

Safety Data Sheet

Ethylene oxide

Version : V2.0.0.1

Report No. : BWJ5192-2016-MSDS-US

Creation Date : 2025/09/22

Revision Date : -



*Prepared according to American OSHA HCS-2024 (29 CFR 1910.1200)

1 Identification

Product identifier

Product Name	Ethylene oxide
Cat No.	BWJ5192-2016
CAS No.	75-21-8
EC No.	200-849-9
Molecular Formula	C ₂ H ₄ O

Recommended use of the product and restrictions on use

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

Details of the supplier of the Safety Data Sheet

Name of the company	Weiyel Inc
Address of the company	Hedian Light Industrial Park, Chengguan Town, Shangcheng County, Xinyang City, Henan Province, China
Post code	465350
Telephone number	010-58103678
Fax number	010-84840368
E-mail address	info@weiyel.com

Emergency phone number

Emergency phone number	010-58103678
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2 Hazard(s) identification

Hazard classification according to 29 CFR 1910.1200

Flammable liquids	Category 1
Acute Toxicity - Oral	Category 3
Skin corrosion/irritation	Category 1B
Serious eye damage/irritation	Category 1
Acute Toxicity - Inhalation	Category 3
Specific target organ toxicity - single exposure; respiratory tract irritation	Category 3
Specific target organ toxicity - single exposure; narcotic effects	Category 3

Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1B
Reproductive Toxicity	Category 1B
Specific target organ toxicity - repeated exposure	Category 1

Label elements

Hazard pictograms	
Signal word	Danger

Hazard statements

H224	Extremely flammable liquid and vapour
H301	Toxic if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects
H350	May cause cancer
H360	May damage fertility, Suspected of damaging the unborn child
H372	Causes damage to organs through prolonged or repeated exposure(nervous system)

Precautionary statements

◆ Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof [electrical/ventilating/lighting] equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P260	Do not breathe gas.
P264	Wash hands and other parts of the body (if related) thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or with adequate ventilation.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

◆ Response

P321	Specific treatment (see related instructions on the label).
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P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P370+P378	Small fire: dry chemical, CO ₂ or alcohol-resistant foam; Large fire: alcohol-resistant foam; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

◆ Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.

◆ Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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| Other hazards

	Not applicable.
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| Hazard description

◆ Physical and chemical hazards

	Extremely flammable liquids, risk of explosion.
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◆ Health hazards

Inhaled	Cough. Drowsiness. Headache. Nausea. Sore throat. Vomiting. Weakness.
Ingestion	Due to physical form of this product, considered an unlikely route of entry in commercial/industrial environments.
Skin Contact	ON CONTACT WITH LIQUID: FROSTBITE. Dry skin. Redness. Pain.
Eye	Redness. Pain. Blurred vision.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.
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3 Composition/information on ingredients

| Substance/mixture

	Substance
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Component	CAS No.	EC No.	Concentration (vol, %)
Ethylene oxide	75-21-8	200-849-9	99.5

4 First-aid measures

| Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the
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	doctor in attendance.
Eye contact	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Skin contact	Remove contaminated clothes. ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
Ingestion	Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	Fresh air, rest. Refer for medical attention.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

| Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
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| Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

| Extinguishing media

Suitable extinguishing media	Small fire: dry chemical, CO ₂ or alcohol-resistant foam; Large fire: alcohol-resistant foam; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out.
Unsuitable extinguishing media	Use of water spray when fighting fire may be inefficient.

| Specific hazards arising from the substance or mixture

1	Will form explosive mixtures with air.
2	Fire exposed containers may vent contents through pressure relief valves thereby increasing fire intensity and/or vapour concentration.
3	Vapours may travel to source of ignition and flash back.
4	Liquid and vapour are flammable.
5	May emit poisonous fumes on fire.
6	Development of hazardous combustion gases or vapor possible in the event of fire.
7	May expansion or decompose explosively when heated or involved in fire.

| Special protective equipment and precautions for fire-fighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

| Personal precautions, protective equipment and emergency procedures

1	Avoid breathing vapours and contacting with skin and eye.
2	Beware of vapours accumulating to form explosive concentrations.

