

# Material Safety Data Sheet



Flammable Gas Mixture: 1 Butene / 1 Pentene / 2-Methyl-2-Butene / Acetylene / Carbon Dioxide / Carbon Monoxide / Cis-2-Butene / Cis-2-Pentene / Ethane / Ethylene / Hydrogen / Isobutane / Isobutene / Isopentane / Methane / Methyl Acetylene / N Butane / N Pentane / Nitrogen / Propane / Propylene / Trans-2-Butene / Trans-2-Pentene

## Section 1. Chemical product and company identification

- Product name** : Flammable Gas Mixture: 1 Butene / 1 Pentene / 2-Methyl-2-Butene / Acetylene / Carbon Dioxide / Carbon Monoxide / Cis-2-Butene / Cis-2-Pentene / Ethane / Ethylene / Hydrogen / Isobutane / Isobutene / Isopentane / Methane / Methyl Acetylene / N Butane / N Pentane / Nitrogen / Propane / Propylene / Trans-2-Butene / Trans-2-Pentene
- Supplier** : AIRGAS INC., on behalf of its subsidiaries  
259 North Radnor-Chester Road  
Suite 100  
Radnor, PA 19087-5283  
1-610-687-5253
- Product use** : Synthetic/Analytical chemistry.
- MSDS #** : 008023
- Date of Preparation/Revision** : 7/12/2008.
- In case of emergency** : 1-866-734-3438

## Section 2. Hazards identification

- Physical state** : Gas.  
DANGER!  
FLAMMABLE GAS.  
MAY CAUSE FLASH FIRE.  
HARMFUL IF INHALED.  
MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.  
CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.  
CONTENTS UNDER PRESSURE.  
  
Keep away from heat, sparks and flame. Do not puncture or incinerate container. Avoid breathing gas. Avoid contact with eyes, skin and clothing. Contains material that can cause target organ damage. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed. Avoid breathing gas. Use with adequate ventilation.  
Contact with rapidly expanding gases can cause frostbite.
- Target organs** : Contains material which causes damage to the following organs: mucous membranes, upper respiratory tract, skin.  
Contains material which may cause damage to the following organs: blood, lungs, the nervous system, heart, cardiovascular system, central nervous system (CNS), eye, lens or cornea, muscle tissue.
- Routes of entry** : Inhalation Dermal Eyes
- Potential acute health effects**
- Eyes** : Moderately irritating to eyes. Contact with rapidly expanding gas may cause burns or frostbite.
- Skin** : Moderately irritating to the skin. Contact with rapidly expanding gas may cause burns or frostbite.
- Inhalation** : Toxic by inhalation. Moderately irritating to the respiratory system.
- Ingestion** : Ingestion is not a normal route of exposure for gases

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**Potential chronic health effects** : **CARCINOGENIC EFFECTS:** Classified A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans.) by IARC [propylene]. Classified A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans.) by IARC [ethylene].  
**MUTAGENIC EFFECTS:** Not available.  
**TERATOGENIC EFFECTS:** Not available.

**Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

## Section 3. Composition, Information on Ingredients

<u>Name</u>	<u>CAS number</u>	<u>% Volume</u>	<u>Exposure limits</u>
Hydrogen	1333-74-0	5.8 - 99	Simple asphyxiant.
Propylene	115-07-1	0.05 - 99	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 500 ppm 8 hour(s).
Nitrogen	7727-37-9	1 - 93	Simple asphyxiant.
Propane	74-98-6	0.1 - 93	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 1000 ppm 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> TWA: 1800 mg/m <sup>3</sup> 10 hour(s). <b>OSHA PEL (United States, 11/2006).</b> TWA: 1800 mg/m <sup>3</sup> 8 hour(s).
Ethane	74-84-0	0.1 - 20	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 1000 ppm 8 hour(s).
Ethylene	74-85-1	0.02 - 20	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 200 ppm 8 hour(s).
Methane	74-82-8	0.1 - 20	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 1000 ppm 8 hour(s).
1-Butene	106-98-9	0.1 - 10	
1-Pentene	109-67-1	0.1 - 10	
2-Methyl-2-Butene	513-35-9	0.1 - 10	
Carbon Dioxide	124-38-9	0.1 - 10	<b>ACGIH TLV (United States, 1/2007).</b> STEL: 54000 mg/m <sup>3</sup> 15 minute(s). TWA: 9000 mg/m <sup>3</sup> 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> STEL: 54000 mg/m <sup>3</sup> 15 minute(s). TWA: 9000 mg/m <sup>3</sup> 10 hour(s). <b>OSHA PEL (United States, 11/2006).</b> TWA: 9000 mg/m <sup>3</sup> 8 hour(s).
Carbon Monoxide	630-08-0	0.0001 - 10	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 29 mg/m <sup>3</sup> 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> CEIL: 229 mg/m <sup>3</sup> TWA: 40 mg/m <sup>3</sup> 10 hour(s). <b>OSHA PEL (United States, 11/2006).</b> TWA: 55 mg/m <sup>3</sup> 8 hour(s).
Cis-2-Butene	590-18-1	0.1 - 10	
Cis-2-Pentene	627-20-3	0.1 - 10	
Isobutane	75-28-5	0.01 - 10	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 1000 ppm 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> TWA: 1900 mg/m <sup>3</sup> 10 hour(s).
Acetylene	74-86-2	0.1 - 5	<b>NIOSH REL (United States, 12/2001).</b> CEIL: 2662 mg/m <sup>3</sup>
Isopentane	78-78-4	0.01 - 5	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 600 ppm 8 hour(s).
Isobutylene	115-11-7	0.1 - 5	<b>Ministry of Labor and Social Policy and</b>

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Methyl Acetylene	74-99-7	0.1 - 5	Ministry of Health (Bulgaria, 8/2007). Limit value 8 hours: 100 mg/m <sup>3</sup> 8 hour(s). <b>Del Lietuvos Higienos Normos (Lithuania, 10/2007).</b> TWA: 100 mg/m <sup>3</sup> 8 hour(s). <b>ACGIH TLV (United States, 1/2007).</b> TWA: 1640 mg/m <sup>3</sup> 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> TWA: 1650 mg/m <sup>3</sup> 10 hour(s). <b>OSHA PEL (United States, 11/2006).</b> TWA: 1650 mg/m <sup>3</sup> 8 hour(s).
n-Butane	106-97-8	0.01 - 5	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 1000 ppm 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> TWA: 1900 mg/m <sup>3</sup> 10 hour(s).
Pentane	109-66-0	0.01 - 5	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 600 ppm 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> CEIL: 1800 mg/m <sup>3</sup> 15 minute(s). TWA: 350 mg/m <sup>3</sup> 10 hour(s). <b>OSHA PEL (United States, 11/2006).</b> TWA: 2950 mg/m <sup>3</sup> 8 hour(s).
Trans-2-Butene	624-64-6	0.1 - 5	
Trans-2-Pentene	646-04-8	0.1 - 5	

## Section 4. First aid measures

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : As this product is a gas, refer to the inhalation section.

## Section 5. Fire fighting measures

- Flammability of the product** : Flammable.
- Auto-ignition temperature** : Lowest known value: 286.85°C (548.3°F) (butane).
- Flash point** : Lowest known value: Closed cup: -188.15°C (-306.7°F). (methane)
- Flammable limits** : Greatest known range: Lower: 2.5% Upper: 82% (acetylene)
- Products of combustion** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides
- Fire-fighting media and instructions** : In case of fire, use water spray (fog), foam or dry chemical.

In case of fire, allow gas to burn if flow cannot be shut off immediately. Apply water from a safe distance to cool container and protect surrounding area. If involved in fire, shut off flow immediately if it can be done without risk.

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Contains gas under pressure. Extremely flammable. In a fire or if heated, a pressure increase will occur and the container may burst or explode. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (section 8). Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : Immediately contact emergency personnel. Stop leak if without risk. Note: see section 1 for emergency contact information and section 13 for waste disposal.

