Safety Data Sheet

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

1.1 Product identifier

Product Name | **Flammable Gas Mixture Containing Butane (1-10%), Ethane (1-10%), Propane (1-10%), Propylene (1-10%), Ethylene (1-30%), Methane (1-49%), and Hydrogen (Balance)**

Product Code | 40103

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

Relevant identified use(s) | For general analytical/synthetic chemical uses.

1.3 Details of the supplier of the safety data sheet

Manufacturer | Air Liquide

2700 Post Oak Blvd.
Houston, TX 77056
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 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 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 | Flammable Gases 1 - H220
Compressed Gas - H280
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
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. - No smoking. - P210
Avoid breathing gas. - P261
Use only outdoors or in a well-ventilated area. - P271

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

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

2.2 Label elements

WHMIS

| Compressed Gas - A
Flammable Gases - B1

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).

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**
	CAS:74-82-8			**EU DSD/DPD:** Annex VI, Table 3.2 - F+ R12

Methane	**EC Number:**200-812-7 **EU Index:**601-001-00-4	1% TO 49%	NDA	**EU CLP:** Annex VI, Table 3.1 - Flam. Gas 1, H220; Press. Gas - Comp., H280 **OSHA HCS 2012:** Flam. Gas 1; Press. Gas - Comp.; Simp. Asphyx.
Ethylene	**CAS:**74-85-1 **EC Number:**200-815-3 **EU Index:**601-010-00-3	1% TO 30%	NDA	**EU DSD/DPD:** Annex VI, Table 3.2 - F+ R12 R67 **EU CLP:** Annex VI, Table 3.1 - Flam. Gas 1, H220; Press. Gas - Comp. H280; STOT SE 3: Narc., H336 **OSHA HCS 2012:** Flam. Gas 1; Press. Gas - Comp.; STOT SE 3: Narc.
Propene	**CAS:**115-07-1 **EC Number:**204-062-1 **EU Index:**601-011-00-9	1% TO 10%	NDA	**EU DSD/DPD:** Annex VI, Table 3.2 - F+ R12 **EU CLP:** Annex VI, Table 3.1 - Flam Gas 1, H220; Press. Gas - Comp. H280 **OSHA HCS 2012:** Flam. Gas 1; Press. Gas - Comp.
Propane	**CAS:**74-98-6 **EC Number:**200-827-9 **EU Index:**601-003-00-5	1% TO 10%	NDA	**EU DSD/DPD:** Annex VI, Table 3.2 - F+ R12 **EU CLP:** Annex VI, Table 3.1 - Flam. Gas 1, H220; Press. Gas - Comp., H280 **OSHA HCS 2012:** Flam. Gas 1; Press. Gas - Comp.; Simp. Asphyx.
Ethane	**CAS:**74-84-0 **EC Number:**200-814-8 **EU Index:**601-002-00-X	1% TO 10%	NDA	**EU DSD/DPD:** Annex VI, Table 3.2 - F+ R12 **EU CLP:** Annex VI, Table 3.1 - Flam. Gas 1, H220; Press. Gas - Comp., H280 **OSHA HCS 2012:** Flam. Gas 1; Press. Gas - Comp.; Simp. Asphyx.
Butane	**CAS:**106-97-8 **EC Number:**203-448-7 **EU Index:**601-004-00-0	1% TO 10%	Inhalation-Rat LC50 • 658 g/m³ 4 Hour(s)	**EU DSD/DPD:** Annex VI, Table 3.2 - F+ R12 **EU CLP:** Annex VI, Table 3.1 - Flam. Gas 1, H220; Press. Gas - Comp., H280 **OSHA HCS 2012:** Flam. Gas 1; Press. Gas - Comp.
Hydrogen	**CAS:**1333-74-0 **EC Number:**215-605-7 **EU Index:**001-001-00-9	Balance	NDA	**EU DSD/DPD:** Annex VI, Table 3.2 - F+; R12 **EU CLP:** Annex VI, Table 3.1 - Flam. Gas 1, H220; Press. Gas - Comp., H280 **OSHA HCS 2012:** Flam. Gas 1; Press. Gas - Comp.; Simp. Asphyx.

