



Material Safety Data

Product Name :ETHYLENE

긴급전화번호 (Emerhency Telephone Number)
061 - 688 - 6117 (24 hours)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1. Product

- Product Name : ETHYLENE
- UN NO. : 1962

2. Advisable use and Restriction

- Advisable use : FUEL
- Restriction : Do not handle until all safety precautions have been read and understood.

3. Manufacturer information

- Manufacture company : YEOCHUN NCC
- Address: 2 Yeosusandan-3ro(205-6,Pyeongyeo-dong), Yeosu, Jeollanam-Do, Korea (555-210)
- Telephone: 82-61-688-6117

2. HAZARD IDENTIFICATION

1. Hazard classification

- FLAMMABLE GASES Category 1
- GASES UNDER PRESSURE Liqueied gas

2. Allocation label elements

- Symbol



- Signal Word : Danger
- Hazard statements

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

- Precautionary statements

- Prevention
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

- Response
 - 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.
 - P410 + P403 Protect from sunlight. Store in a well-ventilated place.

3. Other hazard information not included in hazard classification (NFPA)

Chemical Name	NFPA Level		
	Health	Flamm ability	Reactivity
ETHYLENE	1	4	2

3. INGREDIENT INFORMATION

Components	Common name	CAS No.	PCT(M%)
ETHYLENE	ETHYLENE	74-85-1	99.9 ~ 100

4. FIRST AID MEASURES

1. Following eye contact
 - It is unlikely that emergency treatment will be required for contact with the gas form.
 - If contact with liquefied or compressed gas occurs, flush eyes with large amounts of water for at least 15-20 minutes until no evidence of chemical remains.
 - Get medical attention immediately.
2. Following skin contact
 - It is unlikely that emergency treatment will be required for contact with the gas form.
 - If contact with liquefied or compressed gas occurs, flush skin with large amounts of water for at least 15-20 minutes until no evidence of chemical remains.
 - Get medical aid immediately.
 - Wash skin with soap and water.
 - If frostbite or cryogenic burns occur, warm affected area in warm water at a temperature of 107°F (41.7°C).
 - Seek immediate medial assistance.
3. Following inhalation
 - Administer oxygen if breathing is difficult.
 - Give artificial respiration if victim is not breathing.
 - Keep victim warm and quiet.
 - Move to fresh air.
 - Seek immediate medial assistance.
4. Following ingestion
 - It is unlikely that emergency treatment will be required for contact with the gas form..
 - It is unlikely that emergency treatment will be required.
5. Advice to physician
 - Do not apply drugs of the adrenaline ephedrine group.

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- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
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5. FIRE FIGHTING MEASURES

1. Suitable/Unsuitable extinguishing media

Suitable extinguishing media

- CO2.
- Dry chemical.
- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
- Use dry sand or earth to smother fire.
- Water spray.

Unsuitable extinguishing media

- Direct water.

2. Specific hazards arising from the chemical

Pyrolytic product

Risk of fire and explosion

- Containers may explode when heated.
- Contains gas under pressure; may explode if heated.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Extremely flammable gas.
- Extremely flammable.
- Fire may produce irritating and/or toxic gases.
- May ignited from heat, friction or contamination.
- May violently polymerize and result in fire and explosion.
- When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
- Will be easily ignited by heat, sparks or flames.
- Will form explosive mixtures with air.

3. Special protective equipment for firefighters

- Contact may cause burns to skin and eyes.
 - DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.
 - Damaged cylinders should be handled only by specialists.
 - Evacuate area and fight fire from a safe distance.
 - Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.
 - Fire involving Tanks: Cool containers with flooding quantities of water until well after fire is out.
 - Fire involving Tanks: Do not direct water at source of leak or safety devices; icing may occur.
 - Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
 - Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
 - Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
 - Move containers from fire area if you can do it without risk.
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- Runoff may cause pollution.
- Ruptured cylinders may rocket.
- Substance may be transported hot.
- Use extinguishing agent suitable for type of surrounding fire.
- Vapors from liquefied gas are initially heavier than air and spread along ground.

