

Safety Data Sheet



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

1.1 Product identifier

Product Name • Ethylene (> 4.1-50.0%) in Helium (Balance) or Ethylene (> 3.1-50.0%) in Argon (Balance) or Ethylene (> 6.0%) in Nitrogen (Balance)

Product Code • 60073

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 • Flammable Gases 1 - H220
Compressed Gas - H280
Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects - H336

DSD/DPD • Extremely Flammable (F+)
R12, R67

2.2 Label Elements

CLP

DANGER



- Hazard statements**
- H220 - Extremely flammable gas
 - H280 - Contains gas under pressure; may explode if heated
 - H336 - May cause drowsiness or dizziness

Precautionary statements

- Prevention**
- P210 - Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
 - P261 - Avoid breathing fume/gas.
 - P271 - Use only outdoors or in a well-ventilated area.
- 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.
- 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.
 - R67 - Vapours may cause drowsiness and dizziness.
- Safety phrases**
- S9 - Keep container in a well ventilated place
 - S16 - Keep away from sources of ignition - No Smoking.

2.3 Other Hazards

CLP

- This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD

- This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
According to European Directive 1999/45/EC this preparation 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

- Flammable Gases 1 - H220
- Compressed Gas - H280
- Eye Irritation 2A - H319
- Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects - H336
- Simple Asphyxiant

2.2 Label elements

OSHA HCS 2012

DANGER



- Hazard statements**
- Extremely flammable gas - H220

Contains gas under pressure; may explode if heated - H280
Causes serious eye irritation - H319
May cause drowsiness or dizziness - H336
May displace oxygen and cause rapid suffocation.

Precautionary statements

- Prevention**
- Keep away from heat, sparks, open flames and/or hot surfaces. - P210
 - 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**
- Leaking gas fire: Do not extinguish, unless leak can be stopped safely. - P377
 - Eliminate all ignition sources if safe to do so. - P381
 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
 - Call a POISON CENTER or doctor/physician if you feel unwell. - P312
 - 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 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
- Flammable Gases - B1
- Other Toxic Effects - D2B

2.2 Label elements

WHMIS



- Compressed Gas - A
- Flammable Gases - B1
- Other Toxic Effects - D2B

2.3 Other hazards

WHMIS

- This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

2.4 Other information





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	%	Classifications According to Regulation/Directive	Comments
Ethylene	CAS:74-85-1 EC Number:200-815-3 EU Index:601-010-00-3	3.1% TO 100%	EU DSD/DPD: Annex I - F+; R12 R67 EU CLP: Annex VI - Flam. Gas 1, H220; Press. Gas, H280; STOT SE 3, H336 OSHA HCS 2012: Press. Gas; Flam. Gas 1; Eye Irrit. 2A; STOT SE 3: Narc.	NDA
Nitrogen	CAS:7727-37-9 EINECS:231-783-9	0% TO 96.9%	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 96.9%	EU DSD/DPD: Not Classified EU CLP: Self Classified - Press. Gas - Comp., H280 OSHA HCS 2012: Press. Gas - Comp.; Simp. Asphyx.	Balance
Argon	CAS:7440-37-1 EC Number:231-147-0	0% TO 96.9%	EU DSD/DPD: Not Classified EU CLP: Self Classified - Press. Gas - Comp., H280 OSHA HCS 2012: Press. Gas - Comp.; Simp. Asphyx.	Balance

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. If eye irritation persists: Get medical advice/attention.

Ingestion

- Ingestion is not considered a potential route of exposure.

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

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

Hazardous Combustion Products

- No data available

5.3 Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
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

- 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. **LARGE SPILL:** Consider initial downwind evacuation for at least 800 meters (1/2 mile) Keep unauthorized personnel away. Keep out of low areas. Stay upwind.

6.2 Environmental precautions

- 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. Wear appropriate personal protective equipment, avoid direct contact. Avoid breathing 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. 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	Ireland	Israel	Portugal
Ethylene (74-85-1)	TWAs	200 ppm TWA	200 ppm TWA	200 ppm TWA	200 ppm TWA	200 ppm TWA [VLE-MP]
Exposure Limits/Guidelines (Con't.)						
	Result	Spain		Sweden		
Ethylene (74-85-1)	TWAs	200 ppm TWA [VLA-ED]		250 ppm LLV; 330 mg/m3 LLV		
	STELs	Not established		1000 ppm STV; 1200 mg/m3 STV		

Exposure Control Notations

Portugal

- Ethylene (74-85-1): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- 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

- Ethylene (74-85-1): **Simple Asphyxiants:** (Asphyxiant)
- 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)

Germany TRGS

- Ethylene (74-85-1): **Carcinogens:** (Based on current data, this substance cannot be classified in categories 1-3) | **Developmental Toxins:** (Based on current data, this substance cannot be classified in categories 1-3) | **Reproductive Toxins:** (Based on current data, this substance cannot be classified in categories 1-3) | **Germ Cell Mutagens:** (Category 3)

Germany DFG

- Ethylene (74-85-1): **Carcinogens:** (Category 3B (could be carcinogenic for man))

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

- 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.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

LLV = Limit Level Value is the exposure limit for 8-hour work day

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

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

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless gas with sweet odor.
Color	Colorless	Odor	Sweet 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	Not relevant	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)	Flammable gas.		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Excess heat, sparks, open flame.

