

## SAFETY DATA SHEET

Version 8.1  
Revision Date 09/09/2021  
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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Ethylene oxide- $^{13}\text{C}_2$

Product Number : 492612  
Brand : Aldrich  
CAS-No. : 84508-46-3

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

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable gases (Category 1), H220  
Acute toxicity, Oral (Category 3), H301  
Acute toxicity, Inhalation (Category 3), H331  
Eye irritation (Category 2A), H319  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
Short-term (acute) aquatic hazard (Category 3), H402  
Long-term (chronic) aquatic hazard (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



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|                            |                                                                                                                                  |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Signal word                | Danger                                                                                                                           |
| Hazard statement(s)        |                                                                                                                                  |
| H220                       | Extremely flammable gas.                                                                                                         |
| H301 + H331                | Toxic if swallowed or if inhaled.                                                                                                |
| H319                       | Causes serious eye irritation.                                                                                                   |
| H335                       | May cause respiratory irritation.                                                                                                |
| H412                       | Harmful to aquatic life with long lasting effects.                                                                               |
| Precautionary statement(s) |                                                                                                                                  |
| P210                       | Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.                                                              |
| P261                       | Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.                                                                            |
| P264                       | Wash skin thoroughly after handling.                                                                                             |
| P270                       | Do not eat, drink or smoke when using this product.                                                                              |
| P271                       | Use only outdoors or in a well-ventilated area.                                                                                  |
| P273                       | Avoid release to the environment.                                                                                                |
| P280                       | Wear protective gloves/ eye protection/ face protection.                                                                         |
| P301 + P310                | IF SWALLOWED: Immediately call a POISON CENTER/ doctor.                                                                          |
| P304 + P340                | IF INHALED: Remove victim to fresh air and keep at rest in a position 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. |
| P312                       | Call a POISON CENTER/ doctor if you feel unwell.                                                                                 |
| P321                       | Specific treatment (see supplemental first aid instructions on this label).                                                      |
| P330                       | Rinse mouth.                                                                                                                     |
| P337 + P313                | If eye irritation persists: Get medical advice/ attention.                                                                       |
| P377                       | Leaking gas fire: Do not extinguish, unless leak can be stopped safely.                                                          |
| P381                       | Eliminate all ignition sources if safe to do so.                                                                                 |
| P403                       | Store in a well-ventilated place.                                                                                                |
| P403 + P233                | Store in a well-ventilated place. Keep container tightly closed.                                                                 |
| P405                       | Store locked up.                                                                                                                 |
| P501                       | Dispose of contents/ container to an approved waste disposal plant.                                                              |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                  |                                       |
|------------------|---------------------------------------|
| Formula          | : $^{13}\text{C}_2\text{H}_4\text{O}$ |
| Molecular weight | : 46.02 g/mol                         |
| CAS-No.          | : 84508-46-3                          |

| Component                  | Classification                                                                                       | Concentration |
|----------------------------|------------------------------------------------------------------------------------------------------|---------------|
| <b>Ethylene oxide-13C2</b> |                                                                                                      |               |
|                            | Flam. Gas 1; Acute Tox. 3; Eye Irrit. 2A; STOT SE 3; Aquatic Acute 3; Aquatic Chronic 3; H220, H301, | <= 100 %      |

|  |                              |  |
|--|------------------------------|--|
|  | H331, H319, H335, H402, H412 |  |
|--|------------------------------|--|

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### **General advice**

Consult a physician. Show this material safety data sheet to the doctor in attendance. Move out of dangerous area.

#### **If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### **In case of skin contact**

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### **In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### **If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### **Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

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## SECTION 6: Accidental release measures

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

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

For personal protection see section 8.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### 6.3 Methods and materials for containment and cleaning up

Clean up promptly by sweeping or vacuum.

### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### Advice on safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

#### Advice on protection against fire and explosion

Use explosion-proof equipment. **Advice on protection against fire and explosion**

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

#### Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

For precautions see section 2.2.

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

#### Storage conditions

Keep container tightly closed in a dry and well-ventilated place.