6. ACCIDENTAL RELEASE MEASURES

1. Health considerations and protective equipment

- All equipment used when handling the product must be grounded.
- Allow substance to evaporate.
- Do not direct water at source of leak.
- Do not enter areas which have more than 23.5% oxygen in the atmosphere, without respirator or air supplied mask.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Do not touch or walk through spilled material.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Isolate area until gas has dispersed.
- Please note that materials and conditions to be avoided.
- Stop leak if you can do it without risk.
- The very fine particles can cause a fire or explosion, eliminate all ignition sources.
- Ventilate the contaminated area.

2. Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

3. For cleaning up

- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Dike and collect water used to fight fire.
- Small Spill: Flush area with flooding quantities of water.

7. HANDLING AND STORAGE

1. Precautions for safe handling

- Caution: Dangerous fire hazard when exposed to heat, or flame, sparks.
- Use adequate machine for prevention when package handling.
- Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

2. Conditions for safe storage (including any incompatibilities)

- Choose a place that can be protected from strong oxidizers and acid.
- Store containers: AVOID the place where can be damage and contamination.
- Store in a cool/low-temperature, well-ventilated {dry} place {away from heat and ignition sources}

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1. Exposure exposure limits, Biological exposure standard :

Components	Occupational exposure	ACGIH	Biological standard
ETHYLENE	No data available	TWA 200 ppm	No data available

2. Appropriate engineering controls

- Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

3. Personal protection equipment

○ Respiratory protection

- If high frequency of use or exposure, wear air respirator.
- Wear breathing protection, which needs a confirmation from the Korea Occupational Safety and Health Agency.

○ Eye protection

- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- Provide emergency showers and eyewash.
- Wear suitable protective goggles and face shields.

○ Hand protection

- Wear Non-moisture permeable chemical resistance protective gloves(latex, nitrile rubber, PC) for prevent skin contact.
- Wear insulated gloves.
- Wear suitable protective gloves.

○ Body protection

- Wear suitable protective clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless gas
Odour	Sweet
Odour threshold	No data available
pH Values	N/A
Melting point/freezing point	-169.2 °C
Initial boiling point and boiling range	-104 °C
Flash point	-136 °C
Evaporation rate	N/A
Flammability(solid, gas)	Extremely flammable gas
Upper/lower flammability or explosive limits	2.7~36 Vol %
Vapour pressure	8.100 x 10 ³ kPa (15°C)
Solubility(ies)	131 x 10 ⁽⁻²⁾ g/100mℓ (25°C, Water)
Vapor Densities	0.97 (Air = 1)
Relative density, Liquid Density	0.56765 kg/L (at boiling point)

n-octanol/water partition coefficient	1.13
Auto ignition temperature	490℃
Decomposition temperature	No data available
Viscosity	1 x 10 ⁽⁻²⁾ cP (20℃)
Molecular weight(mass)	28.05

10. STABILITY AND REACTIVITY

1. Stability and hazardous reactivity

- Containers may explode when heated.
- Contains gas under pressure; may explode if heated.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Extremely flammable gas.
- Extremely flammable.
- Fire may produce irritating and/or toxic gases.
- Fire may produce irritating, corrosive and/or toxic gases.
- May cause toxic effects if inhaled.
- May violently polymerize and result in fire and explosion.
- Will form explosive mixtures with air.
- Some may burn but none ignite readily.
- Stable under normal temperatures and pressures.
- When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
- Will be easily ignited by heat, sparks or flames.

2. Conditions to avoid

- Ignition source(heat, spark, flame, etc.).

3. Materials to avoid

- Combustibles, reducing material.
- Irritating and/or toxic gas.

4. Hazardous decomposition products

- Corrosive/toxic fume.
- Irritating, corrosive and/or toxic gas.

11. TOXICOLOGICAL INFORMATION

1. Exposure route information

- Dermal, Inhalation exposure is possible since GAS

2. Health hazard information

- ※ No data of the product. thus data was described by the product component.

