Safety Data Sheet

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

1.1 Product identifier

Product Name
- **Dichlorosilane (0.1 to < 2.09%) in Argon (Balance); Dichlorosilane (0.1 to < 2.78%) in Helium (Balance); Dichlorosilane (0.1 to < 4.1%) in Nitrogen (Balance)**

Product Code
- 60071

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

Relevant identified use(s)
- Semiconductor Uses

1.3 Details of the supplier of the safety data sheet

Manufacturer
- Air Liquide

  2700 Post Oak Blvd.
  Houston, TX 77056
  United States
  www.us.airliquide.com
  sds@airliquide.com

Telephone (Technical)
- 713-896-2896

Telephone (Technical)
- 800-819-1704

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 Regulation (EC) No 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
- Compressed Gas - H280
  Skin Irritation 2 - H315
  Serious Eye Damage 1 - H318
  Acute Toxicity Inhalation 4 - H332
  EUH071

DSD/DPD
- Corrosive (C)
  Harmful (Xn)
  R20, R35

2.2 Label Elements

CLP

DANGER

Hazard statements
- H280 - Contains gas under pressure; may explode if heated
H315 - Causes skin irritation
H318 - Causes serious eye damage
H332 - Harmful if inhaled
EUH071 - Corrosive to the respiratory tract.

Precautionary statements

Prevention
- P260 - Do not breathe 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
- 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.
P310 - Immediately call a POISON CENTER or doctor/physician.

Storage/Disposal
- P410+P403 - Protect from sunlight. Store in a well-ventilated place.

DSD/DPD

Risk phrases
- R20 - Harmful by inhalation.
R35 - Causes severe burns.

Safety phrases
- 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
- According to European Directive 1999/45/EC this material is considered dangerous.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012
- Compressed Gas - H280
Skin Irritation 2 - H315
Serious Eye Damage 1 - H318
Acute Toxicity Inhalation 4 - H332

2.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements
- Contains gas under pressure; may explode if heated - H280
  Causes skin irritation - H315
  Causes serious eye damage - H318
  Harmful if inhaled - H332

Precautionary statements

Prevention
- Do not breathe gas. - P260
  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
  Immediately call a POISON CENTER or doctor/physician. - P310

Storage/Disposal
- Store in a well-ventilated place. - P403

2.3 Other hazards

OSHA HCS 2012
- 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
  Corrosive - E
  Very Toxic - D1A

2.2 Label elements

WHMIS

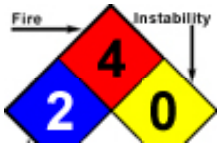
- Compressed Gas - A
  Corrosive - E
  Very Toxic - D1A

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

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

3.2 Mixtures

Composition					
Chemical Name	**Identifiers**	**%**	**LD50/LC50**	**Classifications According to Regulation/Directive**	**Comments**
Argon	**CAS:**7440-37-1 **EC Number:**231-147-0	0% TO 99.9%	NDA	**EU DSD/DPD:** Not Classified - Criteria not met **EU CLP:** Self Classified - Press. Gas - Comp., H280 **OSHA HCS 2012:** Press. Gas - Comp; Simp. Asphyx.	Balance
Helium	**CAS:**7440-59-7 **EINECS:**231-168-5	0% TO 99.9%	NDA	**EU DSD/DPD:** Not Classified - Criteria not met **EU CLP:** Self Classified - Press. Gas - Comp., H280 **OSHA HCS 2012:** Press. Gas - Comp; Simp. Asphyx.	Balance
Nitrogen	**CAS:**7727-37-9 **EINECS:**231-783-9	0% TO 99.9%	NDA	**EU DSD/DPD:** Not Classified - Criteria not met **EU CLP:** Self Classified - Press. Gas - Comp., H280 **OSHA HCS 2012:** Press. Gas - Comp; Simp. Asphyx.	Balance
Dichlorosilane	**CAS:**4109-96-0 **EINECS:**223-888-3	0.1% TO 4.1%	Inhalation-Rat LC50 • 215 ppm	**EU DSD/DPD:** Self Classified - F+, R12; T, R23; C, R35 **EU CLP:** Self Classified - Flam. Gas 1, H220; Press. Gas - Liq., H280; Skin Corr. 1, H314; Eye Dam. 1, H318; Acute Tox. 2, H330; EUH071 **OSHA HCS 2012:** Flam. Gas. 1; Press. Gas - Comp.; Eye Dam. 1; Skin Corr. 1; Acute Tox. 2 (Inhl)	NDA

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

- Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.

Skin

- For minor skin contact, avoid spreading material on unaffected skin. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Remove and isolate contaminated clothing. Get medical attention immediately.

Eye

- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Get medical attention immediately.

Ingestion

- If swallowed, rinse mouth with water (only if the person is conscious) Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Give plenty of water to drink. Do not use mouth-to-mouth method if victim ingested the substance. Obtain medical attention immediately if ingested.

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.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media

- Use extinguishing agent suitable for type of surrounding fire.
  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

- 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.
  Wear positive pressure self-contained breathing apparatus (SCBA).
  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 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.
  FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
  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: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
  FIRE INVOLVING TANKS: ALWAYS stay away from tanks engulfed in fire.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Ventilate the area before entry. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

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. 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.

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. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe gas. 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. Avoid contact with skin, eyes, and clothing. 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.

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

- Currently there are no applicable exposure limits established for this material.

