

# Safety Data Sheet(SDS)

According to Regulation (EU) No. 2020/878

Version : 3-1

Revision date : 01-06-2026

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

### 1.1. Product identifier

Product identifier : HPEO\_ETHYLENE\_OXIDE

Other means of identification : No data

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### ○ Relevant identified uses

1.Raw materials and intermediates

#### ○ Uses advised against

Use for recommended use only

Do not use it for weapons manufacturing and related purposes.

### 1.3. Details of the supplier of the safety data sheet

#### ○ Seller

Company name : Lotte Daesan Petrochem Corporation

Address : 82 Dokgot 1-ro, Daesan-eup, Seosan-si, Chungcheongnam-do

Telephone number : +82-41-689-5114

Fax number : +82-41-689-5985

Email : www.ldpc.co.kr (contact)

### 1.4. Emergency telephone number

Emergency phone number : (Control Room) +82-41-689-5119

Opening hours : 08:30~17:30 (GMT+9)

Other comments(e.g. language(s) of the phone service) : English

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

- Flammable gases Category 1A
- Gases under pressure Compressed gas
- Acute toxicity(Oral) Category 3
- Acute toxicity(Inhalation:Vapours) Category 3
- Skin corrosion/irritation Category 1
- Serious eye damage/eye irritation Category 1
- Carcinogenicity Category 1B
- Germ cell mutagenicity Category 1B
- Reproductive toxicity Category 1B
- Specific target organ toxicity - single exposure Category 3(Respiratory tract irritation)

- Specific target organ toxicity - single exposure Category 3(Narcotic effects)
- Specific target organ toxicity - repeated exposure Category 1

## 2.2. Label elements

### Hazard pictograms



### Signal word

- DANGER

### Hazard statements

- H220 Extremely flammable gas
- H280 Contains gas under pressure; may explode if heated
- 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 or the unborn child.
- H372 Causes damage to organs through prolonged or repeated exposure.

### 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.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 Avoid contact during pregnancy/ while nursing.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

#### - Response

- P301+P310 IF SWALLOWED: Call a POISON CENTER / toxins center / physician.
- 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 skin with water [or shower].
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 IF exposed or concerned: Get medical advice/ attention.
- P310 Immediately call a POISON CENTER / toxins center / physician.
- P311 Call a POISON CENTER / toxins center / physician.

- P312 Discomfort call a POISON CENTER / toxins center / physician if you feel unwell.
- P314 Get medical advice/attention if you feel unwell.
- P321 Specific treatment (see supplemental instructions on the administration of antidotes on this label).
- P330 Rinse mouth.
- P363 Wash contaminated clothing before reuse.
- P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
- P381 In case of leakage, eliminate all ignition sources.

- Storage

- P403 Store in a well-ventilated place.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.
- P410+P403 Protect from sunlight. Store in a well-ventilated place.

- Disposal

- P501 Discard the contents/containers in accordance with the laws and laws related to waste.

### 2.3. Other hazards

- No data available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Substance name	1) CAS No 2) EC No	Classification	1) Index number 2) SCL 3) M-Factor 4) ATE	Content(wt%)
Ethylene oxide	1) 75-21-8 2) 200-849-9	Flam. Gas 1A, Press. Gas (Comp.), Acute Tox. 3, Acute Tox. 3, Skin Corr. 1, Eye Dam. 1, Carc. 1B, Muta. 1B, Repr. 1B, STOT SE 3, STOT SE 3, STOT RE 1	1) - 2) - 3) - 4) Acute toxicity(Oral) : 72mg/kg, Acute toxicity(Inhalation:Gases) : 800ppm	100

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- 4.1.1. Eye contact
  - Seek immediate medical assistance.
  - In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- 4.1.2. Skin contact
  - Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
  - For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat.
  - In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove

- clothing if adhering to skin.
  - For minor skin contact, avoid spreading material on unaffected skin.
  - In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
  - In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
  - Seek immediate medical assistance.
  - Remove and isolate contaminated clothing and shoes.
- 4.1.3. Inhalation
    - Administer oxygen if breathing is difficult.
    - Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
    - If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
    - Give artificial respiration if victim is not breathing.
    - Keep victim warm and quiet.
    - Move to fresh air.
    - Seek immediate medical assistance.
  - 4.1.4. If swallowed
    - Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
    - Seek immediate medical assistance.
- 4.2. Most important symptoms and effects, both acute and delayed
- No data available
- 4.3. Indication of any immediate medical attention and special treatment needed
- Effects of contact or inhalation may be delayed.
  - Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
  - Exposures require specialized first aid with contact and medical follow-up .
  - Keep victim under observation.

