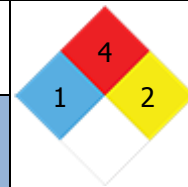




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Ethylene



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1 Identification of the substance or mixture and of the supplier

1.1. Product name or GHS product identifier

1.1.1. Common name :	Ethylene
1.1.2. Chemical formula :	C ₂ H ₄
1.1.3. Commercial name :	Ethylene
1.1.4. CAS number :	74-85-1
1.1.5. Molecular weight :	28.05 g/mol

1.2. Other product identifier :

1.2.1. UN Number :	1962
1.2.2. Annex I, EU directive 67/948/EC :	601-010-00-3
1.2.3. EC number :	200-815-3

1.3. Recommendation for use and other prohibitions for use

1.4. Manufacturer or Supplier Details

1.4.1. Manufacturer or Supplier	1.4.2. Address
PTT Global Chemical Public Company Limited	8, Padaeng Road, Map Ta Phut, Muang Rayong, Rayong 21150, Thailand
1.4.3. Telephone number :	66(0) 3899-4000 ext. 6274, 6273,
1.5. Emergency telephone number :	66 (0) 3897-6273

1.6. Other information

1.6.1. Hazardous substance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1.6.2. Hazardous category	N/A	
1.6.3. Max quantity storage	13,000	Ton

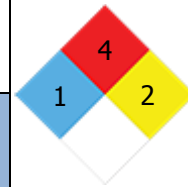
1.6.4. Uses
use in process

1.6.5. Other



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Hazards identification

2.1. GHS classification of the substance/mixture and any national or regional information

2.1.1. Hazard classification according to the GHS

Flammable gases - Category 1
Specific Target Organ Toxicity (Single Exposure) - Category 3
Aquatic Hazard (Acute) - Hazard category 3
Long Term Hazards To The Aquatic Environments - Hazard category 3

2.2. GHS label elements, including precautionary statements

2.2.1. Chemical name : Ethylene

2.2.2. Product name or GHS product identifier : Ethylene

2.2.3. Symbol and Hazard pictograms



2.2.4. Signal words : Danger

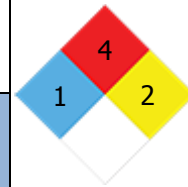
2.2.5. Hazard statement

Extremely flammable gas
(respiratory tract irritation) May cause respiratory irritation or (Narcotic effects) May cause drowsiness or dizziness
Harmful to aquatic life
Harmful to aquatic life with long lasting effects



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Hazards identification (cont.)

2.2.6. Precautionary information

- Keep away from heat, [sparks] [and flame] [- No Smoking]
- Store in a tightly closed container
- Keep container/package tightly closed in a cool [well-ventilated] place
- Use CO2, dry chemical, or foam
- Do not eat, drink or smoke during work
- Wear appropriate personal protective equipment, avoid direct contact
- During fumigation/spraying, wear suitable respiratory equipment (appropriate wording to be specified by the manufacturer)
- Do not let this chemical/product enter the environment

2.2.7. Supplemental information

none

2.3. Other hazards which do not result in classification or are not covered by the GHS

none

2.3.1. Potential Chronic Health Effects

2.3.1.1. Carcinogen effects

- Maybe-Carcinogen Carcinogen Non-Carcinogen N/A

2.3.1.2. Mutagenic effects

- Mutagenic Non-Mutagenic N/A

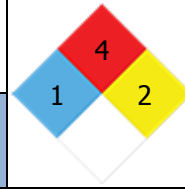
2.3.1.3. Other information

2.4. Environmental Hazards



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3

Composition / information on ingredients

3.1. Homogeneous substance

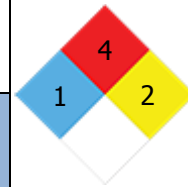
3.1.1. Chemical identity :	Ethene
3.1.2. Common name :	Ethylene
3.1.3. Synonym :	Acetene ;Bicarburretted hydrogen ;Elayl ;Ethene ; Ethylene (ACGIH:
3.1.4. CAS number and other unique identifiers :	74-85-1

3.1.5. Impurities and stabilizing additives



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4

First-aid measures

4.1. First-aid

4.1.1. Inhalation

Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.

4.1.2. Skin contact

Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

4.1.3. Eyes contact

Liquid can cause burns similar to frostbite.

4.1.4. Ingestion

Can cause central nervous system (CNS) depression. Ingestion of liquid can cause burns similar to frostbite.

4.2. Most important symptoms/effects

4.2.1. Acute Effects

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

4.2.2. Delayed effects

4.3. Indication of immediate medical attention

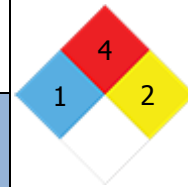
4.4. Special treatment needed, if necessary.

4.5. Other



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Firefighting measures

- 5.1. Unsuitable extinguishing media : none
- 5.2. Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.
- 5.3. Specific hazards arising from the chemical.
Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent.
- 5.4. Special protective equipment and precautions for fire-fighters.
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- 5.5. Precautions for fire fighters.
Decomposition products may include the following materials: carbon dioxide ,carbon monoxide
- 5.6. Other.