## Section 7. Handling and storage

- Handling** : Use only with adequate ventilation. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling. High pressure gas. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Keep container closed. Avoid contact with skin and clothing. Use with adequate ventilation. Avoid contact with eyes. Keep away from heat, sparks and flame. To avoid fire, eliminate ignition sources. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
- Storage** : Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Segregate from oxidizing materials. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

## Section 8. Exposure controls/personal protection

- Engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Personal protection**
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- The applicable standards are (US) 29 CFR 1910.134 and (Canada) Z94.4-93
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Personal protection in case of a large spill** : Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product. Full chemical-resistant suit and self-contained breathing apparatus should be worn only by trained and authorized persons.

**Product name**

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hydrogen	Simple asphyxiant.
propylene	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 500 ppm 8 hour(s).
nitrogen	Simple asphyxiant.
propane	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 1000 ppm 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> TWA: 1800 mg/m <sup>3</sup> 10 hour(s). <b>OSHA PEL (United States, 11/2006).</b> TWA: 1800 mg/m <sup>3</sup> 8 hour(s).
ethane	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 1000 ppm 8 hour(s).
ethylene	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 200 ppm 8 hour(s).
methane	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 1000 ppm 8 hour(s).
but-1-ene	
pent-1-ene	
2-methylbut-2-ene	
carbon dioxide	<b>ACGIH TLV (United States, 1/2007).</b> STEL: 54000 mg/m <sup>3</sup> 15 minute(s). TWA: 9000 mg/m <sup>3</sup> 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> STEL: 54000 mg/m <sup>3</sup> 15 minute(s). TWA: 9000 mg/m <sup>3</sup> 10 hour(s). <b>OSHA PEL (United States, 11/2006).</b> TWA: 9000 mg/m <sup>3</sup> 8 hour(s).
carbon monoxide	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 29 mg/m <sup>3</sup> 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> CEIL: 229 mg/m <sup>3</sup> TWA: 40 mg/m <sup>3</sup> 10 hour(s). <b>OSHA PEL (United States, 11/2006).</b> TWA: 55 mg/m <sup>3</sup> 8 hour(s).
(Z)-but-2-ene	
2-pentene, (z)-	
isobutane	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 1000 ppm 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> TWA: 1900 mg/m <sup>3</sup> 10 hour(s).
acetylene	<b>NIOSH REL (United States, 12/2001).</b> CEIL: 2662 mg/m <sup>3</sup>
isopentane	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 600 ppm 8 hour(s).
2-methylpropene	<b>Ministry of Labor and Social Policy and Ministry of Health (Bulgaria, 8/2007).</b> Limit value 8 hours: 100 mg/m <sup>3</sup> 8 hour(s). <b>Del Lietuvos Higienos Normos (Lithuania, 10/2007).</b> TWA: 100 mg/m <sup>3</sup> 8 hour(s).
propyne	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 1640 mg/m <sup>3</sup> 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> TWA: 1650 mg/m <sup>3</sup> 10 hour(s). <b>OSHA PEL (United States, 11/2006).</b> TWA: 1650 mg/m <sup>3</sup> 8 hour(s).
butane	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 1000 ppm 8 hour(s). <b>NIOSH REL (United States, 12/2001).</b> TWA: 1900 mg/m <sup>3</sup> 10 hour(s).
pentane	<b>ACGIH TLV (United States, 1/2007).</b> TWA: 600 ppm 8 hour(s).

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**NIOSH REL (United States, 12/2001).**

CEIL: 1800 mg/m<sup>3</sup> 15 minute(s).

TWA: 350 mg/m<sup>3</sup> 10 hour(s).

**OSHA PEL (United States, 11/2006).**

TWA: 2950 mg/m<sup>3</sup> 8 hour(s).

(E)-but-2-ene

2-pentene, (e)-

Consult local authorities for acceptable exposure limits.

