

### SECTION 1: Identification

#### 1.1. Identification

Product form	: Substance
Substance name	: Ethylene
CAS No	: 74-85-1
Product code	: SG-1001-07373
Formula	: C2H4
Synonyms	: Ethene / Ethylene, compressed

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

Use of the substance/mixture	: Manufacture of substances
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#### 1.3. Details of the supplier of the safety data sheet

Air Liquide USA LLC and its affiliates  
 9811 Katy Freeway, Suite 100  
 Houston, TX 77024 - 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
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### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Flammable gases	H220
Category 1	
Gases under pressure	H280
Compressed gas	
Specific target organ	H336
toxicity (single exposure) Category 3	

Full text of H statements : see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US)



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

Precautionary statements (GHS-US)

: P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking  
 P261 - Avoid breathing gas  
 P271 - Use only outdoors or in a well-ventilated area  
 P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
 P312 - Call a poison center/doctor/... if you feel unwell  
 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  
 P403+P233 - Store in a well-ventilated place. Keep container tightly closed  
 P405 - Store locked up  
 P410+P403 - Protect from sunlight. Store in a well-ventilated place  
 P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

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### 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

Name	Product identifier	%	GHS-US classification
Ethylene (Main constituent)	(CAS No) 74-85-1	> 99	Flam. Gas 1, H220 Compressed gas, H280 STOT SE 3, H336

Full text of H-phrases: see section 16

### 3.2. Mixture

Not applicable

## 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.

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

- 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 : 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 : Evacuate personnel to a safe area. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

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### 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 without risk.

### 6.3. Methods and material for containment and cleaning up

- For containment : Try to stop release if without risk.
- Methods for cleaning up : Dispose of contents/container in accordance with local/regional/national/international 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 only with 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 cylinders from physical damage; do not drag, roll, slide or drop. Store in well ventilated area. Store locked up.
- Incompatible products : None known.
- Incompatible materials : Oxidizing materials. Air.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Ethylene (74-85-1)		
ACGIH	ACGIH TWA (ppm)	200 ppm

### 8.2. Exposure controls

- Appropriate engineering controls : Ensure exposure is below occupational exposure limits (where available). 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 : Colorless gas.

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Color	: Colorless.
Odor	: Sweet
Odor threshold	: No data available
pH	: No data available
Melting point	: -169 °C
Freezing point	: -169 °C
Boiling point	: -102.85 °C
Critical temperature	: 10.25 °C
Critical pressure	: 5041 kPa
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	: 2.4 - 32.6 vol %
Explosive properties	: Without adequate ventilation formation of explosive mixtures may be possible.
Oxidizing properties	: None.
Vapor pressure	: 37884.8090398098 mbar
Relative density	: 0.57
Relative vapor density at 20 °C	: 0.978
Specific gravity / density	: 0.974 g/cm <sup>3</sup> (at 15 °C)
Molecular mass	: 28.05 g/mol
Relative gas density	: 0.975
Solubility	: Water: 130 mg/l
Log Pow	: 1.13
Auto-ignition temperature	: 440 °C
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

None known.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

May react violently with oxidants. 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, Oxidizer. For additional information on compatibility refer to ISO 11114.

### 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

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

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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

### Ethylene (74-85-1)

IARC group	3 - Not classifiable
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: May cause drowsiness or dizziness.
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
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.

## SECTION 12: Ecological information

### 12.1. Toxicity

No additional information available

### 12.2. Persistence and degradability

#### Ethylene (74-85-1)

Persistence and degradability	The substance is biodegradable. Unlikely to persist.
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### 12.3. Bioaccumulative potential

#### 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.

### 12.4. Mobility in soil

#### Ethylene (74-85-1)

Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
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### 12.5. Other adverse effects

Effect on ozone layer	: None
Effect on the global warming	No known effects from this product

## 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 <a href="http://www.cganet.com">www.cganet.com</a> for more guidance on suitable disposal methods.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT	
Transport document description	: UN1962 Ethylene, 2.1

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UN-No.(DOT) : UN1962  
Proper Shipping Name (DOT) : Ethylene  
Class (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) : 304  
DOT Packaging Bulk (49 CFR 173.xxx) : 302  
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 : E - The material may be stowed "on deck" or "under deck" 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 is prohibited from carriage on passenger vessels in which the limiting number of passengers is exceeded  
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"  
Emergency Response Guide (ERG) Number : 115 (UN1038);116P (UN1962)  
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.

### TDG

Transport document description : UN1962 ETHYLENE, 2.1  
UN-No. (TDG) : UN1962  
Proper Shipping Name : ETHYLENE  
TDG Primary Hazard Classes : 2.1 - Class 2.1 - Flammable Gas.  
ERAP Index : 3 000  
Explosive Limit and Limited Quantity Index : 0.125 L  
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : Forbidden  
Passenger Carrying Ship Index : Forbidden

### Transport by sea

UN-No. (IMDG) : 1962  
Proper Shipping Name (IMDG) : COMPRESSED GAS, FLAMMABLE, N.O.S.  
Class (IMDG) : 2 - Gases  
MFAG-No : 116P

### Air transport

UN-No. (IATA) : 1962  
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  
Subject to reporting requirements of United States SARA Section 313

SARA Section 313 - Emission Reporting	1.0 %
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### 15.2. International regulations

#### CANADA

##### Ethylene (74-85-1)

Listed on the Canadian DSL (Domestic Substances 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

#### EU-Regulations

##### Ethylene (74-85-1)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### 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)

### 15.3. US State regulations

##### Ethylene (74-85-1)

State or local regulations

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

## SECTION 16: Other information

Full text of H-phrases:

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 USA LLC and its affiliates' 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.*