

Safety Data Sheet



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

1.1 Product identifier

Product Name	• Silane (EU Region Only)
Synonyms	• Monosilane; Silicane; Silicon Tetrahydride
CAS Number	• 7803-62-5
Product Code	• 20148; 60046
SDS Number	• EL-1001-04026
EC Number	• 232-263-4
Chemical Category	• Hydrides
Molecular Formula	• :H 4:Si 1:

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

Relevant identified use(s)	• Production of amorphous silicon and silicon substrates; other analytical/synthetic chemical uses.
-----------------------------------	---

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	Only Representative	• NCEC, Ricardo-AEA The Gemini Building Fermi Avenue Didcot, Oxfordshire OX11 0QR, UK
Telephone (Technical)	• 713-896-2896	Telephone	• +44 (0) 1235 753654
Telephone (Technical)	• 800-819-1704	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 • Compressed Gas - H280 • Skin Irritation 2 - H315 • Eye Irritation 2 - H319 • Acute Toxicity Inhalation 4 - H332 • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335
------------	---

DSD/DPD

- Extremely Flammable (F+)
-

Harmful (Xn)
Irritant (Xi)
R12, R17, R20, R36/37/38

2.2 Label Elements

CLP

DANGER



- Hazard statements**
- H220 - Extremely flammable gas
 - H280 - Contains gas under pressure; may explode if heated
 - H315 - Causes skin irritation
 - H319 - Causes serious eye irritation
 - H332 - Harmful if inhaled
 - H335 - May cause respiratory irritation

Precautionary statements

- Prevention**
- P210 - Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
 - P261 - Avoid breathing fume/gas.
 - P264 - Wash thoroughly after handling.
 - P271 - Use only outdoors or in a well-ventilated area.
 - P280 - Wear protective gloves/protective clothing/eye protection/face 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.
 - P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
 - P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
 - P321 - Specific treatment, see supplemental first aid information.
 - P332+P313 - If skin irritation occurs: Get medical advice/attention.
 - P362 - Take off contaminated clothing and wash 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.
 - P337+P313 - If eye irritation persists: Get medical advice/attention.
- 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.
 - R17 - Spontaneously flammable in air.
 - R20 - Harmful by inhalation.
 - R36/37/38 - Irritating to eyes, respiratory system and skin.
- Safety phrases**
- S9 - Keep container in a well ventilated place
 - S16 - Keep away from sources of ignition - No Smoking.
 - S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

2.3 Other Hazards

CLP

- This material is a Pyrophoric gas and is spontaneously flammable in air. 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 HCS 2012

- Pyrophoric Gas
- Compressed Gas - H280
- Skin Irritation 2 - H315
- Eye Irritation 2A - H319
- Acute Toxicity Inhalation 4 - H332
- Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335

2.2 Label elements

OSHA HCS 2012

DANGER



- Hazard statements**
- Catches fire spontaneously if exposed to air - H250
 - Contains gas under pressure; may explode if heated - H280
 - Causes skin irritation - H315
 - Causes serious eye irritation - H319
 - Harmful if inhaled - H332
 - May cause respiratory irritation - H335

Precautionary statements

- Prevention**
- Avoid breathing fume/gas. - P261
 - Wash thoroughly after handling. - P264
 - Use only outdoors or in a well-ventilated area. - P271
 - Wear protective gloves/protective clothing/eye protection/face protection. - P280
- Response**
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
 - Call a POISON CENTER or doctor/physician if you feel unwell. - P312
 - IF ON SKIN: Wash with plenty of soap and water. - P302+P352
 - Specific treatment, see supplemental first aid information. - P321
 - If skin irritation occurs: Get medical advice/attention. - P332+P313
 - Take off contaminated clothing and wash before reuse. - P362
 - 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 eye irritation persists: Get medical advice/attention. - P337+P313
- Storage/Disposal**
- Store in a well-ventilated place. Keep container tightly closed. - P403+P233
 - Store locked up. - P405
 - 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
- Reactive Flammable Materials - B6

2.2 Label elements

WHMIS

- Compressed Gas - A
- Reactive Flammable Materials - B6

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
Silane	CAS:7803-62-5 EINECS:232-263-4	100%	Inhalation-Rat LC50 • 9600 ppm 4 Hour(s)	EU DSD/DPD: Self classified- Xi R36/37/38; Xn, R20 F+, R12, R17 EU CLP: Self classified- Eye 2; Skin 2; STOT SE 3-Resp; Acute Tox 4 (Inhalation); Pyrophoric gas OSHA HCS 2012: Eye 2A; Skin 2; STOT SE 3-Resp;	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

- Although exposure is unlikely, in case of contact immediately flush skin with running water. If skin irritation develops get medical advice/attention.

