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

Product information

Product Name: Ethylene 99.8% Grade
Material: 1083870, 1085526, 1100705, 1015414

Company: Chevron Phillips Chemical Company LP
10001 Six Pines Drive
The Woodlands, TX 77380

Emergency telephone:

Health: 866.442.9628 (North America)
1.832.813.4994 (International)

Transport:
CHEMTREC 800.424.9300 or 703.527.3887 (int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431

Responsible Department: Product Safety and Toxicology Group
E-mail address: SDS@CPChem.com
Website: www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture
This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Classification
Flammable gases, Category 1
Gases under pressure, Liquefied gas
Specific target organ systemic toxicity - single exposure, Category 3, Central nervous system

Labeling

SDS Number: 100000067812
Symbol(s): 
```
[Image]
```

Signal Word: Danger

Hazard Statements: 
- H220: Extremely flammable gas.
- H280: Contains gas under pressure; may explode if heated.
- H336: May cause drowsiness or dizziness.

Precautionary Statements: 
**Prevention:**
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
- P271 Use only outdoors or in a well-ventilated area.

**Response:**
- P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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.

**Storage:**
- 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.

**Disposal:**
- P501 Dispose of contents/container to an approved waste disposal plant.

Carcinogenicity:

**IARC**
No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**NTP**
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

SECTION 3: Composition/information on ingredients

**Synonyms:**
- Ethylene HP (UNODORIZED) or ETHYLENE 99.8% GRADE
- Ethene
- Ethylene HP (Unodorized)

**Molecular formula:** C2H4

**Index-No.:**
- 601-010-00-3

**EINECS-No.:**
- 200-815-3

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<tr>
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<th>CAS-No.</th>
<th>Weight %</th>
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<tr>
<td>Ethylene</td>
<td>74-85-1</td>
<td>99.8 - 100</td>
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</table>

SDS Number: 100000067812 2/12
SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.

If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.

In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

SECTION 5: Firefighting measures

Flash point : -136 °C (-213 °F)

Autoignition temperature : 490 °C (914 °F)

Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.

Unsuitable extinguishing media : High volume water jet.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

Fire and explosion protection : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.


SECTION 6: Accidental release measures

Personal precautions : Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
SAFETY DATA SHEET

Ethylene 99.8% Grade

SECTION 7: Handling and storage

Handling

Advice on safe handling: Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion: Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers: Prevent unauthorized access. No smoking. Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>Basis</th>
<th>Value</th>
<th>Control parameters</th>
<th>Note</th>
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<td>ACGIH TWA</td>
<td>200 ppm</td>
<td></td>
<td>asphyxia, A4, Not classifiable as a human carcinogen</td>
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</tbody>
</table>

US

asphyxia Asphyxia

Engineering measures

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection: Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Full-Face Supplied-Air Respirator. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or
other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection: The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection: Eye wash bottle with pure water. Safety glasses.

Skin and body protection: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.

Hygiene measures: Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance
Form: Liquefied gas
Physical state: Gaseous
Color: Colorless
Odor: Sweet Olefinic
Odor Threshold: 270 ppm

Safety data
Flash point: -136 °C (-213 °F)
Lower explosion limit: 2.7 %(V)
Upper explosion limit: 36 %(V)
Autoignition temperature: 490 °C (914 °F)
Molecular formula: C2H4
Molecular weight: 28.04 g/mol
pH: Not applicable
Freezing point: -169 °C (-272 °F)
Boiling point/boiling range: -103.9 °C (-155.0 °F)
Vapor pressure: 51.00 bar at 10 °C (50 °F)
Relative density: 0.57
### Ethylene 99.8% Grade

#### Version 1.2

<table>
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<td>Water solubility</td>
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<tr>
<td>Solubility in other solvents</td>
<td>Soluble in hydrocarbons</td>
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<tr>
<td>Viscosity, kinematic</td>
<td>1.06 cSt at -170 °C (-274 °F)</td>
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<tr>
<td>Relative vapor density</td>
<td>0.98 (Air = 1.0)</td>
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<tr>
<td>Evaporation rate</td>
<td>No data available</td>
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<tr>
<td>Percent volatile</td>
<td>&gt; 99 %</td>
</tr>
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</table>

### SECTION 10: Stability and reactivity

#### Reactivity

Stable under recommended storage conditions.

#### Chemical stability

This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

#### Possibility of hazardous reactions

**Hazardous reactions**: Hazardous polymerization does not occur.

Further information: No decomposition if stored and applied as directed.

Hazardous reactions: Vapors may form explosive mixture with air.

#### Conditions to avoid

Heat, flames and sparks.

#### Materials to avoid

May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

#### Hazardous decomposition products

Methane

Hydrogen

#### Other data

No decomposition if stored and applied as directed.

### SECTION 11: Toxicological information

#### Ethylene 99.8% Grade

**Acute oral toxicity**: Negligible or unlikely exposure pathways
Ethylene 99.8% Grade

Acute inhalation toxicity
Ethylene
LC50: > 65.4 mg/l
Exposure time: 4 h
Species: Rat
Sex: male
Test atmosphere: gas

Ethylene 99.8% Grade
Acute dermal toxicity
Negligible or unlikely exposure pathways

Skin irritation
Ethylene
Contact with liquid or refrigerated gas can cause cold burns and frostbite.

