21 Components in Propylene

Safety Data Sheet

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Product name : 21 Components in Propylene

Product code : SG-2022-00574

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

Use of the substance/mixture : Test gas/Calibration gas.

1.3. Details of the supplier of the safety data sheet

Air Liquide
2700 Post Oak Boulevard
Houston, TX 77056 - USA
T 1-800-819-1704
www.us.airliquide.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Flam. Gas 1	H220
Liquefied gas	H280

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS02 GHS04

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :
H220 - Extremely flammable gas
H280 - Contains gas under pressure; may explode if heated
OSHA-H01 - May displace oxygen and cause rapid suffocation
CGA-HG01 - May cause frostbite
CGA-HG04 - May form explosive mixtures with air

Precautionary statements (GHS-US) :
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear eye protection, face protection, protective gloves, protective clothing
P302 - IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area, Get immediate medical advice/attention
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - If exposed or concerned: Get medical advice/attention
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely
P381 - Eliminate all ignition sources if safe to do so
P403 - Store in a well-ventilated place
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)
CGA-PG05 - Use a back flow preventive device in the piping
CGA-PG06 - Close valve after each use and when empty
CGA-PG10 - Use only with equipment rated for cylinder pressure
CGA-PG14 - Approach suspected leak area with caution
CGA-PG21 - Open valve slowly

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Propylene	(CAS No) 115-07-1	88.102 - 99.99979	Flam. Gas 1, H220 Liquefied gas, H280
Propane	(CAS No) 74-98-6	0.00001 - 7	Flam. Gas 1, H220 Liquefied gas, H280
Carbon dioxide	(CAS No) 124-38-9	0.00001 - 2.9999	Liquefied gas, H280
Oxygen	(CAS No) 7782-44-7	0.00001 - 0.0999	Ox. Gas 1, H270 Compressed gas, H280
Methyl acetylene	(CAS No) 74-99-7	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280
Isobutylene	(CAS No) 115-11-7	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280
Hydrogen	(CAS No) 1333-74-0	0.00001 - 0.0999	Flam. Gas 1, H220 Compressed gas, H280
n-Butane	(CAS No) 106-97-8	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280
1-Butene	(CAS No) 106-98-9	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280
1,3-Butadiene	(CAS No) 106-99-0	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280 Muta. 1B, H340 Carc. 1A, H350
cis-2-Butene	(CAS No) 590-18-1	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280
Butadiene 1,2-	(CAS No) 590-19-2	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280
Ethane	(CAS No) 74-84-0	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280
Ethylene	(CAS No) 74-85-1	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280 STOT SE 3, H336
Acetylene	(CAS No) 74-86-2	0.00001 - 0.0999	Flam. Gas 1, H220 Compressed gas, H280
Cyclopropane	(CAS No) 75-19-4	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280
Isobutane	(CAS No) 75-28-5	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280
Carbon monoxide	(CAS No) 630-08-0	0.00001 - 0.0999	Flam. Gas 1, H220 Compressed gas, H280 Acute Tox. 3 (Inhalation:gas), H331 Repr. 1A, H360 STOT RE 1, H372
Propadiene 1,2	(CAS No) 463-49-0	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280
trans-2-Butene	(CAS No) 624-64-6	0.00001 - 0.0999	Flam. Gas 1, H220 Liquefied gas, H280
Nitrogen	(CAS No) 7727-37-9	0.00001 - 0.0999	Compressed gas, H280
Methane	(CAS No) 74-82-8	0.00001 - 0.0999	Flam. Gas 1, H220 Compressed gas, H280

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact	:	Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.
First-aid measures after eye contact	:	Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
First-aid measures after ingestion	:	Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	:	May displace oxygen and cause rapid suffocation.
Symptoms/injuries after skin contact	:	May cause frostbite.
Symptoms/injuries after eye contact	:	Contact with the product may cause cold burns or frostbite.
Symptoms/injuries after ingestion	:	Ingestion is not considered a potential route of exposure.
Symptoms/injuries upon intravenous administration	:	Not known.
Chronic symptoms	:	Adverse effects not expected from this product.