Eye

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical

Ingestion

advice/attention.

- Never give anything by mouth to an unconscious person. Do NOT induce vomiting. First aid is not expected to be necessary if material is used under ordinary conditions and as recommended.

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 CO₂.
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** • Pyrophoric. Pure Silane ignites spontaneously upon contact with air, generating amorphous silicon dioxide and hydrogen; reaction is exothermic and rapid. Releases in confined spaces have detonated. In the absence of air, thermal decomposition starts at 400°C (752°F) and is rapid above 600°C (1112°F). Silane, upon contact with water or moisture, will generate silicic acid.
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** • Silane is released at high pressure or high flow velocity, a delayed detonation may occur. Silane releases which have not spontaneously ignited must be considered extremely dangerous, and should not be approached.

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

- Prevent entry into waterways, sewers, basements or confined areas. Prevent spreading of vapors through sewers, ventilation systems and confined areas.

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

Exposure Limits/Guidelines						
	Result	ACGIH	Canada Ontario	Canada Quebec	France	Ireland
Silane (7803-62-5)	TWAs	5 ppm TWA	5 ppm TWA	5 ppm TWAEV; 6.6 mg/m ³ TWAEV	5 ppm TWA [VME]; 7 mg/m ³ TWA [VME]	0.5 ppm TWA; 0.7 mg/m ³ TWA
	STELs	Not established	Not established	Not established	Not established	1 ppm STEL; 1.5 mg/m ³ STEL
Exposure Limits/Guidelines (Con't.)						
	Result	Israel	NIOSH	Portugal	Singapore	
Silane (7803-62-5)	TWAs	5 ppm TWA	5 ppm TWA; 7 mg/m ³ TWA	5 ppm TWA [VLE-MP]	5 ppm PEL; 6.6 mg/m ³ PEL	

Exposure Limits Supplemental

ACGIH

- Silane (7803-62-5): TLV Basis - Critical Effects: (skin and upper respiratory tract irritation)

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.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

STEL = Short Term Exposure Limits are based on 15-minute exposures

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

TWAEV = Time-Weighted Average Exposure Value

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless gas with a choking effect.
Color	Colorless	Odor	Data lacking
Odor Threshold	Data lacking		
General Properties			
Boiling Point	-112 C(-169.6 F)	Melting Point	-184.7 C(-300.46 F)
Decomposition Temperature	Data lacking	pH	Not relevant
Specific Gravity/Relative Density	Data lacking	Density	0.0899 lb(s)/ft ³ @ 0 C(32 F)
Water Solubility	Negligible	Viscosity	0.0001 Poise (P, Ps) or dyne-second/cm ² @ 0 C(32 F)
Explosive Properties	Data lacking	Oxidizing Properties:	Data lacking
Volatility			
Vapor Pressure	7.73 psig @ -122.2 C(-187.96 F)	Vapor Density	1.2 Air=1
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Not relevant	UEL	96 %
LEL	1.4 %	Autoignition	Not relevant
Flammability (solid, gas)	Pyrophoric Gas.		
Environmental			
Octanol/Water Partition coefficient	Not relevant		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- Pyrophoric. Pure Silane ignites spontaneously upon contact with air, generating amorphous silicon dioxide and hydrogen; reaction is exothermic and rapid. Releases in confined spaces have detonated. In the absence of air, thermal decomposition starts at 400°C (752°F) and is rapid above 600°C (1112°F). Silane, upon contact with water or moisture, will generate silicic acid.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Contact with air. Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. If the cylinders are exposed to extremely high temperatures, these cylinders can rupture.

10.5 Incompatible materials

- Silane will react violently with heavy-metal halides and free halogens (i.e. bromine, chlorine, carbonyl chloride, antimony pentachloride, tin[IV] chloride). Silane ignites in oxygen and can react with other oxidizers. Silane is also incompatible with bases.