Store under inert gas. hygroscopic

#### Storage class

Storage class (TRGS 510): 2A: Compressed, liquefied or pressurized gas

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

## 8.2 Exposure controls

### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

### Personal protective equipment

#### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |                                            |                                                                       |
|--------------------------------------------|-----------------------------------------------------------------------|
| a) Appearance                              | Form: gaseous                                                         |
| b) Odor                                    | No data available                                                     |
| c) Odor Threshold                          | No data available                                                     |
| d) pH                                      | No data available                                                     |
| e) Melting point/freezing point            | Melting point/range: -111 °C (-168 °F) - lit.                         |
| f) Initial boiling point and boiling range | 10.7 °C 51.3 °F - lit.                                                |
| g) Flash point                             | -20.00 °C (-4.00 °F) - closed cup                                     |
| h) Evaporation rate                        | No data available                                                     |
| i) Flammability (solid, gas)               | No data available                                                     |
| j) Upper/lower flammability or             | Upper explosion limit: 99.90 %(V)<br>Lower explosion limit: 3.00 %(V) |

explosive limits

- |    |                                           |                                                                                                         |
|----|-------------------------------------------|---------------------------------------------------------------------------------------------------------|
| k) | Vapor pressure                            | 1,440 hPa at 20.00 °C (68.00 °F)<br>2,080 hPa at 30.00 °C(86.00 °F)<br>3,950 hPa at 50.00 °C(122.00 °F) |
| l) | Vapor density                             | No data available                                                                                       |
| m) | Density                                   | 0.859 g/mL at 25 °C (77 °F)0.859 g/cm3 at 25 °C (77 °F)                                                 |
|    | Relative density                          | No data available                                                                                       |
| n) | Water solubility                          | No data available                                                                                       |
| o) | Partition coefficient:<br>n-octanol/water | log Pow: 0.300                                                                                          |
| p) | Autoignition<br>temperature               | No data available                                                                                       |
| q) | Decomposition<br>temperature              | No data available                                                                                       |
| r) | Viscosity                                 | No data available                                                                                       |
| s) | Explosive properties                      | No data available                                                                                       |
| t) | Oxidizing properties                      | No data available                                                                                       |

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

### 10.5 Incompatible materials

Alcohols, Alkali metals, Ammonia, Oxidizing agents, Chemically active metals, and its salts

### 10.6 Hazardous decomposition products

No data available

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - 72 mg/kg

LC50 Inhalation - Rat - 4.00 h - 800 ppm

Remarks: Lungs, Thorax, or Respiration:Other changes.

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Liver: Other changes.  
Kidney, Ureter, Bladder: Other changes.  
Dermal: No data available  
No data available

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Eye irritation - 6.00 h

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

Laboratory experiments have shown mutagenic effects.

**Carcinogenicity**

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**Reproductive toxicity**

No data available

No data available

**Specific target organ toxicity - single exposure**

May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Exposure to large amounts can cause:, Pulmonary edema. Effects may be delayed., Convulsions, Lung irritation

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**SECTION 12: Ecological information**

**12.1 Toxicity**

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 84 mg/l - 96.0 h

**12.2 Persistence and degradability**

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

#### Contaminated packaging

Dispose of as unused product.

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## SECTION 14: Transport information

### DOT (US)

#### IMDG

UN number: 2037 Class: 2.3 (2.1)

EMS-No: F-D, S-U

Proper shipping name: RECEPTACLES, SMALL, CONTAINING GAS

#### IATA

UN number: 2037 Class: 2.3 (2.1)

Proper shipping name: Receptacles, small, containing gas

IATA Passenger: Not permitted for transport

IATA Cargo: Not permitted for transport

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## SECTION 15: Regulatory information

### SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### SARA 311/312 Hazards

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Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

Ethylene oxide-13C2

CAS-No.  
84508-46-3

Revision Date  
2013-02-08

**New Jersey Right To Know Components**

Ethylene oxide-13C2

CAS-No.  
84508-46-3

Revision Date  
2013-02-08

**California Prop. 65 Components**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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**SECTION 16: Other information**

**Further information**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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