<b>Decomposition temperature</b>	Data not available
<b>Viscosity</b>	Data not available
<b>Explosive properties</b>	Data not available
<b>Oxidising properties</b>	Data not available

### 9.2. Other information

<b>Molar mass</b>	101 g/mol
<b>Critical temperature [°C]</b>	176°C
<b>Relative vapour density</b>	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level

## **SECTION 10: Stability and reactivity**

### 10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below

### 10.2. Chemical stability

Stable under the recommended storage conditions

### 10.3. Possibility of hazardous reactions

Can form explosive mixture with air  
 Reacts violently with water  
 May react violently with oxidants

### 10.4. Conditions to avoid

Keep away from heat, sparks, open flames / hot surfaces. No smoking.  
 Avoid humidity in the installations

### 10.5. Incompatible materials

Strong oxidizers, strong bases, ammonia, ozone, halogens, amines.  
 Releases hydrogen in the presence of metals.  
 For more information on compatibility, refer to ISO 11114

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### **10.6. Hazardous decomposition products**

Under normal conditions of storage and use, hazardous decomposition products should not be produced

## SECTION 11: Toxicological information

### **11.1. Chemical safety assessment**

<b>Acute toxicity</b>	Fatal if inhaled Delayed fatal pulmonary oedema possible
<b>Skin corrosion/irritation</b>	Causes severe skin burns and eye damage
<b>Serious eye damage/irritation</b>	Causes serious eye damage
<b>Respiratory or skin sensitisation</b>	Data not available
<b>Germ cell mutagenicity</b>	Data not available
<b>Carcinogenicity</b>	Data not available
<b>Reproductive toxicity</b>	Data not available
<b>STOT-single exposure – Target organ(s)</b>	Severe corrosion to the respiratory tract at high concentrations May cause nausea and irritation of the respiratory tract. Hydrolysis of silanes in the body forms silicic acid or hydrated silica
<b>STOT-repeated exposure</b>	Data not available
<b>Aspiration hazard</b>	Data not available

## SECTION 12: Ecological information

### **12.1. Toxicity**

<b>Assessment</b>	Data not available
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### **12.2. Persistence and degradability**

Data not available

### **12.3. Bioaccumulative potential**

Data not available

### **12.4. Mobility in soil**

Data not available

### **12.5. Results of PBT and vPvB assessment**

PBT / vPvB assessment is not available because the chemical safety assessment is not required / is not conducted



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### 12.6. Other adverse effects

May cause pH changes to aqueous ecological systems

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Product</b>	<p>Must not be released into the atmosphere</p> <p>Burn in a chemical incinerator equipped with an afterburner and scrubber</p> <p>Return to the supplier the product not consumed in its original container</p>
<b>Contaminated container</b>	<p>Eliminate as unused product</p> <p>Contact the supplier if instructions are needed</p>
<b>OMoD Code</b>	<p>16 05 04</p> <p>Gases in pressure containers containing dangerous substances</p>

## SECTION 14: Transport information

### 14.1. UN number

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
2189	2189	2189

### 14.2. UN proper shipping name

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
Dichlorosilane	Dichlorosilane	Dichlorosilane

### 14.3. Transport hazard class(es)

Labelling



ADR/RID  
IMDG  
IATA

2.3 : Toxic gases  
2.1 : Flammable gases  
8 : Corrosive substances

### 14.4. Packing group

ADR/RID  
IMDG  
IATA

Not established

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#### **14.5. Environmental hazards**

ADR/RID	None
IMDG	None
ICAO-TI / IATA-DGR	None

#### **14.6. Special precautions for user**

Data not available

#### **14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable

### **SECTION 15: Regulatory information**

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

This safety data sheet complies with the requirements of Regulation (CE) No. 1907/2006

#### **15.2. Chemical safety assessment**

A CSA has not yet been carried out

### **SECTION 16: Other information**

<b>Indication of changes</b>	Revised safety data sheet in accordance with commission regulation (EU) No 2015/830
<b>Abbreviations and acronyms</b>	<p>ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road</p> <p>CAS : Chemical Abstract Service number (USA)</p> <p>CLP : Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008</p> <p>CSA : Chemical Safety Assessment</p> <p>EIGA : European Industrial Gases Association</p> <p>EINECS : European Inventory of Existing Commercial Chemical Substances</p> <p>EN : European Standard</p> <p>ATE : Acute Toxicity Estimate</p> <p>IATA : International Air Transport Association</p> <p>IMDG Code : International Maritime Dangerous Goods Code</p> <p>LC50 : Lethal Concentration to 50 % of a test population</p> <p>OMoD : Swiss Ordinance on the movement of waste</p> <p>PBT : Persistent, Bioaccumulative and Toxic</p> <p>PPE: Personal Protection Equipment</p> <p>REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006</p>

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RID : Regulations concerning the international carriage of dangerous goods by rail  
 RMM : Risk Management Measures  
 STOT-SE : Specific Target Organ Toxicity - Single Exposure  
 UN : United Nations  
 vPvB : Very Persistent and Very Bioaccumulative  
 WGK: Water Hazards Class

### Full text of H, EUH and P statements used in sections 2 and 3

#### Hazard statements

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

#### Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
 P260 Do not breathe gas, vapours  
 P280 Wear protective gloves, protective clothing, eye protection, face protection  
 P303+P361+P353+P315 IF ON SKIN: (or hair) Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get immediate medical advice / attention  
 P304+P340+P315 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice / attention  
 P305+P351+P338+P315 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice / attention  
 P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely  
 P381 In case of leakage, eliminate all ignition sources  
 P410+P403 Protect from sunlight. Store in a well-ventilated place  
 P405 Store locked up

#### Disclaimer of liability

Details given in this document have been prepared based on the most available reliable documents and are believed to be correct at the time of going to press  
 They do not claim to be exhaustive and should be considered as a guide