Exposure Control Notations

Portugal

•Argon (7440-37-1): **Simple Asphyxiants:** (Simple Asphyxiant)

•Helium (7440-59-7): **Simple Asphyxiants:** (Simple Asphyxiant)

•Nitrogen (7727-37-9): **Simple Asphyxiants:** (Simple Asphyxiant)

Ireland

•Argon (7440-37-1): **Simple Asphyxiants:** (Asphyxiant)

•Helium (7440-59-7): **Simple Asphyxiants:** (Asphyxiant)

•Nitrogen (7727-37-9): **Simple Asphyxiants:** (Asphyxiant)

Spain

•Argon (7440-37-1): **Simple Asphyxiants:** (simple asphyxiant)

•Helium (7440-59-7): **Simple Asphyxiants:** (simple asphyxiant)

•Nitrogen (7727-37-9): **Simple Asphyxiants:** (simple asphyxiant)

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	Data lacking	Melting Point	Data lacking
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	Data lacking	Water Solubility	Data lacking
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	Data lacking
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Data lacking		
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

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Excess heat.

10.5 Incompatible materials

- Dichlorosilane can react violently with water and halocarbons. Dichlorosilane is also incompatible with acetone, oxidizers and combustible materials.

10.6 Hazardous decomposition products

- Decomposition products of Dichlorosilane are acid halides, silane compounds, hydrogen chloride, chlorine, and phosgene.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Dichlorosilane (0.1% TO 4.1%)	4109-96-0	**Acute Toxicity:** Inhalation-Rat LC50 • 215 ppm; *Sense Organs and Special Senses:Eye*:**Lacrimation**; *Lungs, Thorax, or Respiration*:**Acute pulmonary edema**; *Lungs, Thorax, or Respiration*:**Dyspnea**

GHS Properties	Classification
Acute toxicity	**EU/CLP** • Acute Toxicity - Inhalation 4 **OSHA HCS 2012** • Acute Toxicity - Inhalation 4
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** • 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)
- Harmful if inhaled.

Chronic (Delayed)
- No data available.

Skin

Acute (Immediate)
- Causes skin irritation.

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.

Key to abbreviations

LC = Lethal Concentration

Section 12 - Ecological Information

12.1 Toxicity

- Material data lacking.

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

- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

- No studies have been found.

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	UN1956	Compressed gas, n.o.s. (Dichlorosilane, Argon) or (Dichlorosilane, Helium) or (Dichlorosilane, Nitrogen)	2.2	NDA	NDA
TDG	UN1956	COMPRESSED GAS, N.O.S. (Dichlorosilane, Argon) or (Dichlorosilane, Helium) or	2.2	NDA	NDA

		(Dichlorosilane, Nitrogen)			
IMO/IMDG	UN1956	COMPRESSED GAS, N.O.S. (Dichlorosilane, Argon) or (Dichlorosilane, Helium) or (Dichlorosilane, Nitrogen)	2.2	NDA	NDA
IATA/ICAO	UN1956	Compressed gas, n.o.s. (Dichlorosilane, Argon) or (Dichlorosilane, Helium) or (Dichlorosilane, Nitrogen)	2.2	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**
Argon	7440-37-1	Yes	Yes	Yes
Helium	7440-59-7	Yes	Yes	Yes
Nitrogen	7727-37-9	Yes	Yes	Yes
Dichlorosilane	4109-96-0	No	Yes	Yes

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Argon	7440-37-1	Yes	No	Yes	Yes	No
Helium	7440-59-7	Yes	No	Yes	Yes	No
Nitrogen	7727-37-9	Yes	No	Yes	Yes	No
Dichlorosilane	4109-96-0	Yes	No	Yes	Yes	No

Inventory (Con't.)		
Component	**CAS**	**TSCA**
Argon	7440-37-1	Yes
Helium	7440-59-7	Yes
Nitrogen	7727-37-9	Yes
Dichlorosilane	4109-96-0	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

- Argon 7440-37-1 A
- Nitrogen 7727-37-9 A

• Helium	7440-59-7	A
• Dichlorosilane	4109-96-0	Not Listed

Canada - WHMIS - Ingredient Disclosure List

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	1 %

Environment

Canada - CEPA - Priority Substances List

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

Other

Canada - Accelerated Reduction/Elimination of Toxics (ARET)

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

China - Ozone Depleting Substances - Second Schedule

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

China - Ozone Depleting Substances - Third Schedule

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

China - Dangerous Goods List

• Argon	7440-37-1	(compressed or refrigerated liquid)

• Nitrogen	7727-37-9	(compressed or refrigerated liquid)
• Helium	7440-59-7	(compressed or refrigerated liquid)
• Dichlorosilane	4109-96-0	

China - Export Control List - Part I Chemicals

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

Europe

Other

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

Germany

Environment

Germany - TA Luft - Types and Classes

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

Germany - Water Classification (VwVwS) - Annex 1

ID Number 1348, not

• Argon	7440-37-1	considered hazardous to water
• Nitrogen	7727-37-9	ID Number 1351, not considered hazardous to water
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	ID Number 557, hazard class 1 - low hazard to waters (footnote 13)

Germany - Water Classification (VwVwS) - Annex 3

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

Portugal

Other

Portugal - Prohibited Substances

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

United Kingdom

Environment

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

Other

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

United Kingdom - List of Dangerous Substances in Water

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

United States

Labor

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	2500 lb TQ

U.S. - OSHA - Specifically Regulated Chemicals

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

Environment

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

United States - California

Environment

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

United States - Pennsylvania

Labor

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

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

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Dichlorosilane	4109-96-0	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H314 - Causes severe skin burns and eye damage.
  H330 - Fatal if inhaled
  R23 - Toxic by inhalation.

Last Revision Date

- 09/September/2014

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.

Key to abbreviations

NDA = No Data Available