

**Dilute Ethylene**

Version 1.

Revision Date 2010-05-18

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**Product information**

Trade name : Dilute Ethylene
Use : Chemical intermediate

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

Local : Chevron Phillips Chemicals International N.V.
Brusselsesteenweg 355
B-3090 Overijse
Belgium

Emergency telephone:**Health:**

866.442.9628 (North America)
1.832.813.4984 (International)

Transport:

North America: CHEMTREC 800.424.9300 or 703.527.3887
ASIA: +1.703.527.3887
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

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

2. HAZARDS IDENTIFICATION**Risk advice to man and the environment**

Extremely flammable.

Labelling according to EC Directives**1999/45/EC**

| | | |
|--------------|----------------------------|---|
| Symbol(s) | : F+ | Extremely flammable |
| R-phrases(s) | : R12 | Extremely flammable. |
| S-phrases(s) | : S 9 S16 S33 S60 | Keep container in a well-ventilated place. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. This material and its container must be |

Dilute Ethylene

Version 1.

Revision Date 2010-05-18

disposed of as hazardous waste.

GHS-Classification

: Flammable gases, Category 1
 Specific target organ toxicity - single exposure, Category 3

GHS-Labeling

Symbol(s)



Signal word

: Danger

Hazard statements

: H220: Extremely flammable gas.
 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 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P312 Call a POISON CENTER or doctor/physician 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 Store in a well-ventilated place.
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.
Disposal:
 P501 Dispose of contents/container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Not Established

Molecular formula : C₂H₄

| Chemical Name | CAS-No. / EINECS-No. | Concentration[%] |
|---------------|----------------------|------------------|
| Ethylene | 74-85-1 / 200-815-3 | 60 - 100 |
| Ethane | 74-84-0 / 200-814-8 | 10 - 30 |

4. FIRST AID MEASURES

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Do not leave the victim

Dilute Ethylene

Version 1.

Revision Date 2010-05-18

| | |
|-------------|---|
| | unattended. |
| Inhalation | : Move to fresh air. If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician. |
| 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. |
| Ingestion | : 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. |

5. FIRE-FIGHTING MEASURES

| | |
|--|---|
| Flash point | : -136 °C (-213 °F) |
| Autoignition temperature | : 490 °C (914 °F) |
| Suitable extinguishing media | : Dry chemical. Carbon dioxide (CO ₂). Alcohol-resistant foam. |
| Unsuitable extinguishing media | : High volume water jet. |
| Special protective equipment for fire-fighters | : Wear self contained breathing apparatus for fire fighting 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. |
| Hazardous decomposition products | : Methane. Hydrogen. |

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. |

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 |
|-------------------------|---|

Dilute Ethylene

Version 1.

Revision Date 2010-05-18

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. Use only explosion-proof equipment. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from open flames, hot surfaces and sources of ignition.

Storage

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters****Chevron Phillips Chemical Company LP**

| Components | Basis | Value | Control parameters | Note |
|------------|--------------|-------|--------------------|------|
| Ethylene | Manufacturer | TWA | 0,1 g/cm3 | |

LT

| Komponentai | Pagrindas, bazė | Vertė | Kontroliniai parametrai | Pastaba |
|-------------|-----------------|-------|-------------------------|---------|
| Ethylene | LT OEL | IPRD | 100 mg/m3 | |

LV

| Sastāvdaļas | Bāze | Vērtība | Kontroles parametri | Piezīme |
|-------------|--------|----------|---------------------|---------|
| Ethylene | LV OEL | AER 8 st | 100 mg/m3 | |

PT

| Componentes | Bases | Valor | Parâmetros de controlo | Nota |
|-------------|--------|--------|------------------------|------|
| Ethylene | PT OEL | VLE-MP | 200 ppm, | A4, |
| Methane | PT OEL | VLE-MP | 1.000 ppm, | |
| Ethane | PT OEL | VLE-MP | 1.000 ppm, | |

A4 Agentes não classificáveis como carcinogénicos no Homem

SE

| Bestandsdelar | Grundval | Vara | Kontrollparametrar | Anmärkning |
|---------------|----------|------|------------------------|------------|
| Ethylene | SE AFS | NGV | 250 ppm, 330 mg/m3 | |
| | SE AFS | KTV | 1.000 ppm, 1.200 mg/m3 | |

BE

| Bestanddelen | Basis | Waarde | Controleparameters | Opmerking |
|--------------|--------|----------|--------------------|-----------|
| Ethylene | BE OEL | TGG 8 hr | 200 ppm, 233 mg/m3 | A, |
| Methane | BE OEL | TGG 8 hr | 1.000 ppm, | |
| Ethane | BE OEL | TGG 8 hr | 1.000 ppm, | |

A Deze stoffen geven gassen of dampen vrij die op zich geen fysiologische werking hebben, maar die het zuurstofgehalte in de lucht kunnen verlagen. Wanneer het zuurstofgehalte daalt onder de 17-18 % (vol/vol), veroorzaakt het zuurstoftekort verstikking, die zich manifesteert zonder dat er een waarschuwing aan voorafgaat.