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 | When involved in a fire, this material will ignite and produce toxic gases (including carbon monoxide and carbon dioxide).

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

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

Exposure Control Notations

Portugal

- Propene (115-07-1): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- Ethylene (74-85-1): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- Hydrogen (1333-74-0): **Simple Asphyxiants:** (Simple Asphyxiant)

Italy

- Butane (106-97-8): **Carcinogens:** (Category 1 Carcinogen (containing >= 0.1% Butadiene)) | **Mutagens:** (Category 2 Mutagen (containing >= 0.1% Butadiene))

Ireland

•Propane (74-98-6): **Simple Asphyxiants:** (Asphyxiant)
•Ethane (74-84-0): **Simple Asphyxiants:** (Asphyxiant)
•Propene (115-07-1): **Simple Asphyxiants:** (Asphyxiant)
•Ethylene (74-85-1): **Simple Asphyxiants:** (Asphyxiant)
•Methane (74-82-8): **Simple Asphyxiants:** (Asphyxiant)
•Hydrogen (1333-74-0): **Simple Asphyxiants:** (Asphyxiant)

Spain

•Hydrogen (1333-74-0): **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

•Butane (106-97-8): **Pregnancy:** (classification not yet possible)
•Propane (74-98-6): **Pregnancy:** (classification not yet possible)
•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.

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless gas with no odor or a slight natural gas odor.
Color	Colorless	Odor	Odorless or natural gas.
Odor Threshold	Data lacking		
General Properties			
Boiling Point	Data lacking	Melting Point	Data lacking
Decomposition Temperature	Data lacking	pH	Not relevant
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)	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

Normally stable. If this gas mixture contains high concentrations of Ethylene or Propylene, it may become unstable at elevated temperatures.

10.3 Possibility of hazardous reactions

Ethylene and Propylene, components of this gas mixture, may undergo hazardous polymerization at elevated temperatures.

10.4 Conditions to avoid

Excess heat, sparks, open flame.

10.5 Incompatible materials

This gas mixture is incompatible with strong oxidizers (i.e., chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride). Ethylene, a component of this gas mixture, is also incompatible with aluminum chloride, nitrogen dioxide, ozone, carbon tetrachloride, mercury oxide, silver oxide, and copper.

10.6 Hazardous decomposition products

If ignited in air, the components of this gas mixture will generate water, carbon monoxide, and carbon dioxide.

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** • Classification criteria not met

Potential Health Effects

Inhalation

Acute (Immediate) | May affect the central nervous system. Symptoms may include dizziness, drowsiness, lethargy, coma and death. This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces. 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. (Hydrogen, Methane)	2.1	NDA	NDA
TDG	UN1954	COMPRESSED GAS, FLAMMABLE, N.O.S. (Hydrogen, Methane)	2.1	NDA	Potential Marine Pollutant
IMO/IMDG	UN1954	COMPRESSED GAS, FLAMMABLE, N.O.S. (Hydrogen, Methane)	2.1	NDA	NDA
IATA/ICAO	UN1954	Compressed gas, flammable, n.o.s. (Hydrogen, Methane)	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 Data lacking.

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**
Butane	106-97-8	Yes	Yes	Yes
Ethane	74-84-0	Yes	Yes	Yes
Ethylene	74-85-1	Yes	Yes	Yes
Hydrogen	1333-74-0	Yes	Yes	Yes
Methane	74-82-8	Yes	Yes	Yes
Propane	74-98-6	Yes	Yes	Yes
Propene	115-07-1	Yes	Yes	Yes

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Butane	106-97-8	Yes	No	Yes	Yes	No
Ethane	74-84-0	Yes	No	Yes	Yes	No
Ethylene	74-85-1	Yes	No	Yes	Yes	No
Hydrogen	1333-74-0	Yes	No	Yes	Yes	No
Methane	74-82-8	Yes	No	Yes	Yes	No
Propane	74-98-6	Yes	No	Yes	Yes	No
Propene	115-07-1	Yes	No	Yes	Yes	No