3	Vapours can accumulate in low areas.
4	Emergency personnel wear positive pressure self-contained breathing apparatus. Wear protective and anti-static clothing. Wear chemical impermeable gloves.
5	Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.
6	Do not touch or walk through spilled material.
7	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
8	Use personal protective equipment, do not breathe gas.
9	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
10	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

1	Cut off the source of the leak as much as possible.
2	Keep leaks in a ventilated place.
3	Do not use water directly to impact spills or sources of leakage.
4	Wear a cold suit when the liquefied gas leaks.
5	A large number of leaks: The warning zone is delineated according to the area affected by the gas, and the unrelated personnel are evacuated from the crosswind and the upwind to the safe zone.
6	Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
7	Prevent gas from diffusing through sewers, ventilation systems, and confined spaces.

7 Handling and storage

Precautions for safe handling

1	Avoid inhalation of vapors.
2	Use only non-sparking tools.
3	To prevent fire caused by electrostatic discharge steam, equipment on all metal parts should be grounded.
4	Use explosion proof equipment.
5	Handling is performed in a well ventilated place.
6	Wear suitable protective equipment.
7	Avoid contact with skin and eyes.
8	Keep away from heat/sparks/open flames/ hot surfaces.

Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.

8 Exposure controls/personal protection

Control parameters

- ◆ Occupational exposure limit values

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m ³	ppm	mg/m ³
Ethylene oxide	Australia	1	1.8	-	-
	Canada - Ontario	1	1.8	10	18
	European Union	1	1.8	-	-
	New Zealand	0.1	0.2	-	-
	USA - ACGIH	1	-	-	-
	USA - NIOSH	0.1	0.18	5	9

Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

Personal protection equipment

General requirement	    
Eye protection	Must wear appropriate anti-corrosion goggles.
Hand protection	Must wear acid and alkali resistant chemical protective gloves.
Respiratory protection	Must wear appropriate personal dust proof gas mask.
Skin and body protection	Must wear anti static chemical protective clothing and anti static shoes.

9 Physical and chemical properties and safety characteristics

Physical and chemical properties

Appearance (physical state, color, etc.)	Clear, colorless liquid
Odor	No information available
Odor threshold	No information available
pH	No information available
Melting point/freezing point(°C)	-111
Initial boiling point and boiling range(°C)	11
Flash point(Closed cup, °C)	-57
Evaporation rate	No information available
Flammability	No information available
Upper/lower explosive limits[% (v/v)]	Upper limit : 100 ; Lower limit : 3
Vapor pressure	146kPa (20°C)
Vapor density(Air = 1)	1.5
Relative density(Water=1)	0.9
Solubility	Miscible with water

n-octanol/water partition coefficient	-0.3
Auto-ignition temperature(°C)	429
Decomposition temperature(°C)	> 571
Kinematic viscosity	No information available

10 Stability and reactivity

| Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	In contact with inorganic acids or magnesium perchlorate causes an explosion.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Inorganic acids, covalent halides, inorganic alkali, amines, metal alkoxides, metal oxides and magnesium perchlorate.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

| Acute toxicity

Component	LD ₅₀ (oral)	LD ₅₀ (dermal)	LC ₅₀ (inhalation,4h)
Ethylene oxide	72mg/kg(Rat)	No information available	800ppmV(Rat)

| Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP	OSHA Carcinogen List
Ethylene oxide	Category 1(Remark 1)	Category K	Listed

Remark 1: Overall evaluation upgraded to Group 1 based on mechanistic and other relevant data

| Others

Ethylene oxide(Component)	
Skin corrosion/irritation	Causes severe skin burns and eye damage(Category 1B)
Serious eye damage/irritation	Causes serious eye damage(Category 1)
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	May damage fertility, Suspected of damaging the unborn child(Category 1B)
STOT-single exposure	May cause respiratory irritation(Category 3); May cause drowsiness or dizziness(Category 3)
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure(nervous system)(Category 1)
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	May cause genetic defects(Category 1B)