6

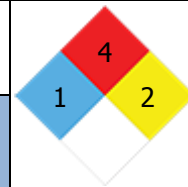
Accidental release measures

- 6.1. Personal precautions
Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- 6.2. Protective equipment
-
- 6.3. Emergency procedures
- | | |
|---|--|
| 6.3.1. Large Spill
Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment | 6.3.2. Small Spill
Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. |
|---|--|
- 6.4. Environmental precautions
Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and
- 6.5. Methods and materials for containment and cleaning up.
Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty.



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Handling and storage

7.1. Precautions for safe handling.

Do not get in eyes or on skin or clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilate.

7.2. Incompatibility.

7.2.1. Safe storage condition.

Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials.

7.2.2. Incompatible chemicals condition.

Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use.

7.3. Storage area :

GC11 PTTGC11

7.4. Incompatible chemicals condition.

7.5. Hazard Class by UN :

7.6. Classification :

3A

8

Exposure controls/personal protection

8.1. Occupational exposure limit values or biological limit values

Name	TLV-TWA	TLV-STEL	TLV-C	PEL	IDLH	Thai	biological limit values
	-	TLV-STEL: 200 ppm (ACG)		-		-	

8.2. Appropriate engineering controls

8.3. Personal protective equipment



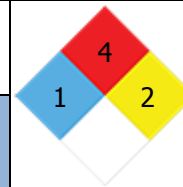
8.4. Personal hygiene

8.5. Other protection



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Physical and chemical properties

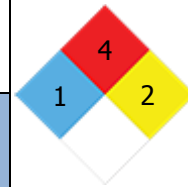
9.1. Appearance :	Gas Colorless.		
9.2. Odour :			
9.3. Odour threshold limit :			
9.4. pH-value :	7 neutral		
9.5. Melting point & Freezing point :	Melting point	-169.2 °C	
	Freezing point		
9.6. Initial boiling point/Boiling range	Boiling/condensation point	-104 °C	
	Evaporation rate	-	
9.7. Flash point :	-100 °C (Close cup)		
9.8. Evaporation rate :	mg/sec		
9.9. Flammability (solid, gas) :	Burning time	sec	
	Burning Rate	mm/sec	
9.10. Upper/lower flammability or explosive limits :	2.7 % LEL and/or 36.0 %UEL		
9.11. Vapour pressure :	5.6 kPa at 20 °C		
9.12. Vapour density :	Respect to air	at 0 C = kPa	
9.13. Relative density :	0.98 g/cm ³ or kg/m ³ at		
9.14. Solubility(ies) :			
9.15. Partition coefficient : n-octanol/water :	(Log Kow) ; 1.13		
9.16. Auto-ignition temperature :	490 °C		
9.17. Decomposition temperature :			
9.18. Viscosity :			
9.19. Heat of Combustion :			
9.20. The ignition distance test :	cm		
9.21. The enclosed space ignition test	s/m ³		
9.22. The foam test :	Vapor density		cm
	Flames burning up		sec

Detail	Type of Substance		Unit
	Other substance	Powders or dusts	
Use water spray to blanket fire, cool fire exposed containers, to stop leak, and burn			minute
Burning time			sec
Burning rate			mm/s



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Stability and reactivity

10.1. Reactivity

response to Oxidizers ex. Perchlorates, Peroxides, Permanganates, Chlorates, Nitrates

10.2. Chemical Stability :

- Stability Instability and emit gas N/A

10.3. Possibility of Hazardous reaction :

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4. Conditions to avoid :

Avoid all possible sources of ignition (spark or flame) . Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers.

10.5. Incompatible materials :

strong Oxidizers of Chlorine Compound, Nitromethane, Benzoyl Peroxide

10.6. Hazardous decomposition products :

Acetylene, Hydrogen, Methane

10.7. Corrosivelyly :

none

11

Toxicological information

11.1. Route of Exposure Inhalation Ingestion Skin contact Eye contact

11.2. Symptoms related to the physical, chemical and toxicological characteristics

11.2.1. Symptom related with physical characteristic

Liquid can cause burns similar to frostbite.

11.2.2. Symptom related with chemical characteristic

Not available.

11.2.3. Symptom related with toxicology

Not available.

11. The impact of acute and delayed (delayed and immediate effects) including chronic (chronic effects) exposure (Contact delayed, immediate and chronic effects)

11.4. Numerical measures of toxicity

11.4.1. Acute oral toxicity :

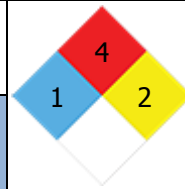
11.4.2. Acute dermal toxicity :

11.4.3. Acute toxic of the vapour :



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Ecological information

12.1. Eco toxicity (aquatic and terrestrial, where available)

12.1.1. Toxicity to fish :

12.1.2. Crustaceans / Toxicity to crustaceans :

12.1.3. Algae / Toxicity to algae :

toxic to *Selenastrum capricornutum* Er

12.2. Degradability and persistence

12.3. Bio-accumulative potential :

Log Kow ; 1.13

12.4. Mobility in soil :

Not available

12.5. Other adverse effects :

13

Disposal considerations

13.1. Waste information :

Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

13.2. Remain materials :

13.3. Waste disposal :

Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

13.4. Package contaminated disposal :

14

Transport information

14.1. UN Number :

1962

14.2. UN Proper Shipping Name :

ETHYLENE

14.3. Transport Class/Division :

2.1

14.4. Package group (if any) :

14.5. Marine pollution :

Yes No N/A

14.6. Special precautionary for user :

14.7. Transport in bulk :

Product classified as Class 2.1

14.8. Classification code :

14.9. Other :

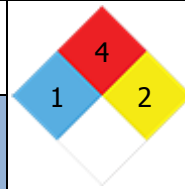
Pictogram





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Regulatory information

15.1. Safety, health and environmental regulations

thai laws.

