Henan Lvbang Fine Chemical Co., Ltd
No.2004 Puzhou Road,Fanxian County Industrial Cluster Park,Puyang City,Henan Province,China

SAFETY DATA SHEET

Revision Date October 12, 2023 SDS Number: 2023-001
Product Name: Ethylene Version: 2nd Edition 2023

Section 1. Identification

GHS product identifier: Ethylene
Chemical name: ethylene
CAS No：74-85-1
Molecular formula：C_2H_4
Relative molecular weight：28.06
Technical Specification Number：2023-001
Supplier Name：Henan Lvbang Fine Chemical Co., Ltd
Supplier Address：Fanxian County Industrial Cluster Park,Puyang City,Henan Province,China
Supplier phone number：0393-8205508 **Postcode:** 457500 **Supplier Fax:** 0393-8205508
E-mail address: hnlbjxhg@163.com
Chemical accident emergency consultation line: 0532-83889090
Recommended and restricted use: used in the production of polyethylene, polyvinyl chloride, acetic acid, etc.

Section 2. Hazards identification

EMERGENCY OVERVIEW: Extremely flammable gas with pressurized gas inside, may explode when exposed to heat, can cause drowsiness or dizziness.

GHS Hazard Category: Flammable Gas Category 1: Pressurized Gas - Compressed Gas; Specific Target Organ Toxicity Primary Exposure, Category 3 (Narcotic Effects)

Labeling elements:

Pictograms:

WARNING WORD: Danger
Hazard Statement: Extremely flammable gas with pressurized gas inside, may explode when heated, may cause drowsiness or vertigo.

Precautionary statement:

Preventive measures: Keep away from heat sources, embers, open flames and hot surfaces. Prohibit smoking. Avoid inhaling dust, fumes, gases, smoke, vapors, sprays.

Incident Response: When leaking gas catches fire, do not extinguish the fire unless the leak can be safely stopped. If there is no danger, eliminate all sources of ignition.

If Inhaled: Move patient to fresh air, rest, and maintain a position conducive to breathing. If feeling unwell, call a Poison Control Center or seek medical attention.

Safe Storage: Store in a well-ventilated area. Avoid light. Keep container tightly closed.

Waste disposal: dispose of contents/containers in accordance with local/regional/national/international regulations.

Physical And Chemical Hazards: Extremely flammable, vapors readily form explosive mixtures with air.

Health Hazards: Strong anesthetic effect.

Acute poisoning: Inhalation of high concentrations of ethylene can cause immediate loss of consciousness without a clear euphoric phase, but can be quickly revived by inhaling fresh air. Can cause eye and respiratory tract irritation symptoms, liquid ethylene can cause skin frostbite.

Chronic effects: Long-term exposure can cause dizziness, general malaise, fatigue and poor concentration. Individuals have intestinal dysfunction.

Environmental hazard: The substance may be harmful to the environment.

Section 3. Composition/information on ingredients

√ Substances Mixtures

Hazardous components	Concentration or concentration range	CAS No.
Ethylene	Ethylene ≥99.95%	74-85-1

Section 4. First aid measures

dermal contact	If frostbite occurs, rewarm with lukewarm water (38~42℃), do not use hot water or radiant heat, do not rub, and seek medical attention immediately.
eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses.

	Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
Inhalation	Get out of the scene quickly to fresh air. Keep airway open. If breathing is difficult, give oxygen. If breathing or heartbeat stops, perform CPR and seek medical attention immediately.
Ingestion	No information available
Advice on protecting the rescuer	Use personal protective equipment as needed
Special tips for doctors	symptomatic treatment

Section 5. Fire-fighting measures

Hazardous Characteristics	In contact with fluorine, chlorine, etc., a violent chemical reaction occurs. Burns to produce harmful carbon monoxide.
Hazardous combustion products	Carbon monoxide, carbon dioxide.
Extinguishing agent	Extinguish the fire with fog water, foam, carbon dioxide, dry powder.
Fire extinguishing precautions and protective measures	Cut off the gas supply. If the gas supply cannot be cut off, do not allow the flame at the leak to be extinguished. Firefighters must wear air breathing apparatus, full body fireproof and gas resistant clothing, and extinguish the fire upwind. Remove containers from the fire to an open area if possible. Spray water to keep the containers cool until the fire is extinguished.

