

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 11/04/2014 Version: 1.0

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

1.1. Product identifier

Product form : Mixture

Product name : Acetylene (0.0001% - 4.5000%), Ethane (0.0001% - 37.0000%), Methane (0.0001% - 37.0000%)

in Ethylene

Product code : SG-2004-01481

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 America Specialty Gases 6141 Easton Rd Plumsteadville, PA 18949 - USA T 1.800.217.2688 www.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

Classification (GHS-US)

Flam. Gas 1 H220 Compressed gas H280 STOT SE 3 H336

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

H336 - May cause drowsiness or dizziness

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

P271 - Use only outdoors or in a well-ventilated area

P261 - Avoid breathing gas, vapors

P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing

P313 - Get medical advice/attention

CGA-PG05 - Use a back flow preventive device in the piping

CGA-PG21 - Open valve slowly

CGA-PG06 - Close valve after each use and when empty CGA-PG10 - Use only with equipment rated for cylinder pressure

P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely

CGA-PG14 - Approach suspected leak area with caution P381 - Eliminate all ignition sources if safe to do so

CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F) P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking

P403 - Store in a well-ventilated place

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2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Ethylene	(CAS No)74-85-1	21.5 - 99.9997	Flam. Gas 1, H220 Liquefied gas, H280 STOT SE 3, H336
Methane	(CAS No)74-82-8	0.0001 - 37	Flam. Gas 1, H220 Compressed gas, H280
Ethane	(CAS No)74-84-0	0.0001 - 37	Flam. Gas 1, H220 Compressed gas, H280
Acetylene (dissolved)	(CAS No)74-86-2	0.0001 - 4.5	Flam. Gas 1, H220 Dissolved gas, H280

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh ai

: Remove 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.

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

Symptoms/injuries : Symptoms similar to those listed under inhalation.

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

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 : 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 : Dry chemical, carbon dioxide, water spray, foam, fog

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. Extremely flammable gas.

Explosion hazard : May form flammable/explosive vapor-air mixture. Heat may build pressure, rupturing closed

containers, spreading fire and increasing risk of burns and injuries.

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.

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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.

Precautions for safe handling

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. Handle empty containers with care

because residual vapors are flammable. Use equipment rated for cylinder pressure. In use, may

form flammable vapor-air mixture. Close valve after each use and when empty.

: Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Keep away from heat/sparks/open flames/hot surfaces. – No

smoking. Use only non-sparking tools. Use only outdoors or in a well-ventilated area.

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)

Test gas/Calibration gas.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Acetylene (dissolved) (74-86-2)

Etnylene (74-85-1)		
USA ACGIH	ACGIH TWA (ppm)	200 ppm

Methane (74-82-8)

USA ACGIH ACGIH TWA (ppm) 1000 ppm

Ethane (74-84-0)

USA ACGIH ACGIH TWA (ppm) 1000 ppm

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Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Systems under pressure should be

regularly checked for leakages. Ensure exposure is below occupational exposure limits. 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. 29CFR 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

Information on basic physical and chemical properties

Physical state

Clear, colorless gas. Appearance

Molecular mass Not applicable for gas-mixtures.

Color : Colorless Odor Odorless

Odor threshold No data available

рН : Not applicable for gas-mixtures.

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

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

Melting point No data available Freezing point No data available Boiling point : No data available Flash point No data available Auto-ignition temperature : No data available : No data available Decomposition temperature Flammability (solid, gas) Flammable Vapor pressure Not applicable. Relative vapor density at 20 °C No data available Relative density : No data available Relative gas density : Lighter or similar to air.

Solubility Water: Solubility in water of component(s) of the mixture :

•: 1185 mg/l •: 130 mg/l •: 26 mg/l •: 61 mg/l

Log Pow Not applicable for gas-mixtures. Log Kow : Not applicable for gas-mixtures.

Viscosity, kinematic Not applicable. Viscosity, dynamic : Not applicable.

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

Oxidizing properties

Explosive limits : No data available

Other information

Additional information : None.

SECTION 10: Stability and reactivity

10.1. Reactivity

None known.

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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

Air. Oxidizing materials.