16

Regulatory information

16.1. Date of latest issue

17/8/2017

16.2. Description of point of Safety Data Sheet changing

16.3. Abbreviation explanation

NFPA Hazard Code	HMIS Hazard	Rating System
Hazardous decomposition products Health hazard Possibility of hazardous reactions Specific hazards arising from the chemical	1 Health	0 = No hazard 1 = Slight hazard 2 = Moderate hazard 3 = Serious hazard 4 = Severe hazard
	4 Flammability	
	2 Reactivity	

16.4. Information Safety Data Sheet files

Primary Reference :

Secondary Reference :

16.5. Local Legislation Related

16.6. Reference

<http://ghs.diw.go.th/knowledge.html>

16.7. Other details

Ethylene

NFPA Rating



UN Number : 1962 CAS Number : 74-85-1

Flash point : -100°C Auto-ignition : 490°C

TWA-TLV : - Classification :



Emergency Call

66 (0) 3897-6273

Hazard Statement

Extremely flammable gas, (respiratory tract irritation) May cause respiratory irritation or (Narcotic effects) May cause drowsiness or dizziness, Harmful to aquatic life, Harmful to aquatic life with long lasting effects

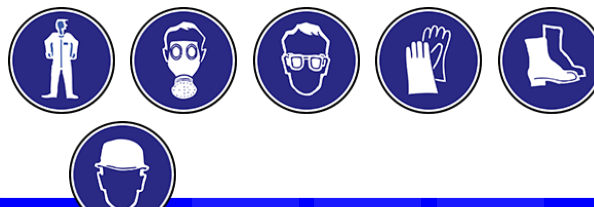


Health Effects

Fatal if swallowed, Toxic if swallowed, Harmful if swallowed, May be harmful if swallowed, Fatal in contact with skin, Toxic in contact with skin, Harmful in contact with skin, May be harmful in contact with skin, Fatal if inhaled, Toxic if inhaled, Harmful if inhaled, May be harmful if inhaled, Causes severe skin burns and eye damage, Causes skin irritation, Causes mild skin irritation, Causes serious eye damage, Causes serious eye irritation, Causes eye irritation, May cause allergy or asthma

Protective equipment

Protective clothing must be worn, Respirators must be used where appropriate, Wear eye protection where appropriate, Use hand protection in this area, Foot protection must be worn where appropriate, Safety helme



first aid

Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness., Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite., Liquid can cause burns similar to frostbite., Can cause central nervous system (CNS) depression. Ingestion of liquid can cause burns similar to frostbite., Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.



Unsuitable extinguishing media

Use an extinguishing agent suitable for the surrounding fire., none



Hazardous Materials Handling and Storage

Do not get in eyes or on skin or clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilate., Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials., Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use



Methods and materials for containment and cleaning up

Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment., Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment, Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment., Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of soil

For more information please contact :

66 (0) 3897-6273

Code No. 10110018

Number of Revision :

3

Warning : Danger

Ethylene

UN No : 1962

CAS No : 74-85-1



Signal words : **Danger**

Hazard statement :

Extremely flammable gas, (respiratory tract irritation) May cause respiratory irritation or (Narcotic effects) May cause drowsiness or dizziness, Harmful to aquatic life, Harmful to aquatic life with long lasting effects

Precautionary information :

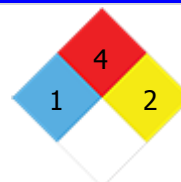
- Keep away from heat, [sparks] [and flame] [- No Smoking]
- Store in a tightly closed container
- Keep container/package tightly closed in a cool [well-ventilated] place
- Use CO₂, dry chemical, or foam
- Do not eat, drink or smoke during work
- Wear appropriate personal protective equipment, avoid direct contact
- During fumigation/spraying, wear suitable respiratory equipment (appropriate wording to be specified by the manufacturer)
- Do not let this chemical/product enter the environment

Manufacturer or Supplier Details

Company : PTT Global Chemical Public Company Limited

Address : 8, Padaeng Road, Map Ta Phut, Muang Rayong, Rayong 21150, Thailand

Telephone number : 66(0) 3899-4000 ext. 6274, 6273,



First Aid :

Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness., Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite., Liquid can cause burns similar to frostbite., Can cause central nervous system (CNS) depression. Ingestion of liquid can cause burns similar to frostbite., Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Emergency number :

66 (0) 3897-6273

Protective equipment

