

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

#### 1.1. Product identifier

Product form : Mixture  
 Product name : 12 Components in Methane  
 Product code : SG-2013-02033

#### 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](http://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
Compressed gas	H280
Repr. 2	H361

Full text of H-phrases: see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



GHS02

GHS04

GHS08

Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H220 - Extremely flammable gas  
 H280 - Contains gas under pressure; may explode if heated  
 H361 - Suspected of damaging fertility or the unborn child  
 OSHA-H01 - May displace oxygen and cause rapid suffocation  
 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, open flames, sparks. - No smoking  
 P220 - Keep/Store away from clothing, combustible materials  
 P271 - Use only outdoors or in a well-ventilated area  
 P280 - Wear protective clothing, protective gloves, eye protection, face protection  
 P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
 P308+P313 - If exposed or concerned: Get medical advice/attention  
 P312 - Call a doctor if you feel unwell  
 P370+P376 - In case of fire: Stop leak if safe to do so  
 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  
 P405 - Store locked up  
 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

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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
Methane	(CAS No) 74-82-8	11.02 - 99.8989	Compressed gas, H280
Nitrogen	(CAS No) 7727-37-9	0.0001 - 14	Compressed gas, H280
Isobutane	(CAS No) 75-28-5	0.0001 - 14	Flam. Gas 1, H220 Liquefied gas, H280
n-Butane	(CAS No) 106-97-8	0.0001 - 14	Flam. Gas 1, H220 Liquefied gas, H280
Ethane	(CAS No) 74-84-0	0.0001 - 14	Flam. Gas 1, H220 Liquefied gas, H280
Propane	(CAS No) 74-98-6	0.0001 - 14	Flam. Gas 1, H220 Liquefied gas, H280
n-Pentane	(CAS No) 109-66-0	0.0001 - 3	Flam. Liq. 2, H225 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Octane	(CAS No) 111-65-9	0.0001 - 3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Isopentane	(CAS No) 78-78-4	0.0001 - 3	Flam. Liq. 1, H224 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
n-Heptane	(CAS No) 142-82-5	0.0001 - 3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
N-NONANE	(CAS No) 111-84-2	0.0001 - 3	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H336
Carbon dioxide	(CAS No) 124-38-9	0.0001 - 2.99	Liquefied gas, H280
n-Hexane	(CAS No) 110-54-3	0.1 - 0.99	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 2, H411

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	: Adverse effects not expected from this product.
First-aid measures after eye contact	: Adverse effects not expected from this product.
First-aid measures after ingestion	: Ingestion is not considered a potential route of exposure.

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### 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	: Adverse effects not expected from this product.
Symptoms/injuries after eye contact	: Adverse effects not expected from this product.
Symptoms/injuries after ingestion	: Ingestion is not considered a potential route of exposure.
Symptoms/injuries upon intravenous administration	: Not known.
Chronic symptoms	: Suspected of damaging fertility. Suspected of damaging the unborn child.

### 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.
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#### 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.
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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. Store locked up.
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

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ACGIH	Not applicable	
OSHA	Not applicable	
Nitrogen (7727-37-9)		
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/m <sup>3</sup> )	9000 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	5000 ppm
Isobutane (75-28-5)		
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	Not applicable	
n-Hexane (110-54-3)		
ACGIH	ACGIH TWA (ppm)	50 ppm
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1800 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	500 ppm
Ethane (74-84-0)		
ACGIH	ACGIH TWA (ppm)	1000 ppm
OSHA	Not applicable	
n-Butane (106-97-8)		
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	Not applicable	
n-Pentane (109-66-0)		
ACGIH	ACGIH TWA (ppm)	600 ppm
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	2950 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
Propane (74-98-6)		
ACGIH	ACGIH TWA (ppm)	1000 ppm
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1800 mg/m <sup>3</sup>

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Propane (74-98-6)		
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

  

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

  

Isopentane (78-78-4)		
ACGIH	ACGIH TWA (ppm)	600 ppm
OSHA	Not applicable	

  

n-Heptane (142-82-5)		
ACGIH	Not applicable	
OSHA	Not applicable	

  

Octane (111-65-9)		
ACGIH	ACGIH TWA (ppm)	300 ppm
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	2350 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	500 ppm

  

N-NONANE (111-84-2)		
ACGIH	Not applicable	
OSHA	Not applicable	

### 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
Relative evaporation rate (ether=1)	: Not applicable for gas-mixtures.
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.