4.3. Indication of any immediate medical attention and special treatment needed

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	:	Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

Fire hazard	:	This product is flammable.
Explosion hazard	:	Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. May form flammable/explosive vapor-air mixture.
Reactivity	:	None known.

5.3. Advice for firefighters

Firefighting instructions	:	In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.
Protection during firefighting	:	Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ensure adequate ventilation.

6.1.1. For non-emergency personnel

Protective equipment	:	Wear protective equipment consistent with the site emergency plan.
Emergency procedures	:	Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

6.1.2. For emergency responders

Protective equipment	:	Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.
Emergency procedures	:	Evacuate and limit access. Ventilate area. Remove ignition sources. Monitor concentration of released product. Consider the risk of potentially explosive atmospheres. Wear self-contained breathing apparatus when entering atmospheres of unknown contaminant concentration until proven to be safe.

6.2. Environmental precautions

Try to stop release if safe to do so.

6.3. Methods and material for containment and cleaning up

For containment	:	Try to stop release if safe to do so.
Methods for cleaning up	:	Dispose of this material and its container in accordance with local regulations.

6.4. Reference to other sections

See also Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Handle empty containers with care because residual vapors are flammable. In use, may form flammable vapor-air mixture.

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Use only non-sparking tools.

Hygiene measures : Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed.

Storage conditions : Do not expose to temperatures exceeding 52°C (125°F). Keep container closed when not in use. Protect cylinder from physical damage. Store in well ventilated area.

Incompatible products : None known.

Incompatible materials : Oxidizing materials. Air.

7.3. Specific end use(s)

See Section 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

21 Components in Propylene		
ACGIH	Not applicable	
OSHA	Not applicable	

Acetylene (74-86-2)		
ACGIH	Not applicable	
OSHA	Not applicable	

Propadiene 1,2 (463-49-0)		
ACGIH	Not applicable	
OSHA	Not applicable	

1,3-Butadiene (106-99-0)		
ACGIH	ACGIH TWA (ppm)	2 ppm
OSHA	OSHA PEL (TWA) (ppm)	1 ppm
OSHA	OSHA PEL (STEL) (ppm)	5 ppm (see 29 CFR 1910.1051)

n-Butane (106-97-8)		
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	Not applicable	

1-Butene (106-98-9)		
ACGIH	ACGIH TWA (ppm)	250 ppm
OSHA	Not applicable	

cis-2-Butene (590-18-1)		
ACGIH	ACGIH TWA (ppm)	250 ppm
OSHA	Not applicable	

Cyclopropane (75-19-4)		
ACGIH	Not applicable	
OSHA	Not applicable	

Ethane (74-84-0)		
ACGIH	ACGIH TWA (ppm)	1000 ppm

Ethane (74-84-0)		
OSHA	Not applicable	

Ethylene (74-85-1)		
ACGIH	ACGIH TWA (ppm)	200 ppm
OSHA	Not applicable	

Isobutane (75-28-5)		
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	Not applicable	

Isobutylene (115-11-7)		
ACGIH	ACGIH TWA (ppm)	250 ppm
OSHA	Not applicable	

Methane (74-82-8)		
ACGIH	ACGIH TWA (ppm)	1000 ppm
OSHA	Not applicable	

Propylene (115-07-1)		
ACGIH	ACGIH TWA (ppm)	500 ppm
OSHA	Not applicable	

trans-2-Butene (624-64-6)		
ACGIH	ACGIH TWA (ppm)	250 ppm
OSHA	Not applicable	

Butadiene 1,2- (590-19-2)		
ACGIH	Not applicable	
OSHA	Not applicable	

Carbon dioxide (124-38-9)		
ACGIH	ACGIH TWA (ppm)	5000 ppm
ACGIH	ACGIH STEL (ppm)	30000 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	9000 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	5000 ppm