Inventory (Con't.)		
Component	**CAS**	**TSCA**
Butane	106-97-8	Yes
Ethane	74-84-0	Yes
Ethylene	74-85-1	Yes
Hydrogen	1333-74-0	Yes
Methane	74-82-8	Yes
Propane	74-98-6	Yes
Propene	115-07-1	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Ethylene	74-85-1	A, B1, D2B
• Hydrogen	1333-74-0	A, B1
• Ethane	74-84-0	A, B1
• Propane	74-98-6	A, B1
• Butane	106-97-8	A, B1
• Propene	115-07-1	A, B1
• Methane	74-82-8	A, B1

Canada - WHMIS - Ingredient Disclosure List

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	1 %
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

Environment

Canada - CEPA - Priority Substances List

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

China - Ozone Depleting Substances - Second Schedule

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

China - Ozone Depleting Substances - Third Schedule

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

China - Dangerous Goods List

• Ethylene	74-85-1	(including refrigerated liquid)
• Hydrogen	1333-74-0	(compressed or refrigerated liquid)
• Ethane	74-84-0	(including refrigerated liquid)
• Propane	74-98-6	
• Butane	106-97-8	
• Propene	115-07-1	
• Methane	74-82-8	(compressed or refrigerated liquid)

China - Export Control List - Part I Chemicals

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed

• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

Europe

Other

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

• Ethylene	74-85-1	F+; R12 R67
• Hydrogen	1333-74-0	F+; R12
• Ethane	74-84-0	F+; R12
• Propane	74-98-6	F+; R12
• Butane	106-97-8	F+; R12
• Propene	115-07-1	F+; R12
• Methane	74-82-8	F+; R12

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	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
• Hydrogen	1333-74-0	F+ R:12 S:(2)-9-16-33
• Ethane	74-84-0	F+ R:12 S:(2)-9-16-33
• Propane	74-98-6	F+ R:12 S:(2)-9-16
• Butane	106-97-8	F+ R:12 S:(2)-9-16
• Propene	115-07-1	F+ R:12 S:(2)-9-16-33
• Methane	74-82-8	F+ R:12 S:(2)-9-16-33

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	C
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	S:(2)-9-16-33-45
• Hydrogen	1333-74-0	S:(2)-9-16-33
• Ethane	74-84-0	S:(2)-9-16-33
• Propane	74-98-6	S:(2)-9-16
• Butane	106-97-8	S:(2)-9-16
• Propene	115-07-1	S:(2)-9-16-33
• Methane	74-82-8	S:(2)-9-16-33

Germany

Environment

Germany - TA Luft - Types and Classes

• Ethylene	74-85-1	organic Substance: 5.2.5, Class I
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

Germany - Water Classification (VwVwS) - Annex 1

• Ethylene	74-85-1	ID Number 742, not considered hazardous to water
• Hydrogen	1333-74-0	ID Number 741, not considered hazardous to water
• Ethane	74-84-0	ID Number 91, not considered hazardous to water
• Propane	74-98-6	ID Number 560, not considered hazardous to water
• Butane	106-97-8	ID Number 561, not considered hazardous to water (1,3-Butadiene <0.1%)
• Propene	115-07-1	ID Number 816, not considered hazardous to water
• Methane	74-82-8	ID Number 1343, not considered hazardous to water

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

Germany - Water Classification (VwVwS) - Annex 3

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed

• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

Portugal

Other

Portugal - Prohibited Substances

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

United Kingdom

Environment

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

• Ethylene	74-85-1	1000 kg
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	10000 kg

Other

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

United Kingdom - List of Dangerous Substances in Water

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

United States

Labor

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed

• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

Environment

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed

• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	1.0 % de minimis concentration
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	1.0 % de minimis concentration
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

United States - California

Environment

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

United States - Pennsylvania

Labor

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

• Ethylene	74-85-1	
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	
• Methane	74-82-8	Not Listed

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

• Ethylene	74-85-1	Not Listed
• Hydrogen	1333-74-0	Not Listed
• Ethane	74-84-0	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Propene	115-07-1	Not Listed
• Methane	74-82-8	Not Listed

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date	09/December/2014
Preparation Date	09/December/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