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Oxidizing properties	: None.
Vapor pressure	: No data available
Relative density	: No data available
Relative vapor density at 20 °C	: No data available
Molecular mass	: Not applicable for gas-mixtures.
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

Likely routes of exposure : Inhalation  
Acute toxicity : Not classified

<b>Nitrogen (7727-37-9)</b>	
LC50 inhalation rat (ppm)	820000 ppm/4h
<b>Carbon dioxide (124-38-9)</b>	
LC50 inhalation rat (ppm)	820000 ppm/4h
<b>Isobutane (75-28-5)</b>	
LC50 inhalation rat (mg/l)	658 mg/l/4h
LC50 inhalation rat (ppm)	276713.11 ppm/4h
<b>n-Hexane (110-54-3)</b>	
LD50 dermal rabbit	3000 mg/kg
LC50 inhalation rat (ppm)	48000 ppm/4h
ATE US (dermal)	3000.000 mg/kg body weight
ATE US (gases)	48000.000 ppmV/4h
<b>Ethane (74-84-0)</b>	
LC50 inhalation rat (mg/l)	658 mg/l/4h
LC50 inhalation rat (ppm)	820000 ppm/4h

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<b>Ethane (74-84-0)</b>	
ATE US (gases)	820000.000 ppmV/4h
ATE US (vapors)	658.000 mg/l/4h
ATE US (dust, mist)	658.000 mg/l/4h
<b>n-Butane (106-97-8)</b>	
LC50 inhalation rat (mg/l)	658 g/m <sup>3</sup> (Exposure time: 4 h)
LC50 inhalation rat (ppm)	276789.28 ppm/4h
<b>n-Pentane (109-66-0)</b>	
LD50 dermal rabbit	3000 mg/kg
LC50 inhalation rat (mg/l)	364 g/m <sup>3</sup> (Exposure time: 4 h)
LC50 inhalation rat (ppm)	123317.17 ppm/4h
ATE US (dermal)	3000.000 mg/kg body weight
ATE US (gases)	123317.170 ppmV/4h
ATE US (vapors)	364.000 mg/l/4h
ATE US (dust, mist)	364.000 mg/l/4h
<b>Propane (74-98-6)</b>	
LC50 inhalation rat (mg/l)	658 mg/l/4h
LC50 inhalation rat (ppm)	282800 ppm/4h
<b>Methane (74-82-8)</b>	
LC50 inhalation rat (ppm)	820000 ppm/4h
ATE US (gases)	820000.000 ppmV/4h
<b>Isopentane (78-78-4)</b>	
LC50 inhalation rat (ppm)	94859.36 ppm/4h
ATE US (gases)	94859.360 ppmV/4h
<b>n-Heptane (142-82-5)</b>	
LC50 inhalation rat (ppm)	25126 ppm/4h
<b>Octane (111-65-9)</b>	
LC50 inhalation rat (mg/l)	118 g/m <sup>3</sup> (Exposure time: 4 h)
LC50 inhalation rat (ppm)	25260 ppm/4h
ATE US (gases)	25260.000 ppmV/4h
ATE US (vapors)	118.000 mg/l/4h
ATE US (dust, mist)	118.000 mg/l/4h
<b>N-NONANE (111-84-2)</b>	
LC50 inhalation rat (ppm)	3200 ppm/4h
ATE US (gases)	3200.000 ppmV/4h
ATE US (vapors)	11.000 mg/l/4h
ATE US (dust, mist)	1.500 mg/l/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

Reproductive toxicity : Suspected of damaging fertility or the unborn child.  
Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

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Aspiration hazard	: Not classified
Symptoms/injuries after inhalation	: May displace oxygen and cause rapid suffocation.
Symptoms/injuries after skin contact	: Adverse effects not expected from this product.
Symptoms/injuries after eye contact	: Adverse effects not expected from this product.
Symptoms/injuries after ingestion	: Ingestion is not considered a potential route of exposure.
Symptoms/injuries upon intravenous administration	: Not known.
Chronic symptoms	: Suspected of damaging fertility. Suspected of damaging the unborn child.