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## SECTION 5: Firefighting measures

- 5.1. Extinguishing media
- Suitable extinguishing media
    - Dry chemical.
    - CO<sub>2</sub>.
    - Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
    - Direct water.
    - Use dry sand or earth to smother fire.
    - Water spray.
  - Unsuitable extinguishing media
    - Do not use a solid water stream as it may scatter and spread fire.
- 5.2. Special hazards arising from the substance or mixture
- May violently polymerize and result in fire and explosion.
  - Runoff may create fire or explosion hazard.
  - Some may burn but none ignite readily.
  - Some of these materials, if spilled, may evaporate leaving a flammable residue.

- Vapors may cause dizziness or asphyxiation without warning.
- Vapors may travel to source of ignition and flash back.
- 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.
- Can decompose at high temperatures forming toxic gases.
- Containers may explode when heated.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
- Extremely flammable.
- Fire may produce irritating, corrosive and/or toxic gases.
- May be fatal if inhaled or absorbed through skin.
- May form explosive mixtures with air.
- May ignited from heat, friction or contamination.

### 5.3. Advice for firefighters

- 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.
- Rescuers should put on appropriate protective gear.
- Ruptured cylinders may rocket.
- Substance may be transported in a molten form.
- Use extinguishing agent suitable for type of surrounding fire.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Damaged cylinders should be handled only by specialists.
- Dike fire-control water for later disposal; do not scatter the material.
- DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.
- 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.

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## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment
  - The wearing of suitable protective equipment to prevent any contamination of skin, eyes and personal clothing.
- Emergency procedures
  - Removal of ignition sources, provision of sufficient ventilation.

#### 6.1.2. For emergency responders

- All equipment used when handling the product must be grounded.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not direct water at source of leak.
- Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.

- If possible, turn leaking containers so that gas escapes rather than liquid.
- Please note that materials and conditions to be avoided.
- Isolate area until gas has dispersed.
- Stop leak if you can do it without risk.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.

#### 6.2. Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.
- Prevent spreading of vapors through sewers, ventilation systems and confined areas.
- Runoff may cause pollution.

#### 6.3. Methods and material for containment and cleaning up

##### 6.3.1. For containment

- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

##### 6.3.2. For cleaning up

- Clear spills immediately.
- Don't use a brush or compressed air for cleaning surfaces or clothing.

##### 6.3.3. Other information

- Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container.
- Dike and collect water used to fight fire.
- Absorb the liquid and scrub the area with detergent and water.
- Reduce airborne dust and prevent scattering by moistening with water.

#### 6.4. Reference to other sections

- Section 8 (protective equipment), section 13 (disposal instructions)

## SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Use care in handling/storage.
- Use only in a well-ventilated area.
- All equipment used when handling the product must be grounded.
- Avoid breathing vapors from heated material.
- Avoid prolonged or repeated contact with skin.
- Do not enter storage area unless adequately ventilated.
- DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION;.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Handling refer to engineering control/personal protection section.
- Loosen closure cautiously before opening.
- Please note that materials and conditions to be avoided.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Containers can build up pressure if exposed to heat (fire).
- Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.
- Keep away from food and drinking water.
- Store in a closed container.

#### 7.3. Specific end use(s)

- See section 1 for recommended use.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Components	Occupational Exposure	ACGIH regulations	Biological limit values	DNEL/DMEL	PNEC-Values
Ethylene oxide	1.8 mg/m <sup>3</sup> TWA; 1 ppm TWA	1 ppm TWA	No data available	No data available	No data available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

#### 8.2.2. Individual protection measures, such as personal protective equipment

- Eye/face protection
  - If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.
- Skin protection
  - (i) Hand protection
    - Wear chemical safety gloves.
  - (ii) Other
    - No data available
- Respiratory protection
  - If you have a direct contact or exposed to the material, wear the appropriate form of respiratory protection certified.
- Thermal hazards
  - Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