Acute toxicity

- Oral PRODUCT : No data
- ETHYLENE : No data

- Dermal PRODUCT : No data
 - ETHYLENE : No data
- Inhalation-Gases PRODUCT : N/A
 - ETHYLENE : N/A / LC50 57000 ppm Rat ※ ECHA
- Inhalation-Vapours PRODUCT : N/A
 - ETHYLENE : N/A
- Inhalation-Dust/mist PRODUCT : N/A
 - ETHYLENE : N/A
- SKIN CORROSION/IRRITATION PRODUCT : No data
 - ETHYLENE : No data
- SERIOUS EYE DAMAGE/EYE IRRITATION PRODUCT : No data
 - ETHYLENE : No data
- RESPIRATORY SENSITIZATION PRODUCT : No data
 - ETHYLENE : No data
- SKIN SENSITIZATION PRODUCT : No data
 - ETHYLENE : No data
- CARCINOGENICITY PRODUCT : No data
 - ETHYLENE : No data
 - OSHA : No data
 - Notice of Employment and Labor : No data
 - NTP : No data
 - IARC : 3
 - EU CLP : No data
 - ACGIH : A4
- GERM CELL MUTAGENICITY PRODUCT : No data
 - ETHYLENE : No data
- REPRODUCTIVE TOXICITY PRODUCT : No data
 - ETHYLENE : No data
- SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE PRODUCT : No data
 - ETHYLENE : No data
- SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE PRODUCT : No data
 - ETHYLENE : No data
- ASPIRATION HAZARD PRODUCT : No data
 - ETHYLENE : No data

12. ECOLOGICAL INFORMATION

- 1. Aquatic toxicity PRODUCT
 - ACUTE AQUATIC HAZARD : Not classified, LONG-TERM AQUATIC HAZARD : Not classified

- Fish
 - ETHYLENE : No data
 - Crustacea
 - ETHYLENE : No data
 - Aquatic algae
 - ETHYLENE : No data
2. Persistence and degradation
- Degradation
 - ETHYLENE : No data
 - n-octanol water partition coefficient
 - ETHYLENE : 1.13 log Kow
3. Bioaccumulative potential
- Bioaccumulation
 - ETHYLENE : 4 (Pimephales promelas(Fish, fresh water))
 - Biodegradation
 - ETHYLENE : No data
4. Mobility in soil
- Soil adsorption coefficient(Koc)
 - ETHYLENE : No data
5. Other adverse effects
- Hazardous to ozone layer
 - ETHYLENE : N/A
 - Others
 - ETHYLENE : No data

13. DISPOSAL CONSIDERATIONS

1. Disposal methods
- Dispose of container and unused contents in accordance with all applicable regulations.
2. Precautions (including disposal of contaminated container of package)
- Empty containers may explode and residues can be ignited when pressured, cut, weld, heated.
 - Empty containers may rupture when pressured.
 - Empty containers recycled under environmental laws.
 - Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

14. TRANSPORT INFORMATION

1. UN No : 1962
2. Proper shipping name : ETHYLENE
3. Class or division : 2.1
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4. Packing group : Not established
5. Marine pollutant : Not established
6. Special safety response for transportation or transportation measure :
- Emergency measures in case of fire : F-D
 - Emergency measures in the effluent : S-U

15. REGULATORY INFORMATION

- EU Classification (CLASSIFICATION) PRODUCT : Not established
-ETHYLENE : F+; R12 R67
- EU Classification (Risk Phrases) PRODUCT : Not established
-ETHYLENE : R12, R67
- EU Classification (Safety Phrases) PRODUCT : Not established
-ETHYLENE : S:(2)-9-16-33-45
- 2006/507/EC PRODUCT : Not established
-ETHYLENE : Not established
- 689/2008/EC PRODUCT : Not established
-ETHYLENE : Not established
- Designation, Reportable Quantities, and Notification PRODUCT : Not established
-ETHYLENE : Not established
- Emergency Planning and Notification PRODUCT : Not established
-ETHYLENE : Not established
- Toxic Chemical Release Reporting – Community Right-to-Know PRODUCT : Not established
-ETHYLENE : 1.0 % de minimis concentration
- Process Safety Management of Highly Hazardous Chemicals PRODUCT : Not established
-ETHYLENE : Not established

16. OTHER INFORMATION

1. Reference
- ACGIH
 - American Chemical Society, Washington DC.
 - ECOWIN v1 ECOSAR Classes for Microsoft Windows
 - EU CLP
 - Experimental and Molecular Pathology 28
 - HSDB
 - IARC
 - Mutat Res 324, 87-91
 - NTP

- OECD SIDS
- OSHA
- Study report

2. Prepare date : 2000.01.01

3. Revised date

- 0.0.0 : 2000.01.01
- 1.0.0 : 2010.05.20
- 2.0.0 : 2017.03.16
- 3.0.0 : 2018.01.31
- 4.0.0 : 2020.12.01

4. Other

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