Section 6. Accidental release measures

Operator Protective Measures, Equipment and Emergency Response Procedures	Eliminate all ignition sources, delineate a cordon area according to the area of influence of gas diffusion, and evacuate uninvolved personnel to a safe area from the side winds and upwind direction. It is recommended that emergency personnel wear positive pressure self-contained breathing apparatus and anti-static clothing. Ground all equipment used in the operation. Cut off the source of the leak if possible. If possible, turn container

	over so that gas, not liquid, escapes. Spray water to suppress vapors or redirect vapor cloud flow to avoid contact of water stream with leak. Do not apply water directly to liquid leaks.
Environmental protection measures	Prevent spills from entering bodies of water, sewers, basements or confined spaces
Color containment of spilled chemicals, removal methods and disposal materials used	Isolate the leaking area until the gas has dissipated

Section 7. Handling and storage

Handling Precautions	Closed operation and full ventilation. Operators must be specially trained and strictly abide by the operating procedures. It is recommended that operators wear self-absorbing filtering gas masks, chemical safety protective glasses, electrostatic work clothes and rubber oil-resistant gloves. Keep away from fire, heat source, smoking is strictly prohibited in the workplace, use explosion-proof ventilation facilities and equipment. Prevent the vapor from leaking into the air of the workplace, avoid contact with oxidizers and halogens, cylinders and containers must be grounded to prevent static electricity from accumulating, and load and unload gently when handling to prevent damage to the packaging and containers. Equipped with appropriate varieties and quantities of fire-fighting equipment and leakage emergency treatment equipment.
Storage Precautions	Store in a cool, ventilated warehouse, away from fire, heat sources, prevent direct sunlight, the temperature inside the warehouse should not exceed 30 ℃, keep the container airtight. It should be stored separately from oxidizer and halogen, and should not be mixed. Lighting, ventilation and other facilities in the storage room should be explosion-proof, the switch is located outside the warehouse, prohibit the use of tools and mechanical equipment that are easy to produce sparks. The storage tank area should be equipped with leakage emergency treatment equipment.

Section 8. Exposure controls/personal protection

Occupational Exposure Limits	China No standard established USA (ACGIH) TLV-TWA:200ppm
Biological exposure limit value	No standardization

Monitoring methods	Methods for the determination of airborne toxic substances: No standards have been established. Biodetection test methods: No standard has been established.
Engineering Controls	The production process is airtight and fully ventilated. Safety showers and eyewash facilities are provided.
Individual protective equipment	RESPIRATORY PROTECTION: Generally no special protection is required. At higher concentrations, wear a filtered gas mask (half mask) Eye protection: If necessary, wear chemical safety glasses. Skin and body protection: Wear anti-static coveralls. Hand protection: Wear general work gloves Other protection: No information available

Section 9. Physical and chemical properties

Appearance and properties	Colorless gas with a slight odor characteristic of hydrocarbons.		
pH (indicated concentration)	Not significant	Melting/freezing point (°C)	-169.4
Boiling point, initial boiling point and boiling range (°C)	-104	Relative vapor density (air=1)	0.98
Heat of combustion (kJ/mol)	-1323.8	Relative density (water = 1)	0.61
Critical pressure (MPa)	5.07	Saturated vapor pressure (kPa)	4083.4（0℃）
Flash Point (℃)	-135	Critical temperature (°C)	9.6
Decomposition temperature (°C)	No information available	n-octanol/water partition coefficient	1.13
Lower explosion limit [% (V/V)]	2.7	Explosive Limit [% (V/V)]	36
Flammability (solid, gas)	flammable	Self-ignition temperature (℃)	450
solubility	Insoluble in water, slightly soluble in ethanol,in ether,	Viscosity(mPa-s)	0.01(20℃)

	acetone, benzene		

Section 10. Stability and reactivity

Chemical stability	The product is stable
prohibition material	Strong oxidizing agents, strong acids, metal oxides, halogens
Conditions for avoiding exposure	No information available
hazardous reaction	Contact with strong oxidizers, halogens and other prohibited compounds may result in fire and explosion.
hazardous product	No information available

Section 11.Toxicology information

acute toxicity	LD50: 95 mg/m3 (mouse inhalation, 2h)
Skin irritation or corrosion	No information available
Eye irritation or corrosion	No information available
Breathing or skin allergies	No information available
germ cell mutagenicity	No information available
carcinogenicity	No information available
reproductive toxicity	No information available
Specific target organ system toxicity - single exposure	No information available
Specific target organ system toxicity - repeated exposure	Rats inhaled 11.5g/m3,1a, growth and development differed from control.
inhalation hazard	No information available

Section 12. Ecological information

Ecotoxicity	No information available.
Persistence and degradability	Biodegradability Aerobic biodegradation (h):24~672;Anaerobic biodegradation (h):96~2688 Non-biodegradability Photo-oxidation half-life in air (h):6.2~56
Potential bioaccumulation	Bioaccumulation of the substance is likely to be weak as predicted by the Kow value。
Mobility in soil	Bioaccumulation of the substance may be susceptible to transport as predicted by the Kow value。
Other harmful effects:	No information available

Section 13. Disposal considerations

Waste chemicals	Dispose of by incineration.
Contaminated packaging	Return the container to the manufacturer or dispose of it in accordance with state and local regulations.
Disposal Precautions	Relevant national laws, regulations and standards should be consulted before disposal.