#### 8.2.3. Environmental exposure controls

- Ensure not to cause environmental pollution by discharging into rivers or other waterways.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Property name	Values	Source
Physical state	Gas	Note : Liquefied gas
Colour	colourless	ECHA
Odour	Sweet smell; etheric smell;irritating	ECHA
Melting point/freezing point	-111 °C	ECHA
Initial boiling point and boiling range(°C)	10.7 °C	ECHA
Flammability(solid, gas)	Flammable gas	ECHA
Upper/lower flammability or explosive limits	Upper 100 %(V) Lower 3 %(V)	IPCS
Flash point(°C)	-55 °C	KOSHA, AKRON
Auto ignition temperature	429 °C	ECHA
Decomposition temperature	Decomposition energy : 1,280.9 kJ/mol	HSDB
pH	No data available	
Kinematic viscosity(mm <sup>2</sup> /s, 40°C)	No data available	
Solubility	completely miscible with water	
Partition coefficient(n-octanol/water)	logPow : -0.3 (25 °C)	HSDB
Vapour pressure	1,456 hPa (20 °C)	ECHA
Density/Relative density	No data available	
Relative Vapour density	1.5(Air = 1.0)	IPCS
Particle characteristics	Not applicable	
Specific gravity	0.9	

### 9.2. Other information

#### 9.2.1. Information with regard to physical hazard classes

Property name	Values	Source
Flammable gases	Flash point : -55°C, Initial boiling point and boiling range : 10.7°C	

#### 9.2.2. Other safety characteristics

- No data available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

- Runoff may create fire or explosion hazard.
- Some may burn but none ignite readily.
- Some of these materials may react violently with water.

- Vapors may cause dizziness or asphyxiation without warning.
- Vapors may travel to source of ignition and flash back.
- 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.
- Can decompose at high temperatures forming toxic gases.
- Containers may explode when heated.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Extremely flammable.
- Fire may produce irritating, corrosive and/or toxic gases.
- May be fatal if inhaled or absorbed through skin.
- May form explosive mixtures with air.
- May ignited from heat, friction or contamination.
- May violently polymerize and result in fire and explosion.

#### 10.2. Chemical stability

- Runoff may create fire or explosion hazard.
- Some may burn but none ignite readily.
- Some of these materials may react violently with water.
- Vapors may cause dizziness or asphyxiation without warning.
- Vapors may travel to source of ignition and flash back.
- 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.
- Can decompose at high temperatures forming toxic gases.
- Containers may explode when heated.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Extremely flammable.
- Fire may produce irritating, corrosive and/or toxic gases.
- May be fatal if inhaled or absorbed through skin.
- May form explosive mixtures with air.
- May ignited from heat, friction or contamination.
- May violently polymerize and result in fire and explosion.

#### 10.3. Possibility of hazardous reactions

- Runoff may create fire or explosion hazard.
- Some may burn but none ignite readily.
- Some of these materials may react violently with water.
- Vapors may cause dizziness or asphyxiation without warning.
- Vapors may travel to source of ignition and flash back.
- 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.
- Can decompose at high temperatures forming toxic gases.
- Containers may explode when heated.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Extremely flammable.
- Fire may produce irritating, corrosive and/or toxic gases.
- May be fatal if inhaled or absorbed through skin.
- May form explosive mixtures with air.
- May ignited from heat, friction or contamination.

- May violently polymerize and result in fire and explosion.

#### 10.4. Conditions to avoid

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

#### 10.5. Incompatible materials

- Combustibles, reducing material.
- Water.

#### 10.6. Hazardous decomposition products

- Corrosive/toxic fume.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
- Irritating, corrosive and/or toxic gas.

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

- Acute toxicity
  - Acute toxicity(Oral)
    - EU-CLP Classifications (Category 3 : 100mg/kg)
    - LD50 72 mg/kg Experimental species: Rat (Environmental Risk Assessment Vol. 2, 2003)
  - Acute toxicity(Dermal)
    - No data available
  - Acute toxicity(Inhalation:Gases)
    - Gas LC50 800 ppm hr Experimental species: Rat (rat water, LC50 = 2.63 mg/L air 4hr)
  - Acute toxicity(Inhalation:Vapours)
    - EU-CLP Classifications (Category 3 : 3mg/L)
  - Acute toxicity(Inhalation:Dust/mist)
    - No data available
- Skin corrosion/irritation
  - EU-CLP Classifications (Category 1)
  - Result of skin corrosion/irritation test on rabbits, corrosive/irritating
- Serious eye damage/eye irritation
  - EU-CLP Classifications (Category 1)
  - As a result of eye damage/irritation test on rabbits, as the concentration of the substance increases, the pathological change of the eye increases.
- Respiratory sensitization
  - No data available
- Skin sensitization
  - No data available
- Carcinogenicity
  - EU-CLP Classifications (Category 1B)
  - 1 (IARC)
  - K (NTP)
  - A2 (ACGHI)
  - Specially controlled substances (Occupational Safety and Health Act)