IARC group

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

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Acetylene (dissolved) (74-86-2)	
LC50 inhalation rat (ppm)	410000 ppm/4h
ATE US (gases)	410000.00000000 ppmV/4h
Ethylene (74-85-1)	
LC50 inhalation rat (ppm)	410000 ppm/4h
ATE US (gases)	410000.00000000 ppmV/4h
Methane (74-82-8)	
LC50 inhalation rat (ppm)	410000 ppm/4h
ATE US (gases)	410000.00000000 ppmV/4h
Ethane (74-84-0)	
LC50 inhalation rat (mg/l)	658 mg/l/4h
LC50 inhalation rat (ppm)	410000 ppm/4h
ATE US (gases)	410000.00000000 ppmV/4h
ATE US (vapors)	658.00000000 mg/l/4h
ATE US (dust, mist)	658.00000000 mg/l/4h
Skin corrosion/irritation	: Not classified
	pH: Not applicable for gas-mixtures.
Serious eye damage/irritation	: Not classified
	pH: Not applicable for gas-mixtures.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Ethylene (74-85-1)	
. ,	

Reproductive toxicity : Not classified Specific target organ toxicity (single exposure) : May cause drowsiness or dizziness.

Specific target organ toxicity (repeated exposure) : Not classified No known effects from this product.

Aspiration hazard : Not classified Not applicable for gases and gas-mixtures.

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

Symptoms/injuries after skin contact : Adverse effects not expected from this product.

3 - Not classifiable

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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 : Adverse effects not expected from this product.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Classification criteria are not met.

12.2. Persistence and degradability

Acetylene (0.0001% - 4.5000%), Ethane (0.0001% - 37.0000%), Methane (0.0001% - 37.0000%) in Ethylene		
Persistence and degradability	No data available.	
Acetylene (dissolved) (74-86-2)		
Persistence and degradability	Will rapidly degrade by indirect photolysis in air. Will not undergo hydrolysis.	
Ethylene (74-85-1)		
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.	
Ethane (74-84-0)		
Persistence and degradability	The substance is biodegradable. Unlikely to persist.	

12.3. Bioaccumulative potential

Acetylene (0.0001% - 4.5000%), Ethane (0.0001% - 37.0000%), Methane (0.0001% - 37.0000%) in Ethylene	
Log Pow	Not applicable for gas-mixtures.
Log Kow	Not applicable for gas-mixtures.
Bioaccumulative potential	No data available.

Acetylene (dissolved) (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.

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.

Methane (74-82-8)	
Log Pow	1.09
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.

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.

12.4. Mobility in soil

Acetylene (0.0001% - 4.5000%), Ethane (0.0001% - 37.0000%), Methane (0.0001% - 37.0000%) in Ethylene		
Mobility in soil	No data available.	
Acetylene (dissolved) (74-86-2)		
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.	
Methane (74-82-8)		
Mobility in soil	No data available.	

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Methane (74-82-8)	
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.

Other adverse effects

Effect on ozone layer : None.

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

SECTION 13: Disposal considerations

Waste treatment methods

Waste treatment methods

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

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

In accordance with DOT

Transport document description : UN1954 Compressed gas, flammable, n.o.s., 2.1

UN-No.(DOT) : 1954 DOT NA no. : UN1954

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

Department of Transportation (DOT) Hazard

Classes

: 2.1 - Class 2.1 - Flammable gas 49 CFR 173.115

Hazard labels (DOT) : 2.1 - Flammable gas



DOT Symbols G - Identifies PSN requiring a technical name

DOT Packaging Exceptions (49 CFR 173.xxx) 306 DOT Packaging Non Bulk (49 CFR 173.xxx) : 302;305 DOT Packaging Bulk (49 CFR 173.xxx) : 314;315 DOT Quantity Limitations Passenger aircraft/rail : Forbidden

(49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : 150 kg

CFR 175.75)

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.

Special transport precautions : Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the

event of an accident or an emergency. Before transporting product containers: - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. -

Ensure valve protection device (where provided) is correctly fitted.

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ADR

Transport document description

Transport by sea

UN-No. (IMDG) : 1954

Proper Shipping Name (IMDG) : COMPRESSED GAS, FLAMMABLE, N.O.S.

Class (IMDG) : 2.1 - Flammable 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

Ethylene (74-85-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 %

15.2. International regulations

CANADA

Acetylene (dissolved) (74-86-2)	Acetylene (dissolved) (74-86-2)		
Listed on the Canadian DSL (Domest	Sustances List)		
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas Class F - Dangerously Reactive Material		
Fabricano (74.05.4)			

	Ethylene (74-85-1)	
Listed on the Canadian DSL (Domestic Sustances List)		ss 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

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

Ethane (74-84-0) Listed on the Canadian DSL (Domestic Sustances List)	

EU-Regulations

Ethylene (74-85-1)

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]

15.2.2. National regulations

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)

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15.3. US State regulations

Acetylene (dissolved) (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

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

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

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

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: see section 16:

Compressed gas	Gases under pressure Compressed gas
Dissolved gas	Gases under pressure Dissolved gas
Flam. Gas 1	Flammable gases Category 1
Liquefied gas	Gases under pressure Liquefied gas
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated
H336	May cause drowsiness or dizziness

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.

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