## Section 9. Physical and chemical properties

- Melting/freezing point** : -102.8°C (-153°F) This is based on data for the following ingredient: propyne. Weighted average: -199.44°C (-327°F)
- Critical temperature** : Lowest known value: -240.1°C (-400.2°F) (hydrogen).
- Vapor density** : Highest known value: 2 (Air = 1) (isobutane). Weighted average: 1.08 (Air = 1)
- Gas Density (lb/ft<sup>3</sup>)** : Weighted average: 0.1

## Section 10. Stability and reactivity

- Stability and reactivity** : The product is stable.
- Incompatibility with various substances** : Extremely reactive or incompatible with the following materials: oxidizing materials. Highly reactive or incompatible with the following materials: acids.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

## Section 11. Toxicological information

### Toxicity data

Product/ingredient name	Result	Species	Dose	Exposure
carbon monoxide	TDLo Intraperitoneal	Rat	35 mL/kg	-
	LC50 Inhalation	Rat	3760 ppm	1 hours
	Gas.			
	LC50 Inhalation	Mouse	2444 ppm	4 hours
pentane	Gas.			
	LD50 Oral	Rat	>2000 mg/kg	-

**Chronic effects on humans** : **CARCINOGENIC EFFECTS:** Classified A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans.) by IARC [propylene]. Classified A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans.) by IARC [ethylene].

Contains material which causes damage to the following organs: mucous membranes, upper respiratory tract, skin.

Contains material which may cause damage to the following organs: blood, lungs, the nervous system, heart, cardiovascular system, central nervous system (CNS), eye, lens or cornea, muscle tissue.

**Other toxic effects on humans** : No specific information is available in our database regarding the other toxic effects of this material to humans.

### Specific effects

- Carcinogenic effects** : No known significant effects or critical hazards.
- Mutagenic effects** : No known significant effects or critical hazards.
- Reproduction toxicity** : No known significant effects or critical hazards.

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## Section 12. Ecological information

### Aquatic ecotoxicity

Not available.

**Products of degradation** : Products of degradation: carbon oxides (CO, CO<sub>2</sub>) and water, nitrogen oxides (NO, NO<sub>2</sub> etc.).

**Environmental fate** : Not available.




**Environmental hazards** : No known significant effects or critical hazards.

**Toxicity to the environment** : Not available.

## Section 13. Disposal considerations

Product removed from the cylinder must be disposed of in accordance with appropriate Federal, State, local regulation. Return cylinders with residual product to Airgas, Inc. Do not dispose of locally.

## Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
<b>DOT Classification</b>	UN1954	COMPRESSED GAS, FLAMMABLE, N.O.S.	2.1	Not applicable (gas).		-
<b>TDG Classification</b>	UN1954	COMPRESSED GAS, FLAMMABLE, N.O.S.	2.1	Not applicable (gas).		<p><b>Explosive Limit and Limited Quantity Index</b> 0.125</p> <p><b>ERAP Index</b> 3000</p> <p><b>Passenger Carrying Ship Index</b> Forbidden</p> <p><b>Passenger Carrying Road or Rail Index</b> Forbidden</p>
<b>Mexico Classification</b>	UN1954	COMPRESSED GAS, FLAMMABLE, N.O.S.	2.1	Not applicable (gas).		-

## Section 15. Regulatory information

### United States

**U.S. Federal regulations** : TSCA 4(a) final test rules: pentane  
TSCA 8(a) PAIR: pentane

**United States inventory (TSCA 8b):** All components are listed or exempted.  
TSCA 12(b) one-time export: pentane

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**SARA 302/304/311/312 extremely hazardous substances:** No products were found.