1A (Notification of Ministry of Employment and Labor)

1B (EU CLP)

- Germ cell mutagenicity
  - EU-CLP Classifications (Category 1B)
  - \* Korea Occupational Safety and Health Act Specially Controlled Substance Germ Cell Mutagenicity \* Korea Ministry of Employment and Labor Notice 1B Result of in vitro mammalian gene mutation test, positive in case of absence of metabolic activation system Result of mammalian sister chromatid exchange test in vitro, positive in case of absence of metabolic activation system Positive in vitro bacterial reverse mutation analysis test result, positive in the absence of metabolic activation system, positive in vivo dominant lethal test using mice, positive
- Reproductive toxicity
  - EU-CLP Classifications (Category 1B)
  - Chemical information processing system
- Specific target organ toxicity single exposure
  - EU-CLP Classifications (Category 3(Narcotic effects)), EU-CLP Classifications (Category 3(Respiratory tract irritation))
  - Acute inhalation toxicity test results in rats showed tachypnea and kidney disease.
- Specific target organ toxicity repeated exposure
  - EU-CLP Classifications (Category 1)
  - Chemical information processing system
- Aspiration hazard
  - Not applicable as it is a gas

## 11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

- Ethylene oxide
- Not applicable

11.2.2. Other information

- Ethylene oxide
- No other hazards have been identified

## SECTION 12: Ecological information

### 12.1. Toxicity

- Fish
  - LC50 84 mg/l 96 hr Pimephales promelas (EPA-660/3-75-009)
- Crustaceans
  - LC50 212 mg/l 48 hr Daphnia magna (EPA-660/3-75-009)
- Aquatic algae
  - EC50 240 mg/l 96 hr Selenastrum capricornutum

### 12.2. Persistence and degradability

- Degradability
  - No data available
- Biodegradation

107 % (existing chemical safety check data)

#### 12.3. Bioaccumulative potential

- n-octanol water partition coefficient  
-0.3
- Bioconcentration factor(BCF)  
No data available

#### 12.4. Mobility in soil

4.7 Koc (SRC KOCWIN v2.00)

#### 12.5. Result of PBT and vPvB assessment

Not applicable

#### 12.6. Endocrine disrupting properties

Not applicable

#### 12.7. Other adverse effects

Not applicable

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

##### 13.1.1. Product / Packaging disposal

- Empty containers should be taken to an approved waste handling site for recycling or disposal.
- Waste codes / waste designations according to LoW
  - No data available

##### 13.1.2. Waste treatment-relevant information

- Disposal according to local regulations.

##### 13.1.3. Sewage disposal-relevant information

- Disposal according to local regulations and avoid release to the environment.

##### 13.1.4. Other disposal recommendations

- No data available

### SECTION 14: Transport information

14.1. UN number or ID number : 1040

14.2. UN proper shipping name : ETHYLENE OXIDE, or ETHYLENE OXIDE WITH NITROGEN

14.3. Transport hazard class(es) : 2.3

14.4. Packing group : not specified by regulation

14.5. Environmental hazards : No

14.6. Special precautions for user :

Emergency measures in case of fire : F-D

Emergency measures in the effluent : S-U

#### 14.7. Maritime transport in bulk according to IMO instruments :

Not applicable

- ADR

· Tunnel restriction code : B/D

- IMDG

· Marine pollutant : No

- Air transport(IATA)

· UN No. : 1040

· Proper shipping name : ETHYLENE OXIDE, or ETHYLENE OXIDE WITH NITROGEN

· Class or division : 2.3

· Packing group : not specified by regulation

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU regulations

- EU - REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances
  - Ethylene oxide : Use restricted. See item 28.; Use restricted. See item 29.; Use restricted. See item 30. (shall apply from October 1, 2021); Use restricted. See item 75. (U)
- EU - REACH (1907/2006) - Annex XIV - Substances Subject to Authorization
  - Ethylene oxide : Not applicable