10.6 Hazardous decomposition products

- Thermal decomposition in the presence of air produces hydrogen gas, silicon, silicon oxides (e.g. amorphous silica), and unidentified dark-colored solid substances that may be pyrophoric or shock-sensitive. Thermal decomposition in the absence of air or

in closed systems produces silicon, extremely flammable hydrogen gas, and polysilanes, which may be pyrophoric or shock-sensitive.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Silane 7803-62-5								
Test Type	Dosage	Route	Species	Duration	Results	Test Class	Target Organs	Comments
Acute Toxicity	= 9600 ppm	Inhalation	Rat	4 Hour(s)	LC50	NDA	NDA	NDA
GHS Properties				Classification				
Acute toxicity				EU/CLP • Acute Toxicity 4 (Inhalation) OSHA HCS 2012 • Acute Toxicity 4 (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 Irritation 2 OSHA HCS 2012 • Skin Irritation 2				
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 • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation				
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 • Eye Irritation 2 OSHA HCS 2012 • Eye Irritation 2A				

Potential Health Effects

Inhalation

Acute (Immediate)

- May cause respiratory irritation. Silane compounds can react with water to form silicic acid, which can be irritating to the mucous membranes and the respiratory system.

Chronic (Delayed)

- No data available

Skin

Acute (Immediate)

- Causes skin irritation.

Chronic (Delayed)

- No data available

Eye

Acute (Immediate)

- Causes serious eye irritation.

Chronic (Delayed)

- No data available

Ingestion

Acute (Immediate)

- Ingestion is not anticipated to be a likely route of exposure to this product.

Chronic (Delayed)

- No data available

Key to abbreviations

LC = Lethal Concentration

Section 12 - Ecological Information

12.1 Toxicity

- Silane ignites spontaneously upon contact with air, generating amorphous silicon dioxide and hydrogen. Silane, upon contact with water or moisture, will generate silicic acid. All work practices must be directed at eliminating environmental contamination.

12.2 Persistence and degradability

- No data available

12.3 Bioaccumulative potential

- No data available

12.4 Mobility in Soil

- No data available

12.5 Results of PBT and vPvB assessment

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

12.6 Other adverse effects

- Silane, upon contact with water or moisture, will generate silicic acid. Silicic acid can lower the pH of water; subsequently, releases of Silane can have an adverse effect on aquatic life in contaminated bodies of water.
- The primary health hazard associated with Silane is the potential for severe thermal burns to plants and animals from contact with flames which result from the spontaneous ignition of this gas. Depending on the severity of the burns, such exposures can be fatal.

Potential Environmental 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	UN2203	Silane	2.1	NDA	NDA

TDG	UN2203	SILANE	2.1	NDA	NDA
IMO/IMDG	UN2203	SILANE	2.1	NDA	NDA
IATA/ICAO	UN2203	Silane	2.1	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
Silane	7803-62-5	Yes	Yes	Yes

Inventory						
Component	CAS	CanadaDSL	Canada NDSL	China	EU EINECS	EU ELNICS
Silane	7803-62-5	Yes	No	Yes	Yes	No

Inventory (Con't.)			
Component	CAS	Japan ENCS	TSCA
Silane	7803-62-5	Yes	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

- Silane 7803-62-5 100% A, B6 (listed under Tetrahydrure de silicium)

Canada - WHMIS - Ingredient Disclosure List

- Silane 7803-62-5 100% 1 %

Environment

Canada - CEPA - Priority Substances List

- Silane 7803-62-5 100% Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

- Silane 7803-62-5 100% Not Listed

China - Ozone Depleting Substances - Second Schedule

- Silane 7803-62-5 100% Not Listed

China - Ozone Depleting Substances - Third Schedule

- Silane 7803-62-5 100% Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

- Silane 7803-62-5 100% Not Listed

China - Dangerous Goods List

- Silane 7803-62-5 100% UN2203

China - Export Control List - Part I Chemicals

- Silane 7803-62-5 100% Not Listed

Europe

Other

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

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

Germany

Environment**Germany - TA Luft - Types and Classes**

- Silane 7803-62-5 100% Not Listed

Germany - Water Classification (VwVwS) - Annex 1

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% ID Number 567, hazard class 1 - low hazard to waters (footnote 13)

Germany - Water Classification (VwVwS) - Annex 3

- Silane 7803-62-5 100% Not Listed

Other**Germany - Specifically Regulated Chemicals in TRGS**

- Silane 7803-62-5 100% Not Listed

Portugal**Other****Portugal - Prohibited Substances**

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

United Kingdom - Substances Contained in Dangerous Substances or Preparations

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

United Kingdom - The Red List - Dangerous Substances in Water

- Silane 7803-62-5 100% Not Listed

United States

Labor

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

- Silane 7803-62-5 100% Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

- Silane 7803-62-5 100% Not Listed

Environment

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

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

United States -California

Environment

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

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% Not Listed

United States -Pennsylvania

Labor

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

- Silane 7803-62-5 100% Not Listed

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

- Silane 7803-62-5 100% 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

- 05/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.