**SARA 302/304 emergency planning and notification:** No products were found.

**SARA 302/304/311/312 hazardous chemicals:** pent-1-ene; 2-methylbut-2-ene; acetylene; carbon dioxide; carbon monoxide; 2-pentene, (z)-; ethane; ethylene; hydrogen; isobutane; isopentane; 2-methylpropene; methane; propyne; butane; pentane; nitrogen; propane; propylene; 2-pentene, (e)-

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:** pent-1-ene: Fire hazard, Immediate (acute) health hazard; 2-methylbut-2-ene: Fire hazard; acetylene: Fire hazard, reactive, Sudden release of pressure, Immediate (acute) health hazard; carbon dioxide: Sudden release of pressure, Immediate (acute) health hazard, Delayed (chronic) health hazard; carbon monoxide: Fire hazard, Sudden release of pressure, Immediate (acute) health hazard, Delayed (chronic) health hazard; 2-pentene, (z)-: Fire hazard; ethane: Fire hazard, Sudden release of pressure, Immediate (acute) health hazard; ethylene: Fire hazard, reactive, Sudden release of pressure, Delayed (chronic) health hazard; hydrogen: Fire hazard, Sudden release of pressure; isobutane: Fire hazard, Sudden release of pressure; isopentane: Fire hazard; 2-methylpropene: Fire hazard, Sudden release of pressure; methane: Fire hazard, Sudden release of pressure; propyne: Fire hazard, reactive; butane: Fire hazard, Sudden release of pressure; pentane: Fire hazard, Immediate (acute) health hazard; nitrogen: Sudden release of pressure; propane: Fire hazard, Sudden release of pressure; propylene: Fire hazard, Sudden release of pressure; 2-pentene, (e)-: Fire hazard

**Clean Water Act (CWA) 307:** No products were found.

**Clean Water Act (CWA) 311:** No products were found.

**Clean Air Act (CAA) 112 accidental release prevention:** but-1-ene; pent-1-ene; acetylene; (Z)-but-2-ene; 2-pentene, (z)-; ethane; ethylene; hydrogen; isobutane; isopentane; 2-methylpropene; methane; propyne; butane; pentane; propane; propylene; (E)-but-2-ene; 2-pentene, (e)-

**Clean Air Act (CAA) 112 regulated flammable substances:** but-1-ene; pent-1-ene; acetylene; (Z)-but-2-ene; 2-pentene, (z)-; ethane; ethylene; hydrogen; isobutane; isopentane; 2-methylpropene; methane; propyne; butane; pentane; propane; propylene; (E)-but-2-ene; 2-pentene, (e)-

**Clean Air Act (CAA) 112 regulated toxic substances:** No products were found.

### SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
<b>Form R - Reporting requirements</b>	Propylene	115-07-1	0.05 - 99
	Ethylene	74-85-1	0.02 - 20
<b>Supplier notification</b>	Propylene	115-07-1	0.05 - 99
	Ethylene	74-85-1	0.02 - 20

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

### State regulations

- Connecticut Carcinogen Reporting:** None of the components are listed.
- Connecticut Hazardous Material Survey:** None of the components are listed.
- Florida substances:** None of the components are listed.
- Illinois Chemical Safety Act:** None of the components are listed.
- Illinois Toxic Substances Disclosure to Employee Act:** None of the components are listed.
- Louisiana Reporting:** None of the components are listed.
- Louisiana Spill:** None of the components are listed.
- Massachusetts Spill:** None of the components are listed.
- Massachusetts Substances:** The following components are listed: HYDROGEN; PROPYLENE (PROPENE); NITROGEN; PROPANE; ETHANE; ETHYLENE; METHANE; 1-BUTENE; 1-PENTENE; 2-METHYL-2-BUTENE; CARBON DIOXIDE; CARBON MONOXIDE; 2-BUTENE-CIS; .beta.-AMYLENE-CIS; ISOBUTANE; ACETYLENE; ISOPENTANE; 2-METHYLPROPENE; PROPYNE; BUTANE; PENTANE; 2-BUTENE-TRANS;.beta.-AMYLENE-TRANS
- Michigan Critical Material:** None of the components are listed.
- Minnesota Hazardous Substances:** None of the components are listed.