Section 14. Transport information

United Nations Dangerous Goods No. (UN No.)	1962
United Nations risk category	2.1
United Nations shipping name	ethylene
Packaging category	Ⅱ
Package Marking	
Packaging method	Steel Cylinders
Marine pollutants (Yes/No)	No
Transportation Precautions	Cylinders must be transported with the helmet on them. Cylinders are generally placed flat and should be placed with their mouths facing the same direction, not crossed. The height shall not exceed the vehicle protection railings, and use triangular wooden pads to prevent rolling. Transportation vehicles have warning signs and are equipped with appropriate varieties and quantities of fire-fighting equipment and emergency treatment equipment for leakage. In summer, it should be transported in the morning and evening to prevent sunlight exposure. The tanker used for transportation should have a grounding chain, and it is strictly prohibited to mix with oxidizers, halogens and other mixed transport. The exhaust pipe of the vehicle transporting the item must be equipped with a fire stopping device. It is forbidden to use mechanical equipment and tools that are easy to produce sparks for loading and unloading. Road transportation should be in accordance with the prescribed route, do not stop in residential areas and densely populated areas. Stopover should be away from fire, heat.

	Railroad transportation should be prohibited from slipping.

Section 15. Regulatory information

Regulatory Information	The following laws, regulations and standards provide for the safe use, storage, transportation, loading and unloading, classification and marking of chemicals: Law of the People's Republic of China on Prevention and Control of Occupational Diseases: Classification catalog of occupational diseases ： Not included Possible occupational diseases: None Regulations on the Safe Management of Dangerous Chemicals : Catalog of Hazardous Chemicals: Included Explosive hazardous chemicals: Not included Key regulatory hazardous chemicals: Included GB18218-2018 Hazardous source identification: Critical amount (t): 50 Regulations on Labor Protection in Workplaces with Drugs: Catalog of highly toxic substances: not included Regulations on the management of easy-to-control toxic chemicals: Catalog of easy-to-control toxic chemicals: not included International Conventions Stockholm Convention: Not included Rotterdam Convention: Not included Montreal Protocol: Not included

Section 16. Other information

Preparation and development of information:	
Date of formulation	October 12, 2023
Formulation of instructions	This SDS is compiled in accordance with the standards such as the Content and Sequence of Items in the Technical Instructions for Chemical Safety (GB/T16483-2008) and the Content and Sequence of Items in the Technical Instructions for Chemical Safety (GB/T16483-2008). Among them, the results of GHS classification of chemicals are based on the classification carried out by itself in accordance with the Guidelines for the Implementation of the Catalog of Hazardous Chemicals (2015 Edition) (for trial implementation) and the Specification for the Classification and Labeling of Chemicals (GB30000.2-2013 to GB30000.29-2013 series of standards).

bibliography	1、Regulations on Safety Management of Dangerous Chemicals 2、Guidelines for the Preparation of Technical Instructions on Chemical Safety (GB/T17519-2013) 3、Contents and Item Order of Chemical Safety Technical Instructions (GB/T16483-2008) 4、《Chemical Classification and Labeling Specifications》（GB30000.2-2013～GB30000.29-2013 series of standards) 5. The Third Edition of the Complete Book of Safety Technology for Hazardous Chemicals

Abbreviation Description:

MAC: The concentration of a toxic chemical that should not be exceeded at a workplace at any time during a workday.

PC-TWA: means the average permissible exposure concentration for an 8-h working day and a 40-h working week, using time as a weight.

PC-STEL: The concentration at which short-term (15min) exposure is permitted in compliance with the PC-TWA.

TLV-C: The limit value that must not be exceeded instantaneously. It is specified for certain substances such as irritant gases or substances with predominantly acute effects.

TLV-TWA: is the time-weighted average concentration of 8 hours of work per day or 40 hours of work per week, at which repeated exposure over a lifetime of work does not cause adverse effects in almost all workers.

TLV-STEL: is the maximum concentration at which continuous worker exposure for 15 min is permitted while ensuring compliance with the TLV-TWA. This concentration should not be exceeded more than four times per workday with a minimum of 60 min between exposures. it is a supplement to the TLV-TWA.

IARC: means International Agency for Research on Cancer.

RTECS: refers to the National Institute for Occupational Safety and Health's Chemical Toxicity Database.

HSDB: refers to the Hazardous Substances Database of the U.S. National Library of Medicine.

ACGIH: refers to the American Conference of Governmental Industrial Hygienists.

Disclaimer:

The information in this SDS applies only to the product specified and does not apply to mixtures of this product with other substances, etc., unless otherwise specified. This SDS provides information on the safety of use of the product only to those who have been properly trained in the use of the product. Users of this SDS must make independent judgment on the applicability of this SDS under special conditions of use. The authors of this SDS are not responsible for injuries resulting from the use of this SDS under special conditions of use.