### SECTION 12: Ecological information

#### 12.1. Toxicity

<b>n-Hexane (110-54-3)</b>	
LC50 fish 1	2.1 - 2.98 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
<b>n-Pentane (109-66-0)</b>	
LC50 fish 1	9.87 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 Daphnia 1	9.74 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	11.59 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
<b>Isopentane (78-78-4)</b>	
EC50 Daphnia 1	2.3 mg/l (Exposure time: 48 h - Species: Daphnia magna)
<b>Octane (111-65-9)</b>	
EC50 Daphnia 1	0.38 mg/l (Exposure time: 48 h - Species: water flea)

#### 12.2. Persistence and degradability

<b>Nitrogen (7727-37-9)</b>	
Persistence and degradability	No ecological damage caused by this product.
<b>Carbon dioxide (124-38-9)</b>	
Persistence and degradability	No ecological damage caused by this product.
<b>Isobutane (75-28-5)</b>	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.
<b>Ethane (74-84-0)</b>	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.
<b>n-Butane (106-97-8)</b>	
Persistence and degradability	No data available.
<b>Propane (74-98-6)</b>	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.
<b>Methane (74-82-8)</b>	
Persistence and degradability	The substance is biodegradable. Unlikely to persist. No data available.
<b>Isopentane (78-78-4)</b>	
Persistence and degradability	No data available.

#### 12.3. Bioaccumulative potential

<b>Nitrogen (7727-37-9)</b>	
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No ecological damage caused by this product.
<b>Carbon dioxide (124-38-9)</b>	
BCF fish 1	(no bioaccumulation)
Log Pow	0.83
Bioaccumulative potential	No ecological damage caused by this product.
<b>Isobutane (75-28-5)</b>	
BCF fish 1	1.57 - 1.97

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<b>Isobutane (75-28-5)</b>	
Log Pow	2.76
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
<b>Ethane (74-84-0)</b>	
Log Pow	1.81
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
<b>n-Butane (106-97-8)</b>	
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.
<b>n-Pentane (109-66-0)</b>	
Log Pow	3.39
<b>Propane (74-98-6)</b>	
Log Pow	2.36
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.
<b>Methane (74-82-8)</b>	
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.
<b>Isopentane (78-78-4)</b>	
Log Pow	3.2 - 3.3
Log Kow	Not applicable for gas-mixtures.
Bioaccumulative potential	No data available.
<b>Octane (111-65-9)</b>	
Log Pow	5.18

### 12.4. Mobility in soil

<b>Nitrogen (7727-37-9)</b>	
Ecology - soil	No ecological damage caused by this product.
<b>Carbon dioxide (124-38-9)</b>	
Ecology - soil	No ecological damage caused by this product.
<b>Isobutane (75-28-5)</b>	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
<b>Ethane (74-84-0)</b>	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
<b>n-Butane (106-97-8)</b>	
Mobility in soil	No data available.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
<b>Propane (74-98-6)</b>	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
<b>Methane (74-82-8)</b>	
Mobility in soil	No data available.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
<b>Isopentane (78-78-4)</b>	
Mobility in soil	No data available.