10.5 Incompatible materials

- Ethylene is incompatible strong oxidizing agents (e.g. chlorine dioxide, fluorine, perchlorates or peroxides), strong acids (e.g. hydrogen bromide, hydrogen chloride, nitric acid or sulfuric acid), halocarbons (e.g. bromotrichloromethane, carbon tetrachloride, chlorotrifluoroethylene or tetrafluoroethylene), chlorine, aluminum chloride or aluminum chloride-nitromethane, organic peroxides (e.g. benzoyl peroxide), nitrogen dioxide or ozone, copper (polymerization of ethylene in the presence of metallic copper can become violent at high pressures and temperatures), 5A molecular sieves. Ethylene can attack the plastic, polyvinyl chloride (PVC); and the elastomers, ethylene propylene (EP and EPDM), styrene butadiene (SBR), silicone and Fluoraz (fluorinated copolymer).

10.6 Hazardous decomposition products

- Upon ignition, thermal decomposition products can include carbon oxides.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

GHS Properties	Classification
Acute toxicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met

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 • 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 • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects
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 • Eye Irritation 2A

Potential Health Effects

Inhalation

Acute (Immediate)

- May affect the central nervous system. Symptoms may include dizziness, drowsiness, lethargy, coma and death. If this material is released in a small, poorly ventilated area (i.e. an enclosed or confined space), an oxygen-deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with decreased levels of oxygen: increase in breathing and pulse rate, emotional upset, abnormal fatigue, nausea, vomiting, collapse, loss of consciousness, convulsive movements, respiratory collapse and death.

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

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	UN1954	Compressed gas, flammable, n.o.s. (Ethylene, Argon) or (Ethylene, Helium) or (Ethylene, Nitrogen)	2.1	NDA	NDA
TDG	UN1954	COMPRESSED GAS, FLAMMABLE, N.O.S. (Ethylene, Argon) or (Ethylene, Helium) or (Ethylene, Nitrogen)	2.1	NDA	NDA
IMO/IMDG	UN1954	COMPRESSED GAS, FLAMMABLE, N.O.S. (Ethylene, Argon) or (Ethylene, Helium) or (Ethylene, Nitrogen)	2.1	NDA	NDA
IATA/ICAO	UN1954	Compressed gas, flammable, n.o.s. (Ethylene, Argon) or (Ethylene, Helium) or (Ethylene, Nitrogen)	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.

14.8 Other information

- This material is forbidden on passenger aircraft.

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
Ethylene	74-85-1	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
Ethylene	74-85-1	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
Ethylene	74-85-1	Yes
Helium	7440-59-7	Yes
Nitrogen	7727-37-9	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Ethylene	74-85-1	A, B1, D2B
• Argon	7440-37-1	A
• Nitrogen	7727-37-9	A
• Helium	7440-59-7	A

Canada - WHMIS - Ingredient Disclosure List

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Environment

Canada - CEPA - Priority Substances List

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

China - Ozone Depleting Substances - Second Schedule

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

China - Ozone Depleting Substances - Third Schedule

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

China - Dangerous Goods List

• Ethylene	74-85-1	(including refrigerated liquid)
• Argon	7440-37-1	(compressed or refrigerated liquid)
• Nitrogen	7727-37-9	(compressed or refrigerated liquid)
• Helium	7440-59-7	(compressed or refrigerated liquid)

China - Export Control List - Part I Chemicals

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Europe

Other

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

• Ethylene	74-85-1	F+; R12 R67
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed

• Helium	7440-59-7	Not Listed
EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling		
• Ethylene	74-85-1	F+ R:12-67 S:(2)-9-16-33-45
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations		
• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed
EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases		
• Ethylene	74-85-1	S:(2)-9-16-33-45
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Germany

Environment

Germany - TA Luft - Types and Classes

• Ethylene	74-85-1	organic Substance: 5.2.5, Class I
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Germany - Water Classification (VwVwS) - Annex 1

• Ethylene	74-85-1	ID Number 742, not considered hazardous to water
• 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

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Germany - Water Classification (VwVwS) - Annex 3

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Portugal

Other

Portugal - Prohibited Substances

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

United Kingdom

Environment

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

• Ethylene	74-85-1	1000 kg
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Other

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

United Kingdom - List of Dangerous Substances in Water

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

United States

Labor

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Environment

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed

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

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	1.0 % de minimis concentration
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

United States - California**Environment****U.S. - California - Proposition 65 - Carcinogens List**

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

United States - Pennsylvania**Labor****U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List**

• Ethylene	74-85-1	
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Argon	7440-37-1	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information**Last Revision Date**

- 09/September/2014

Preparation Date

- 09/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
