Safety Data Sheet

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

1.1 Product identifier

Product Name
- **Non-Flammable Gas Mixture Containing Arsine (<3.5%) and Helium, Argon, or Nitrogen (Balance)**

Product Code
- MSDS No.: 60010

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

Relevant identified use(s)
- For use in manufacture of electronic devices.

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
  Acute Toxicity Inhalation 4 - H332
  Hazardous to the aquatic environment Chronic 3 - H412

DSD/DPD
- Toxic (T)

  R23, R52, R53

2.2 Label Elements

CLP

WARNING

Hazard statements •
H280 - Contains gas under pressure; may explode if heated
H332 - Harmful if inhaled
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements

Prevention •
P261 - Avoid breathing gas.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
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.

Storage/Disposal •
P403 - Store in a well-ventilated place.
P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD

Risk phrases •
R23 - Toxic by inhalation.
R52 - Harmful to aquatic organisms.
R53 - May cause long-term adverse effects in the aquatic environment.

Safety phrases •
S37 - Wear suitable gloves.
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 HCS 2012 •
Compressed Gas - H280
Acute Toxicity Inhalation 4 - H332
Carcinogenicity 1A - H350

2.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements •
Contains gas under pressure; may explode if heated - H280
Harmful if inhaled - H332
May cause cancer. - H350

Precautionary statements

Prevention •
Obtain special instructions before use. - P201
Do not handle until all safety precautions have been read and understood. - P202
Avoid breathing gas. - P261
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
IF exposed or concerned: Get medical advice/attention. - P308+P313
Call a POISON CENTER or doctor/physician if you feel unwell. - P312

Storage/Disposal

- Store in a well-ventilated place. - P403
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 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
Other Toxic Effects - D2A

2.2 Label elements

WHMIS

- Compressed Gas - A
Other Toxic Effects - D2A

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

Arsine	**CAS:**7784-42-1 **EC Number:**232-066-3 **EU Index:**033-006-00-7	< 3.5%	Inhalation-Rat LC50 • .3 mg/m³ 15 Minute(s)	**EU DSD/DPD:** Annex I - F+; R12 T+; R26 Xn; R48/20 N; R50-53 **EU CLP:** Annex VI - Flam. Gas 1, H220; Press. Gas - Comp., H280; Acute Tox. 1, H330; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410 **OSHA HCS 2012:** Flam. Gas 1; Press. Gas - Comp.; Acute Tox 1 (inhl); Carc 1A; STOT RE 1	NDA
Argon	**CAS:**7440-37-1 **EC Number:**231-147-0	0% TO 100%	NDA	**EU DSD/DPD:** Not Classified **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 100%	NDA	**EU DSD/DPD:** Not Classified **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 100%	NDA	**EU DSD/DPD:** Not Classified **EU CLP:** Self Classified - Press. Gas - Comp., H280 **OSHA HCS 2012:** Press. Gas - Comp.; Simp. Asphyx.	Balance

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
- First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. Get medical attention if symptoms occur. 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.

Ingestion
- As this product is a gas, refer to the inhalation section. 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
- 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. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear appropriate personal protective equipment, avoid direct contact.

Emergency Procedures
- Stop leak if you can do it without risk. Keep unauthorized personnel away. Keep out of low areas. Stay upwind. Do not direct water at spill or source of leak. LARGE SPILL: Consider initial downwind evacuation for at least 500 meters (1/3 mile)

6.2 Environmental precautions

- No special environmental precautions necessary.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures
- Stop leak if you can do it without risk.
Do not direct water at spill or source of leak.
Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.
If possible, turn leaking containers so that gas escapes rather than liquid.
Isolate area until gas has dispersed.
Ventilate the area.
Allow substance to evaporate.

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
- Use only with adequate ventilation. Wear appropriate personal protective equipment,

avoid direct contact. Avoid breathing gas. Cylinders should be firmly secured to prevent falling or being knocked-over. 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

- Store in a cool, dry, well-ventilated place. 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)

Exposure Limits Supplemental

Spain

•Arsine (7784-42-1): **Under Review:** (0.005 ppm VLA-ED; 0.016 mg/m3 VLA-ED; manufacturing, commercialization, and use restrictions under REACH)

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.

Personal Protective Equipment

Respiratory

- In case of insufficient ventilation, wear suitable respiratory equipment.

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 a faint, garlic odor, due to the presence of Arsine.
Color	Colorless	Odor	Faint, garlic odor.
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	Not relevant	UEL	Not relevant
LEL	Not relevant	Autoignition	Not relevant
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

- Nitrogen reacts with Li, Nd, and Ti at high temperatures. Arsine will react readily with bromine, potassium permanganate, sodium hypochlorite to form arsenic compounds. Arsine is a strong reducing agent and will react with mild to strong oxidizers.