### 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.

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### 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](http://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 : UN1954 Compressed gas, flammable, n.o.s., 2.1
- UN-No.(DOT) : UN1954
- Proper Shipping Name (DOT) : Compressed gas, flammable, n.o.s.
- Transport hazard class(es) (DOT) : 2.1 - Class 2.1 - Flammable gas 49 CFR 173.115
- Hazard labels (DOT) : 2.1 - Flammable gas



- DOT Packaging Non Bulk (49 CFR 173.xxx) : 302;305
- DOT Packaging Bulk (49 CFR 173.xxx) : 314;315
- DOT Symbols : G - Identifies PSN requiring a technical name
- 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 1954 COMPRESSED GAS, FLAMMABLE, N.O.S., 2.1, (B/D)
- Class (ADR) : 2 - Gases
- Hazard identification number (Kemler No.) : 23
- Classification code (ADR) : 1F
- Hazard labels (ADR) : 2.1 - Flammable gases



Orange plates



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

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Excepted quantities (ADR) : E0

### Transport by sea

UN-No. (IMDG) : 1954  
Proper Shipping Name (IMDG) : COMPRESSED GAS, FLAMMABLE, N.O.S.  
Class (IMDG) : 2 - Gases

### Air transport

UN-No. (IATA) : 1954  
Proper Shipping Name (IATA) : COMPRESSED GAS, FLAMMABLE, N.O.S.  
Class (IATA) : 2

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Nitrogen (7727-37-9)

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

#### Isobutane (75-28-5)

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

#### n-Hexane (110-54-3)

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 %
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#### Ethane (74-84-0)

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

#### n-Butane (106-97-8)

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

#### n-Pentane (109-66-0)

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

EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.
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#### Propane (74-98-6)

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

#### Isopentane (78-78-4)

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

#### Octane (111-65-9)

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

### 15.2. International regulations

#### CANADA

#### Nitrogen (7727-37-9)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class A - Compressed Gas
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#### Carbon dioxide (124-38-9)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class A - Compressed Gas
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#### Isobutane (75-28-5)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas
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<b>n-Hexane (110-54-3)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects
<b>Ethane (74-84-0)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas
<b>n-Butane (106-97-8)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas
<b>n-Pentane (109-66-0)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class B Division 2 - Flammable Liquid
<b>Propane (74-98-6)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas
<b>Methane (74-82-8)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas
<b>Isopentane (78-78-4)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class B Division 2 - Flammable Liquid
<b>Octane (111-65-9)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects

### EU-Regulations

<b>Nitrogen (7727-37-9)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>Carbon dioxide (124-38-9)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>Isobutane (75-28-5)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>n-Hexane (110-54-3)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>Ethane (74-84-0)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>n-Butane (106-97-8)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>n-Pentane (109-66-0)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>Propane (74-98-6)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>Methane (74-82-8)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>Isopentane (78-78-4)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	

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### Octane (111-65-9)

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

#### 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)

#### 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)

#### 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)

#### n-Hexane (110-54-3)

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 on the Canadian IDL (Ingredient Disclosure List)

#### 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)

#### 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)

#### n-Pentane (109-66-0)

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)

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### 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)

### 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)

### Isopentane (78-78-4)

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)

### Octane (111-65-9)

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)

## 15.3. US State regulations

### 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

### 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

### 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

### n-Hexane (110-54-3)

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

### 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

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### **n-Pentane (109-66-0)**

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

### **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

### **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

### **Isopentane (78-78-4)**

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

### **Octane (111-65-9)**

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

## **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.

# 12 Components in Methane

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Full text of H-phrases:

Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Asp. Tox. 1	Aspiration hazard Category 1
Compressed gas	Gases under pressure Compressed gas
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Gas 1	Flammable gases Category 1
Flam. Liq. 1	Flammable liquids Category 1
Flam. Liq. 2	Flammable liquids Category 2
Flam. Liq. 3	Flammable liquids Category 3
Liquefied gas	Gases under pressure Liquefied gas
Repr. 2	Reproductive toxicity Category 2
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H224	Extremely flammable liquid and vapor
H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H280	Contains gas under pressure; may explode if heated
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H319	Causes serious eye irritation
H332	Harmful if inhaled
H336	May cause drowsiness or dizziness
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects

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.*