ES

| Componentes | Base | Valor | Parâmetros de control | Nota |
|-------------|--------|--------|-----------------------|------|
| Ethylene | ES VLA | VLA-ED | 200 ppm, | |
| Methane | ES VLA | VLA-ED | 1.000 ppm, | |
| Ethane | ES VLA | VLA-ED | 1.000 ppm, | |

Personal protective equipment

Dilute Ethylene

Version 1.

Revision Date 2010-05-18

| | |
|--------------------------|---|
| Hand protection | : The suitability for a specific workplace should be discussed with the producers of the protective gloves. |
| Eye protection | : Eye wash bottle with pure water. Tightly fitting safety goggles. |
| Skin and body protection | : Impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place. |
| Hygiene measures | : Wash hands before breaks and at the end of workday. |

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

| | |
|----------------|------------------|
| Physical state | : Gaseous |
| Color | : Colorless |
| Odor | : sweet olefinic |

Safety data

| | |
|--|--|
| Flash point | : -136 °C (-213 °F) |
| Lower explosion limit | : 2,7 %(V) |
| Upper explosion limit | : 36 %(V) |
| Oxidizing properties | : No |
| Autoignition temperature | : 490 °C (914 °F) |
| Molecular formula | : C ₂ H ₄ |
| Molecular Weight | : No data available |
| pH | : Not applicable |
| Freezing point | : -169 °C (-272 °F) |
| Pour point | : No data available |
| Boiling point/boiling range | : -103,9 °C (-155,0 °F) |
| Vapor pressure | : 51,67 bar at 10 °C (50 °F) |
| Density | : 20,7 kg/m ³ |
| Water solubility | : Soluble in hydrocarbon solvents; insoluble in water. |
| Partition coefficient: n-octanol/water | : No data available |
| Viscosity, kinematic | : 1,06 cSt at -170 °C (-274 °F) |
| Relative vapor density | : 0,98 (Air = 1.0) |

Dilute Ethylene

Version 1.

Revision Date 2010-05-18

Evaporation rate : No data available

Percent volatile : > 99 %

10. STABILITY AND REACTIVITY

Conditions to avoid : Heat, flames and sparks.

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

Other data : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION**Product**

Acute oral toxicity : LD50: Not known
Species: rat

Acute inhalation toxicity

Ethylene : LC50: 58 mg/l
Exposure time: 4 HR
Species: mouse

Product

Acute dermal toxicity : LD50: Not known
Species: rat

Repeated dose toxicity

Ethylene : Species: rat
Application Route: Inhalation
Dose: 300, 1000, 3000, 10000 ppm
Exposure time: 13 wk
Number of exposures: 6 h/d, 5 d/wk
NOEL: 10000 ppm

Carcinogenicity

Ethylene : Species: rat
Dose: 0. 300, 1000, 3000 ppm
Exposure time: 2 yrs
Number of exposures: 6 h/d, 5 d/wk

Reproductive toxicity

Dilute Ethylene

Version 1.

Revision Date 2010-05-18

Ethylene : Species: rat
 Application Route: Inhalation
 Dose: 0. 200, 1000, 5000 ppm
 Number of exposures: 6 h/d

Teratogenicity

Ethylene : Species: rat
 Application Route: Inhalation
 Dose: 0. 200, 1000, 5000 ppm
 Number of exposures: 6 h/d

Product

Aspiration toxicity : No aspiration toxicity classification.

Product

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

12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Toxicity to daphnia and other aquatic invertebrates : No data available

Elimination information (persistence and degradability)

Biodegradability : This material is not expected to be readily biodegradable.

Further information on ecology**13. DISPOSAL CONSIDERATIONS**

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.

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

Dilute Ethylene

Version 1.

Revision Date 2010-05-18

here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the MSDS and the bill of lading.

USDOT

UN1964, HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S., (ETHYLENE, ETHANE),
2.1

IMO / IMDG

UN1964, HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S., (ETHYLENE, ETHANE),
2.1, (-136 °C)

IATA

UN1964, HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S., (ETHYLENE, ETHANE),
2.1

ADR

UN1964, HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S., (ETHYLENE, ETHANE),
2.1

RID

UN1964, HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S., (ETHYLENE, ETHANE),
2.1

15. REGULATORY INFORMATION**National legislation**

| | | |
|-----------------------------------|---------------------|--------------|
| Major Accident Hazard Legislation | : 96/82/EC | Update: 2003 |
| | Extremely flammable | |
| | 8 | |
| | Quantity 1: 10 t | |
| | Quantity 2: 50 t | |
| | : 96/82/EC | Update: 2003 |
| | Hydrogen | |
| | 38 | |
| | Quantity 1: 5 t | |
| | Quantity 2: 50 t | |

Notification status

| | |
|-------------------------------|---|
| Europe REACH | : On the inventory, or in compliance with the inventory |
| United States of America TSCA | : On the inventory, or in compliance with the inventory |
| Canada DSL | : On the inventory, or in compliance with the inventory |
| 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 |

Dilute Ethylene

Version 1.

Revision Date 2010-05-18

16. OTHER INFORMATION**Further information**

Legacy MSDS Number : JCP00006

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

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.