Carbon monoxide (630-08-0)		
ACGIH	ACGIH TWA (ppm)	25 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	55 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	50 ppm

Hydrogen (1333-74-0)	
ACGIH	Not applicable
OSHA	Not applicable

Methyl acetylene (74-99-7)		
ACGIH	ACGIH TWA (ppm)	1000 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	1650 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

Nitrogen (7727-37-9)	
ACGIH	Not applicable
OSHA	Not applicable

Oxygen (7782-44-7)	
ACGIH	Not applicable
OSHA	Not applicable

Propane (74-98-6)		
ACGIH	ACGIH TWA (ppm)	1000 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	1800 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

8.2. Exposure controls

Appropriate engineering controls : Ensure exposure is below occupational exposure limits. Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities.

Hand protection : Wear working gloves when handling gas containers. 29 CFR 1910.138: Hand Protection.

Eye protection : Wear safety glasses with side shields. 29 CFR 1910.133: Eye and Face Protection.

Skin and body protection : Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.

Respiratory protection : None necessary during normal and routine operations. See Sections 5 & 6.

Thermal hazard protection : None necessary during normal and routine operations.

Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

Other information : Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas

Appearance : Clear, colorless gas.

Color : Colorless

Odor : No data available

Odor threshold : No data available

pH : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Flammability (solid, gas) : See Section 2.1 and 2.2

Explosion limits : No data available

Explosive properties : Without adequate ventilation formation of explosive mixtures may be possible.

Oxidizing properties : None.

Vapor pressure : No data available

Relative density : No data available

Relative vapor density at 20 °C : No data available

Molecular mass : No Data Available

Relative gas density : Heavier than air

Solubility : No data available

Log Pow : No data available

Log Kow : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity : No data available

Viscosity, kinematic : No data available

Viscosity, dynamic : No data available

9.2. Other information

Additional information : Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 10: Stability and reactivity

10.1. Reactivity

None known.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Can form explosive mixture with air.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Oxidizing materials. Air.

10.6. Hazardous decomposition products

Under normal conditions of storage and use hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Acetylene (74-86-2)	
LC50 inhalation rat (ppm)	820000 ppm/4h

1,3-Butadiene (106-99-0)	
LD50 oral rat	5480 mg/kg
LC50 inhalation rat (mg/l)	285 g/m³ (Exposure time: 4 h)
LC50 inhalation rat (ppm)	110000 ppm/4h

n-Butane (106-97-8)	
LC50 inhalation rat (mg/l)	658 g/m³ (Exposure time: 4 h)
LC50 inhalation rat (ppm)	276789.28 ppm/4h

1-Butene (106-98-9)	
LC50 inhalation rat (ppm)	500000 ppm/4h

cis-2-Butene (590-18-1)	
LC50 inhalation rat (ppm)	150307.38 ppm/4h

Cyclopropane (75-19-4)	
LC50 inhalation rat (ppm)	110000 ppm/4h
ATE US (gases)	110000.000 ppmV/4h

Ethane (74-84-0)	
LC50 inhalation rat (mg/l)	658 mg/l/4h
LC50 inhalation rat (ppm)	820000 ppm/4h
ATE US (gases)	820000.000 ppmV/4h
ATE US (vapors)	658.000 mg/l/4h
ATE US (dust, mist)	658.000 mg/l/4h

Ethylene (74-85-1)	
LC50 inhalation rat (ppm)	820000 ppm/4h
ATE US (gases)	820000.000 ppmV/4h

Isobutane (75-28-5)	
LC50 inhalation rat (mg/l)	658 mg/l/4h
LC50 inhalation rat (ppm)	276713.11 ppm/4h