12 Ecological information

| Acute aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants
Ethylene oxide	LC ₅₀ : 84mg/L (96h)(Fish)	No information available	No information available

| Chronic aquatic toxicity

Chronic aquatic toxicity	No information available
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| Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Ethylene oxide	Low(Half-life = 11.88 days)	High(Half-life = 381.96 days)

| Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Ethylene oxide	Low	BCF=35

| Mobility in soil

Component	log Koc	Remark
Ethylene oxide	0.51	20 °C

13 Disposal considerations**| Disposal considerations**

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information**| Label and Mark**

Transporting Label	 
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| IMDG-CODE

UN number	2983
UN proper shipping name	ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE with not more than 30% ethylene oxide
Transport hazard class	3
Transport subsidiary hazard class	6.1
Packing group	I
Marine pollutant (Yes or no)	No

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IATA-DGR

UN number	2983
UN proper shipping name	ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE, not more than 30% ethylene oxide
Transport hazard class	3
Transport subsidiary hazard class	6.1
Packing group	I

UN-ADR

UN number	2983
UN proper shipping name	ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE, not more than 30% ethylene oxide
Transport hazard class	3
Transport subsidiary hazard class	6.1
Packing group	I

Transport in bulk according to IMO instruments

- ◆ Transport in bulk according to Annex II of MARPOL and the IBC code

	Not Available
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- ◆ Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

	Not Available
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- ◆ Transport in bulk in accordance with the IGC Code

	Not Available
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Others

Precautions for transport	Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.
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15 Regulatory information

International chemical inventory

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
Ethylene oxide	√	√	√	√	√	√	√	√	√	√	√	√	√

- [A] China Inventory of Existing Chemical Substances(IECSC)
 [B] European Inventory of Existing Commercial Chemical Substances(EC inventory)
 [C] United States Toxic Substances Control Act Inventory(TSCA)
 [D] Canadian Domestic Substances List(DSL)
 [E] New Zealand Inventory of Chemicals(NZIoC)
 [F] Philippines Inventory of Chemicals and Chemical Substances(PICCS)
 [G] Korea Existing Chemicals Inventory(KECL)
 [H] Australian. Inventory of Industrial Chemical (AIICS)
 [I] Japan Inventory of Existing & New Chemical Substances(ENCS)
 [J] Thailand Existing Chemicals Inventory(TECI)

- [K] Mexico National Inventory of Chemical Substances (INSQ)
 [L] Russia Inventory of Existing Substances (DRAFT)
 [M] Inventory of Existing Chemical Substances in Taiwan, China (TCSI)

List of Chemical Substances under International Conventions

Component	A	B	C
Ethylene oxide	×	×	✓

- [A] The Montreal Protocol on Substances that Deplete the Ozone Layer
 [B] Stockholm Convention on Persistent Organic Pollutants (POPs)
 [C] Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

US chemical inventory

Component	A	B	C	D	E	F	G	H
Ethylene oxide	✓	✓	✓	✓	✓	✓	✓	✓

- [A] US Clean Air Act (CAA)- Section 112, Hazardous Air Pollutants
 [B] US SARA 302- Extremely Hazardous Substance List
 [C] US CERCLA- Hazardous Substances List
 [D] US Massachusetts Right-to-Know Substance List
 [E] US New Jersey Right to Know Hazardous Substance List
 [F] US Pennsylvania Right to Know Hazardous Substance List
 [G] US New York City Right-to-Know Hazardous Substance List
 [H] US California Proposition 65 List

Note:

- “✓” Indicates that the substance included in the regulations.
 “×” No data or not included in the regulations.

16 Other information

Information on revision

Creation Date	2025/09/22
Revision Date	-
Reason for revision	-

Reference

- [1] IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.
 [2] IARC, website: <http://www.iarc.fr/>.
 [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.chemportal.org/chemportal/>.
 [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.
 [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.
 [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.
 [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.
 [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists

LC ₅₀	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD ₅₀	Lethal Dose 50%	NTP	National Toxicology Program
EC ₅₀	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC _x	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P _{OW}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor	HCS	Hazard Communication Standard

Disclaimer

This Safety Data Sheet (SDS) was prepared according to OSHA HCS-2024. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.