**Flammable Gas Mixture: 1 Butene / 1 Pentene / 2-Methyl-2-Butene / Acetylene / Carbon Dioxide / Carbon Monoxide / Cis-2-Butene / Cis-2-Pentene / Ethane / Ethylene / Hydrogen / Isobutane / Isobutene / Isopentane / Methane / Methyl Acetylene / N Butane / N Pentane / Nitrogen / Propane / Propylene / Trans-2-Butene / Trans-2-Pentene**

**New Jersey Hazardous Substances:** The following components are listed: HYDROGEN; PROPYLENE; NITROGEN (COMPRESSED OR LIQUIFIED); PROPANE; ETHANE; ETHYLENE; METHANE; CARBON DIOXIDE; CARBON MONOXIDE; Isobutane; ACETYLENE; ISOPENTANE; ISOBUTYLENE; METHYL ACETYLENE; BUTANE;PENTANE

**New Jersey Spill:** None of the components are listed.

**New Jersey Toxic Catastrophe Prevention Act:** None of the components are listed.

**New York Acutely Hazardous Substances:** None of the components are listed.

**New York Toxic Chemical Release Reporting:** None of the components are listed.

**Pennsylvania RTK Hazardous Substances:** The following components are listed: HYDROGEN; 1-PROPENE; NITROGEN; PROPANE; ETHANE; ETHENE; METHANE; 1-BUTENE; 1-PENTENE; 2-BUTENE, 2-METHYL-; CARBON DIOXIDE; CARBON MONOXIDE; 2-BUTENE, (Z)-; 2-PENTENE, (Z)-; PROPANE, 2-METHYL-; ETHYNE; BUTANE, 2-METHYL-; 1-PROPENE, 2-METHYL-; 1-PROPYNE; BUTANE; PENTANE; 2-BUTENE, (E)-;2-PENTENE, (E)-

**Rhode Island Hazardous Substances:** None of the components are listed.

#### California Prop. 65

: **WARNING:** This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

#### Ingredient name

#### Cancer

#### Reproductive

#### No significant risk level

#### Maximum acceptable dosage level

Carbon Monoxide

No.

Yes.

No.

No.

#### Canada

#### WHMIS (Canada)

: Class A: Compressed gas.  
Class B-1: Flammable gas.  
Class D-1A: Material causing immediate and serious toxic effects (Very toxic).  
Class D-2A: Material causing other toxic effects (Very toxic).  
Class D-2B: Material causing other toxic effects (Toxic).

**CEPA Toxic substances:** The following components are listed: Methane;Carbon dioxide

**Canadian ARET:** None of the components are listed.

**Canadian NPRI:** The following components are listed: Propylene; Propane; Ethylene; Butene; Carbon monoxide; Butene; Butane; Acetylene; Pentane; Butane; Pentane;Butene

**Alberta Designated Substances:** None of the components are listed.

**Ontario Designated Substances:** None of the components are listed.

**Quebec Designated Substances:** None of the components are listed.

## Section 16. Other information

#### United States

#### Label requirements

: FLAMMABLE GAS.  
MAY CAUSE FLASH FIRE.  
HARMFUL IF INHALED.  
MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.  
CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.  
CONTENTS UNDER PRESSURE.

#### Canada

#### Label requirements

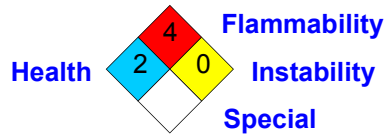
: Class A: Compressed gas.  
Class B-1: Flammable gas.  
Class D-1A: Material causing immediate and serious toxic effects (Very toxic).  
Class D-2A: Material causing other toxic effects (Very toxic).  
Class D-2B: Material causing other toxic effects (Toxic).

**Flammable Gas Mixture: 1 Butene / 1 Pentene / 2-Methyl-2-Butene / Acetylene / Carbon Dioxide / Carbon Monoxide / Cis-2-Butene / Cis-2-Pentene / Ethane / Ethylene / Hydrogen / Isobutane / Isobutene / Isopentane / Methane / Methyl Acetylene / N Butane / N Pentane / Nitrogen / Propane / Propylene / Trans-2-Butene / Trans-2-Pentene**

**Hazardous Material Information System (U.S.A.)**

Health	*	2
Flammability		4
Physical hazards		0

**National Fire Protection Association (U.S.A.)**



**Notice to reader**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.