Isobutylene (115-11-7)	
LC50 inhalation rat (mg/l)	620 mg/l/4h
LC50 inhalation rat (ppm)	239620.46 ppm/4h
ATE US (gases)	239620.460 ppmV/4h
ATE US (vapors)	620.000 mg/l/4h
ATE US (dust, mist)	620.000 mg/l/4h

Methane (74-82-8)	
LC50 inhalation rat (ppm)	820000 ppm/4h
ATE US (gases)	820000.000 ppmV/4h

Propylene (115-07-1)	
LC50 inhalation rat (mg/l)	658 mg/l/4h
LC50 inhalation rat (ppm)	49957.23 ppm/4h

trans-2-Butene (624-64-6)	
LC50 inhalation rat (ppm)	150307.38 ppm/4h

Butadiene 1,2- (590-19-2)	
LC50 inhalation rat (ppm)	110000 ppm/4h
ATE US (gases)	110000.000 ppmV/4h

Carbon dioxide (124-38-9)	
LC50 inhalation rat (ppm)	820000 ppm/4h

Carbon monoxide (630-08-0)	
LC50 inhalation rat (ppm)	1880 ppm/4h
ATE US (gases)	1880.000 ppmV/4h

Hydrogen (1333-74-0)	
LC50 inhalation rat (ppm)	820000 ppm/4h
ATE US (gases)	820000.000 ppmV/4h

Methyl acetylene (74-99-7)	
LC50 inhalation rat (ppm)	51429 ppm/4h
ATE US (gases)	51429.000 ppmV/4h

Nitrogen (7727-37-9)	
LC50 inhalation rat (ppm)	820000 ppm/4h

Oxygen (7782-44-7)	
LC50 inhalation rat (ppm)	800000 ppm/4h

Propane (74-98-6)	
LC50 inhalation rat (mg/l)	658 mg/l/4h
LC50 inhalation rat (ppm)	282800 ppm/4h

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

1,3-Butadiene (106-99-0)	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	1 - Evidence of Carcinogenicity, 2 - Known Human Carcinogens
In OSHA Hazard Communication Carcinogen list	Yes
In OSHA Specifically Regulated Carcinogen list	Yes

Ethylene (74-85-1)	
IARC group	3 - Not classifiable

Isobutylene (115-11-7)	
National Toxicology Program (NTP) Status	1 - Evidence of Carcinogenicity

Propylene (115-07-1)	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Symptoms/injuries after inhalation : May displace oxygen and cause rapid suffocation.

Symptoms/injuries after skin contact : May cause frostbite.

Symptoms/injuries after eye contact : Contact with the product may cause cold burns or frostbite.

Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.

Symptoms/injuries upon intravenous administration : Not known.

Chronic symptoms : Adverse effects not expected from this product.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

Acetylene (74-86-2)	
Persistence and degradability	Will rapidly degrade by indirect photolysis in air. Will not undergo hydrolysis.

Propadiene 1,2 (463-49-0)	
Persistence and degradability	No data available.

1,3-Butadiene (106-99-0)	
Persistence and degradability	Not readily biodegradable.

n-Butane (106-97-8)	
Persistence and degradability	No data available.

1-Butene (106-98-9)	
Persistence and degradability	Not readily biodegradable.

cis-2-Butene (590-18-1)	
Persistence and degradability	No data available.

Cyclopropane (75-19-4)	
Persistence and degradability	No data available.

Ethane (74-84-0)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

Ethylene (74-85-1)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

Isobutane (75-28-5)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

Isobutylene (115-11-7)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

Methane (74-82-8)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist. No data available.

Propylene (115-07-1)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

trans-2-Butene (624-64-6)	
Persistence and degradability	No data available.

Butadiene 1,2- (590-19-2)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

Carbon dioxide (124-38-9)	
Persistence and degradability	No ecological damage caused by this product.

Carbon monoxide (630-08-0)	
Persistence and degradability	Will not undergo hydrolysis. Not readily biodegradable. Not applicable for inorganic gases.

