Ethylene 99.8% Grade

Version 1.1 Revision Date 2012-09-24

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

Product information

Trade 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)
1.832.813.4984 (International)
Transport:
North America: CHEMTREC 800.424.9300 or 703.527.3887
Asia: +800 CHEMCALL (+800 2436 2255) China: 0532.8388.9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Chemcare Asia: Tel: +65 6848 9048 - Mob: +65 8382 9188 - Fax: +65 6848 9013
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

SECTION 2: Hazards identification

Emergency Overview

Physical state: Gaseous **Color**: Colorless **Odor**: Sweet Olefinic

OSHA Hazards : Flammable Gas

GHS Classification

: Flammable gases, Category 1
Specific target organ systemic 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.

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.

ACGIH No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

SECTION 3: Composition/information on ingredients

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

Molecular formula : C2H4

Component	CAS-No.	Weight %
Ethylene	74-85-1	99.8 - 100

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. 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 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.
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.
Hazardous decomposition products	:	Methane. Hydrogen.

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	:	No special environmental precautions required.

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 in a 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

US

Ingredients	Basis	Value	Control parameters	Note
Ethylene	ACGIH	TWA	200 ppm,	A4,

A4 Not classifiable as a human carcinogen

Engineering measures

Adequate ventilation to control airborned 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.

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. Tightly fitting safety goggles.

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. Personal protection through wearing a tightly closed chemical protection suit and a self-contained breathing apparatus. Footwear protecting against chemicals.

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

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)
Autoignition temperature	:	490 °C (914 °F)
Molecular formula	:	C2H4
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, -103.9 °C(-155.0 °F)
Water solubility	:	Soluble in hydrocarbon solvents; insoluble in water.
Viscosity, kinematic	:	1.06 cSt at -170 °C (-274 °F)
Relative vapor density	:	0.98 (Air = 1.0)
Evaporation rate	:	No data available
Percent volatile	:	> 99 %

SECTION 10: Stability and reactivity

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

Possibility of hazardous reactions

Conditions to avoid	:	heat, sparks, fire, static discharge and oxidizing agents. 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.

SECTION 11: Toxicological information

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

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	:	No adverse effects expected.

Eye irritation

Ethylene	:	No adverse effects expected.

Sensitization

Ethylene	:	No data available.

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

Teratogenicity

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.

SECTION 12: Ecological information

Additional ecological information : No data available

SECTION 13: Disposal considerations

The information in this MSDS 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 MSDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN1962, ETHYLENE, 2.1

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN1962, ETHYLENE, 2.1, (-136 °C)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN1962, ETHYLENE, 2.1

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN1962, ETHYLENE, 2.1, (B/D)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN1962, ETHYLENE, 2.1 ((13))

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN1962, ETHYLENE, 2.1

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

National legislation

SARA 311/312 Hazards	:	Fire Hazard
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	:	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 304 Reportable	:	This material does not contain any components with a section

Quantity		304 EHS RQ.	
SARA 313 Ingredients	:	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 12 (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
Ethane - 74-84-0

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

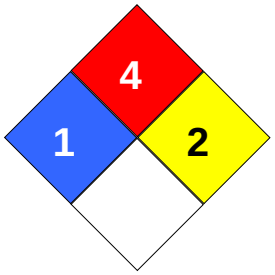
Pennsylvania Right To Know			
	:	Ethylene	74-85-1
New Jersey Right To Know			
	:	Ethylene	74-85-1
California Prop. 65 Ingredients	:	This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.	

Notification status

Europe REACH	:	Not in compliance with the inventory
United States of America US.TSCA	:	On TSCA Inventory
Canada DSL	:	All components of this product are on the Canadian DSL list.
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: 1
Fire Hazard: 4
Reactivity Hazard: 2



Further information

Legacy MSDS Number : 1852

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

The information in this MSDS pertains only to the product as shipped.

The information provided in this Material 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			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical	TWA	Time Weighted Average

	Substances in China		
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		