#### 15.1.2. Other EU regulations

- EU - Persistent Organic Pollutants (POPs) (2019/1021) - Annex III - Substances Subject to Release Reduction Provisions
  - Not applicable
- EU - Persistent Organic Pollutants (POPs) (2019/1021) - Annex I - Substances Subject to Prohibitions
  - Not applicable
- EU - Persistent Organic Pollutants (POPs) (2019/1021) - Annex IV - Waste Management - Concentration Limits
  - Not applicable
- EU - Persistent Organic Pollutants (POPs) (2019/1021) - Annex V - Waste Management - Maximum Concentration Limits
  - Not applicable
- EU - Paints, Varnishes, Vehicle Refinishing Products (2004/42/CE) - Annex II A - WB Phase 1 - VOCs
  - Not applicable
- EU - Paints, Varnishes, Vehicle Refinishing Products (2004/42/CE) - Annex II A - WB Phase 2 - VOCs
  - Not applicable
- EU - Paints, Varnishes, Vehicle Refinishing Products (2004/42/CE) - Annex II B - Vehicles - VOCs

- Not applicable
- EU - Paints, Varnishes, Vehicle Refinishing Products (2004/42/CE) - Annex II A - SB Phase 1 - VOCs
  - Not applicable
- EU - Paints, Varnishes, Vehicle Refinishing Products (2004/42/CE) - Annex II A - SB Phase 2 - VOCs
  - Not applicable
- EU - Seveso III Directive (2012/18/EU) - Qualifying Quantities of Dangerous Substances - Lower-Tier Requirements
  - Ethylene oxide : 5 tonne
- EU - Seveso III Directive (2012/18/EU) - Qualifying Quantities of Dangerous Substances - Higher-Tier Requirements
  - Ethylene oxide : 50 tonne
- EU - Export and Import Restrictions (649/2012) - Chemicals Subject to Export Notification Procedure
  - Ethylene oxide : Banned as a pesticide in the group of plant protection products (Chemical subject or partially subject to the PIC procedure); Please refer to PIC circular at [www.pic.int/](http://www.pic.int/) (Chemical subject or partially subject to the PIC procedure)
- EU - Export and Import Restrictions (649/2012) - Chemicals and Articles Subject to Export Ban
  - Ethylene oxide : Not applicable
- EU - Export and Import Restrictions (649/2012) - Chemicals Subject to the PIC Procedure under the Rotterdam Convention
  - Ethylene oxide : Pesticide
- EU - Export and Import Restrictions (649/2012) - Chemicals Qualifying for PIC Notification
  - Ethylene oxide : Not applicable

## 15.2. Chemical safety assessment

- A Chemical Safety Assessment has been carried out.

## SECTION 16: Other information

### 16.1. Key literature references and sources for data

NCIS, KOSHA, Montreal Protocol, ECHA, OECD SIDS, EU IUCLID, HSDB(PubChem), NITE, NTP, ACGIH, IARC, NIOSH, ChemIDplus, EPA, EPI Suite, INCHEM

### 16.2. Issuing date : 26-12-2022

### 16.3. Indication of changes

- Revision number : 3-1
- Revision date : 01-06-2026

#### 16.4. Abbreviations and acronyms

ACGIH : American Conference of Governmental Industrial Hygienists  
ADR : Agreement Concerning the International Carriage of Dangerous Goods by Road  
ATE : The Acute Toxicity Estimate  
ECHA : European Chemicals Agency  
EPA : United States Environmental Protection Agency  
EPI Suite : The Estimation Programs Interface for Windows  
EU IUCLID : International Uniform Chemical Information Database  
HSDB : Hazardous Substances Data Bank  
IARC : International Agency for Research on Cancer  
IATA : International Air Transport Association  
IMDG : International Maritime Dangerous Goods Codes  
INCHEM : Internationally Peer Reviewed Chemical Safety Information  
M-Factor : The Multiplication Factor  
NIOSH : National Institute of Occupational Safety and Health  
NITE : National Institute of Technology and Evaluation(JAPAN)  
NTP : National Toxicology Program  
SCL : Specific Concentration Limit  
OECD SIDS : Organization for Economic Co-operation and Development Screening Information Dataset

For explanation of abbreviations see section 16.

- This substance/mixture contain(s) only ingredients which have been registered, or are exempt from registration, according to Regulation (EC) No. 1907/2006 (REACH).

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