Hydrogen (1333-74-0)	
Persistence and degradability	No ecological damage caused by this product.

Methyl acetylene (74-99-7)	
Persistence and degradability	No data available.

Nitrogen (7727-37-9)	
Persistence and degradability	No ecological damage caused by this product.

Oxygen (7782-44-7)	
Persistence and degradability	No ecological damage caused by this product.

Propane (74-98-6)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

12.3. Bioaccumulative potential

Acetylene (74-86-2)	
Log Pow	0.37
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

Propadiene 1,2 (463-49-0)	
Log Pow	1.45
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

1,3-Butadiene (106-99-0)	
BCF fish 1	13 - 19.1
Log Pow	1.99
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

n-Butane (106-97-8)	
Log Pow	2.89
Log Kow	Not applicable for gas-mixtures.
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

1-Butene (106-98-9)	
Log Pow	2.4
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

cis-2-Butene (590-18-1)	
Log Pow	2.33
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

Cyclopropane (75-19-4)	
Log Pow	1.72
Bioaccumulative potential	Refer to section 9.

Ethane (74-84-0)	
Log Pow	1.81
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
Ethylene (74-85-1)	
BCF fish 1	4 - 4.6
Log Pow	1.13
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
Isobutane (75-28-5)	
BCF fish 1	1.57 - 1.97
Log Pow	2.76
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
Isobutylene (115-11-7)	
Log Pow	2.35
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
Methane (74-82-8)	
Log Pow	Not applicable for gas mixtures
Log Kow	Not applicable for gas mixtures
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
Propylene (115-07-1)	
Log Pow	1.77
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
trans-2-Butene (624-64-6)	
Log Pow	2.32
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
Butadiene 1,2- (590-19-2)	
Log Pow	1.99
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
Carbon dioxide (124-38-9)	
BCF fish 1	(no bioaccumulation)
Log Pow	0.83
Bioaccumulative potential	No ecological damage caused by this product.
Carbon monoxide (630-08-0)	
Log Pow	1.78
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
Hydrogen (1333-74-0)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No ecological damage caused by this product.
Methyl acetylene (74-99-7)	
Log Pow	0.94
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
Nitrogen (7727-37-9)	
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No ecological damage caused by this product.
Oxygen (7782-44-7)	
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No ecological damage caused by this product.
Propane (74-98-6)	
Log Pow	2.36
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

12.4. Mobility in soil

Acetylene (74-86-2)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Propadiene 1,2 (463-49-0)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
1,3-Butadiene (106-99-0)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
n-Butane (106-97-8)	
Mobility in soil	No data available.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
1-Butene (106-98-9)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
cis-2-Butene (590-18-1)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Cyclopropane (75-19-4)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Ethane (74-84-0)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Ethylene (74-85-1)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Isobutane (75-28-5)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Isobutylene (115-11-7)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Methane (74-82-8)	
Mobility in soil	No data available.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Propylene (115-07-1)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
trans-2-Butene (624-64-6)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Butadiene 1,2- (590-19-2)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Carbon dioxide (124-38-9)	
Ecology - soil	No ecological damage caused by this product.
Carbon monoxide (630-08-0)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Hydrogen (1333-74-0)	
Ecology - soil	No ecological damage caused by this product.
Methyl acetylene (74-99-7)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Nitrogen (7727-37-9)	
Ecology - soil	No ecological damage caused by this product.
Oxygen (7782-44-7)	
Ecology - soil	No ecological damage caused by this product.
Propane (74-98-6)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Other adverse effects

Effect on ozone layer : No known effects from this product.

Effect on the global warming : Contains greenhouse gas(es) not covered by 842/2006/EC.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded. Waste gas should be flared through a suitable burner with flash back arrestor. Do not discharge into areas where there is a risk of forming an explosive mixture with air.