Eye irritation
Ethylene
Contact with liquid or refrigerated gas can cause cold burns and frostbite.

Genotoxicity in vitro
Ethylene
Test Type: Ames test
Test system: TA100
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo
Ethylene
Test Type: Micronucleus test
Species: Rat
Route of Application: inhalation (gas)
Exposure time: 5 days and 13 weeks
Dose: 10000 ppm
Result: negative

Test Type: Micronucleus test
Species: Rat
Route of Application: inhalation (gas)
Exposure time: 4 weeks
Dose: 40, 1000, 3000 ppm
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity
Ethylene
Species: Rat
Dose: 0. 300, 1000, 3000 ppm
Exposure time: 2 yrs
Number of exposures: 6 h/d, 5 d/wk
Remarks: no increase incidence of tumors
# Reproductive toxicity

**Ethylene**  
Species: Rat  
Application Route: Inhalation  
Dose: 0.200, 1000, 5000 ppm  
Number of exposures: 6 h/d  
NOAEL Parent: 5000 ppm  
NOAEL F1: 5000 ppm  
No abnormalities observed

## Developmental Toxicity

**Ethylene**  
Species: Rat  
Application Route: Inhalation  
Dose: 0.200, 1000, 5000 ppm  
Number of exposures: 6 h/d  
NOAEL Teratogenicity: 5000 ppm  
NOAEL Maternal: 5000 ppm  
No toxicity to reproduction  
Animal testing did not show any effects on fertility.

**Ethylene 99.8% Grade**  
**Aspiration toxicity**  
No aspiration toxicity classification.

**Ethylene 99.8% Grade**  
**Further information**  
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

## SECTION 12: Ecological information

### Biodegradability

**Ethylene**  
This material is expected to be readily biodegradable.

### Bioaccumulation

**Ethylene**  
Bioaccumulation is unlikely.

### Mobility

**Ethylene**  
No data available

### Additional ecological information

**Ecotoxicology Assessment**  
No data available
SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped. Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product: Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN1962, ETHYLENE, (NOT ODORIZED), 2.1

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN1962, ETHYLENE, (NOT ODORIZED), 2.1, (-136 °C)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN1962, ETHYLENE, (NOT ODORIZED), 2.1

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN1962, ETHYLENE, (NOT ODORIZED), 2.1, (B/D)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN1962, ETHYLENE, (NOT ODORIZED), 2.1 ((13))

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN1962, ETHYLENE, (NOT ODORIZED), 2.1
**SECTION 15: Regulatory information**

### National legislation

| SARA 311/312 Hazards | Flammable (gases, aerosols, liquids, or solids)  
| | Specific target organ toxicity (single or repeated exposure)  
| | Gases under pressure  
| CERCLA Reportable Quantity | This material does not contain any components with a CERCLA RQ.  
| SARA 302 Reportable Quantity | This material does not contain any components with a SARA 302 RQ.  
| SARA 302 Threshold Planning Quantity | This material does not contain any components with a section 302 EHS TPQ.  
| SARA 304 Reportable Quantity | This material does not contain any components with a section 304 EHS RQ.  
| SARA 313 Components | The following components are subject to reporting levels established by SARA Title III, Section 313:  
| | Ethylene - 74-85-1  

### Clean Air Act

Ozone-Depletion Potential: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):  
| | Ethylene - 74-85-1  

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

- **Ethylene - 74-85-1**

### US State Regulations

**Pennsylvania Right To Know**
- Ethylene - 74-85-1

**California Prop. 65 Components**
- This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

### Notification status

**Europe REACH**
- Not in compliance with the inventory

**United States of America (USA) TSCA**
- On TSCA Inventory

**Canada DSL**
- All components of this product are on the Canadian DSL

**Australia AICS**
- On the inventory, or in compliance with the inventory

**New Zealand NZIoC**
- On the inventory, or in compliance with the inventory

**Japan ENCS**
- On the inventory, or in compliance with the inventory

**Korea KECI**
- On the inventory, or in compliance with the inventory

**Philippines PICCS**
- On the inventory, or in compliance with the inventory

**China IECSC**
- On the inventory, or in compliance with the inventory

### SECTION 16: Other information

**NFPA Classification**
- Health Hazard: 2
- Fire Hazard: 4
- Reactivity Hazard: 2

### Further information

**Legacy SDS Number**
- 1852

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

### Key or legend to abbreviations and acronyms used in the safety data sheet

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Government Industrial Hygienists</td>
</tr>
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<td>AICS</td>
<td>Australia, Inventory of Chemical Substances</td>
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<tr>
<td>DSL</td>
<td>Canada, Domestic Substances List</td>
</tr>
<tr>
<td>NDSL</td>
<td>Canada, Non-Domestic Substances List</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
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<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration</td>
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<td>Effective Concentration 50%</td>
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<td>EHEST</td>
<td>EOSCA Generic Exposure Scenario Tool</td>
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<td>European Oilfield Specialty Chemicals Association</td>
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<td>European Inventory of Existing Chemical Substances</td>
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<td>Germany Maximum Concentration Values</td>
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<td>Globally Harmonized System</td>
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<td>Toxic Substance Control Act</td>
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