10.6 Hazardous decomposition products

- Arsenic can be generated from Arsine when the gas is exposed to light or it is heated above 300 C (572 F). Arsenic trioxide is a combustion product of arsine.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Arsine (< 3.5%)	7784-42-1	**Acute Toxicity:** Inhalation-Rat LC50 • 45 ppm 4 Hour(s); *Lungs, Thorax, or Respiration*:**Dyspnea**; *Kidney, Ureter, and Bladder*:**Hematuria**; *Blood*:**Hemorrhage**

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** • Carcinogenicity 1A
Germ Cell Mutagenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Skin corrosion/Irritation	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
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** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met

Potential Health Effects

Inhalation

Acute (Immediate)
- Harmful if inhaled.

Chronic (Delayed)
- No data available

Skin

Acute (Immediate)
- Under normal conditions of use, no health effects are expected.

Chronic (Delayed)
- No data available

Eye

Acute (Immediate)
- Under normal conditions of use, no health effects are expected.

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

Carcinogenic Effects
- Material level data is not available however this gas mixture contains an ingredient which may cause carcinogenic effects upon prolonged and repeated exposure.

Carcinogenic Effects		
	CAS	IARC
Arsine	7784-42-1	Group 1-Carcinogenic

Section 12 - Ecological Information

12.1 Toxicity

- Harmful to aquatic life with long lasting effects.

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. (arsine, argon) or (arsine, helium) or (arsine, nitrogen)	2.2	NDA	NDA
TDG	UN1956	COMPRESSED GAS, N.O.S. (Arsine, Argon) or (Arsine, Helium) or (Arsine, Nitrogen)	2.2	NDA	NDA
IMO/IMDG	UN1956	COMPRESSED GAS, N.O.S. (Arsine, Argon) or (Arsine, Helium) or (Arsine, 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

- Not relevant.

Code

Section 15 - Regulatory Information

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

SARA Hazard Classifications • Pressure(Sudden Release of)

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Argon	7440-37-1	Yes	Yes	Yes
Arsine	7784-42-1	Yes	Yes	Yes
Helium	7440-59-7	Yes	Yes	Yes
Nitrogen	7727-37-9	Yes	Yes	Yes

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Argon	7440-37-1	Yes	No	Yes	Yes	No
Arsine	7784-42-1	Yes	No	Yes	Yes	No
Helium	7440-59-7	Yes	No	Yes	Yes	No
Nitrogen	7727-37-9	Yes	No	Yes	Yes	No

Inventory (Con't.)		
Component	**CAS**	**TSCA**
Argon	7440-37-1	Yes
Arsine	7784-42-1	Yes
Helium	7440-59-7	Yes
Nitrogen	7727-37-9	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Argon	7440-37-1	A
• Nitrogen	7727-37-9	A
• Helium	7440-59-7	A
• Arsine	7784-42-1	A, B1, D1A, D2A

Canada - WHMIS - Ingredient Disclosure List

• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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)
• Arsine	7784-42-1	

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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	F+; R12 T+; R26 Xn; R48/20 N; R50-53

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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	F+ T+ N R:12-26-48/20-50/53 S:(1/2)-9-16-28-33-36/37-45-60-61

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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	S:(1/2)-9-16-28-33-36/37-45-60-61

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
• Arsine	7784-42-1	inorganic gas Substance: 5.2.4, Class I

Germany - Water Classification (VwVwS) - Annex 1

• Argon	7440-37-1	ID Number 1348, not considered hazardous to water
• Nitrogen	7727-37-9	ID Number 1351, not considered hazardous to water
• Helium	7440-59-7	Not Listed
• Arsine	7784-42-1	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
• Arsine	7784-42-1	ID Number 214, hazard class 3 - severe hazard to waters

Germany - Water Classification (VwVwS) - Annex 3

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

• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	100 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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	100 lb EPCRA RQ

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
• Arsine	7784-42-1	100 lb TPQ

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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	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
• Arsine	7784-42-1	

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
• Arsine	7784-42-1	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H220 - Extremely flammable gas
  H330 - Fatal if inhaled
  H373 - May cause damage to organs through prolonged or repeated exposure.
  H400 - Very toxic to aquatic life
  H410 - Very toxic to aquatic life with long lasting effects

R12 - Extremely flammable.
R26 - Very toxic by inhalation.
R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R50 - Very toxic to aquatic organisms.

Last Revision Date

- 08/September/2014

Preparation Date

- 08/September/2014

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