Waste disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at www.cganet.com for more guidance on suitable disposal methods.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN3161 Liquefied gas, flammable, n.o.s.

UN-No.(DOT) : UN3161

Proper Shipping Name (DOT) : Liquefied gas, flammable, n.o.s.

Hazard labels (DOT) : 2.1 - Flammable gas

DOT Packaging Non Bulk (49 CFR 173.xxx) : 304

DOT Packaging Bulk (49 CFR 173.xxx) : 314;315

DOT Symbols : G - Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102) : T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 306

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg

DOT Vessel Stowage Location : D - The material must be stowed ‘‘on deck only’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.

DOT Vessel Stowage Other : 40 - Stow ‘‘clear of living quarters’’

Additional information

Other information : No supplementary information available.

ADR

Transport document description : UN 3161 LIQUEFIED GAS, FLAMMABLE, N.O.S., 2.1, (B/D)

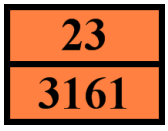
Class (ADR) : 2 - Gases

Hazard identification number (Kemler No.) : 23

Classification code (ADR) : 2F

Hazard labels (ADR) : 2.1 - Flammable gases

Orange plates :



Tunnel restriction code (ADR)	: B/D
Limited quantities (ADR)	: 0
Excepted quantities (ADR)	: E0

Transport by sea

UN-No. (IMDG)	: 3161
Proper Shipping Name (IMDG)	: LIQUEFIED GAS, FLAMMABLE, N.O.S.
Class (IMDG)	: 2 - Gases

Air transport

UN-No. (IATA)	: 3161
Proper Shipping Name (IATA)	: LIQUEFIED GAS, FLAMMABLE, N.O.S.
Class (IATA)	: 2

SECTION 15: Regulatory information

15.1. US Federal regulations

Acetylene (74-86-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Propadiene 1,2 (463-49-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

1,3-Butadiene (106-99-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

SARA Section 313 - Emission Reporting	0.1 %

n-Butane (106-97-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

1-Butene (106-98-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

cis-2-Butene (590-18-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Cyclopropane (75-19-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ethane (74-84-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ethylene (74-85-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

SARA Section 313 - Emission Reporting	1.0 %

Isobutane (75-28-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Isobutylene (115-11-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Methane (74-82-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Propylene (115-07-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

SARA Section 313 - Emission Reporting	1.0 %

trans-2-Butene (624-64-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Butadiene 1,2- (590-19-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Carbon dioxide (124-38-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Carbon monoxide (630-08-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Hydrogen (1333-74-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Methyl acetylene (74-99-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Nitrogen (7727-37-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Oxygen (7782-44-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Propane (74-98-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Acetylene (74-86-2)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas Class F - Dangerously Reactive Material

Propadiene 1,2 (463-49-0)
Listed on the Canadian DSL (Domestic Sustances List)

1,3-Butadiene (106-99-0)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class F - Dangerously Reactive Material

n-Butane (106-97-8)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

1-Butene (106-98-9)
Listed on the Canadian DSL (Domestic Sustances List)

cis-2-Butene (590-18-1)
Listed on the Canadian DSL (Domestic Sustances List)

Cyclopropane (75-19-4)
Listed on the Canadian DSL (Domestic Sustances List)

Ethane (74-84-0)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

Ethylene (74-85-1)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Isobutane (75-28-5)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

Isobutylene (115-11-7)	
Listed on the Canadian DSL (Domestic Sustances List)	

Methane (74-82-8)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

Propylene (115-07-1)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

trans-2-Butene (624-64-6)	
Listed on the Canadian DSL (Domestic Sustances List)	

Butadiene 1,2- (590-19-2)	
Listed on the Canadian DSL (Domestic Sustances List)	

Carbon dioxide (124-38-9)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas

Carbon monoxide (630-08-0)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects

Hydrogen (1333-74-0)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

Methyl acetylene (74-99-7)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

Nitrogen (7727-37-9)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas

Oxygen (7782-44-7)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class C - Oxidizing Material

Propane (74-98-6)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

EU-Regulations

Acetylene (74-86-2)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Propadiene 1,2 (463-49-0)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

1,3-Butadiene (106-99-0)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

n-Butane (106-97-8)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

1-Butene (106-98-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

cis-2-Butene (590-18-1)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Cyclopropane (75-19-4)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Ethane (74-84-0)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Ethylene (74-85-1)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Isobutane (75-28-5)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Isobutylene (115-11-7)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Methane (74-82-8)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Propylene (115-07-1)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

trans-2-Butene (624-64-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Butadiene 1,2- (590-19-2)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Carbon dioxide (124-38-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Carbon monoxide (630-08-0)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Hydrogen (1333-74-0)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Methyl acetylene (74-99-7)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Nitrogen (7727-37-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Oxygen (7782-44-7)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Propane (74-98-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Not classified

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
No additional information available

National regulations

Acetylene (74-86-2)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Propadiene 1,2 (463-49-0)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on the Japanese ISHL (Industrial Safety and Health Law) Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

1,3-Butadiene (106-99-0)

Listed on IARC (International Agency for Research on Cancer)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed as carcinogen on NTP (National Toxicology Program)
Listed on the Canadian IDL (Ingredient Disclosure List)

n-Butane (106-97-8)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)

1-Butene (106-98-9)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

cis-2-Butene (590-18-1)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Cyclopropane (75-19-4)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Ethane (74-84-0)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Ethylene (74-85-1)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Isobutane (75-28-5)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Isobutylene (115-11-7)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Methane (74-82-8)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Propylene (115-07-1)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

trans-2-Butene (624-64-6)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Butadiene 1,2- (590-19-2)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Carbon dioxide (124-38-9)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)

Carbon monoxide (630-08-0)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)

Hydrogen (1333-74-0)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Methyl acetylene (74-99-7)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)

Nitrogen (7727-37-9)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Oxygen (7782-44-7)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Propane (74-98-6)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

15.3. US State regulations

1,3-Butadiene (106-99-0)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
Yes	Yes	Yes	No	0.4 µg/day

Carbon monoxide (630-08-0)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	Yes	No	No	

Acetylene (74-86-2)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

Propadiene 1,2 (463-49-0)
U.S. - New Jersey - Right to Know Hazardous Substance List

1,3-Butadiene (106-99-0)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances U.S. - Pennsylvania - RTK (Right to Know) List

n-Butane (106-97-8)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

1-Butene (106-98-9)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

cis-2-Butene (590-18-1)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Cyclopropane (75-19-4)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Ethane (74-84-0)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Ethylene (74-85-1)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Isobutane (75-28-5)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Isobutylene (115-11-7)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Methane (74-82-8)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Propylene (115-07-1)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

trans-2-Butene (624-64-6)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Carbon dioxide (124-38-9)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Carbon monoxide (630-08-0)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Hydrogen (1333-74-0)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Methyl acetylene (74-99-7)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Nitrogen (7727-37-9)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Oxygen (7782-44-7)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Propane (74-98-6)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes : Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.

Other information : This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

Full text of H-phrases:

Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Carc. 1A	Carcinogenicity Category 1A
Compressed gas	Gases under pressure Compressed gas
Flam. Gas 1	Flammable gases Category 1
Liquefied gas	Gases under pressure Liquefied gas
Muta. 1B	Germ cell mutagenicity Category 1B
Ox. Gas 1	Oxidizing gases Category 1
Repr. 1A	Reproductive toxicity Category 1A
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H331	Toxic if inhaled
H336	May cause drowsiness or dizziness
H340	May cause genetic defects (Inhalation)
H350	May cause cancer
H360	May damage fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure

SDS US (GHS HazCom 2012)

This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation'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 product 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.