1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>Ethylene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Number</td>
<td>536164</td>
</tr>
<tr>
<td>Brand</td>
<td>Aldrich</td>
</tr>
<tr>
<td>Supplier</td>
<td>Sigma-Aldrich</td>
</tr>
<tr>
<td></td>
<td>3050 Spruce Street</td>
</tr>
<tr>
<td></td>
<td>SAINT LOUIS MO  63103</td>
</tr>
<tr>
<td></td>
<td>USA</td>
</tr>
<tr>
<td>Telephone</td>
<td>+1 800-325-5832</td>
</tr>
<tr>
<td>Fax</td>
<td>+1 800-325-5052</td>
</tr>
<tr>
<td>Emergency Phone #</td>
<td>(314) 776-6555</td>
</tr>
<tr>
<td>Preparation Information</td>
<td>Sigma-Aldrich Corporation</td>
</tr>
<tr>
<td></td>
<td>Product Safety - Americas Region</td>
</tr>
<tr>
<td></td>
<td>1-800-521-8956</td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

**Emergency Overview**

**OSHA Hazards**
Flammable gas, Compressed Gas, Target Organ Effect

**Target Organs**
Central nervous system

**GHS Classification**
Flammable gases (Category 1)
Gases under pressure (Liquefied gas)
Specific target organ toxicity - single exposure (Category 3)

**GHS Label elements, including precautionary statements**

<table>
<thead>
<tr>
<th>Pictogram</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Fire Exclamation Mark]</td>
</tr>
</tbody>
</table>

**Signal word**
Danger

**Hazard statement(s)**
- H220   Extremely flammable gas.
- H280   Contains gas under pressure; may explode if heated.
- H336   May cause drowsiness or dizziness.

**Precautionary statement(s)**
- P210   Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P261   Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
- P410 + P403 Protect from sunlight. Store in a well-ventilated place.

**HMIS Classification**
- Health hazard: 0
- Chronic Health Hazard: *
- Flammability: 4
- Physical hazards: 3

**NFPA Rating**
Health hazard: 0
Fire: 4
Reactivity Hazard: 0

Potential Health Effects

**Inhalation**  May be harmful if inhaled. May cause respiratory tract irritation. Vapours may cause drowsiness and dizziness.

**Skin**  May be harmful if absorbed through skin. May cause skin irritation.

**Eyes**  May cause eye irritation.

**Ingestion**  May be harmful if swallowed.

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Synonyms:** Ethene

**Formula:** C₂H₄

**Molecular Weight:** 28.05 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethylene</strong></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>74-85-1</td>
</tr>
<tr>
<td>EC-No.</td>
<td>200-815-3</td>
</tr>
<tr>
<td>Index-No.</td>
<td>601-010-00-3</td>
</tr>
</tbody>
</table>

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### 4. FIRST AID MEASURES

**General advice**
Consult a physician. Show this 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. Consult a physician.

**In case of eye contact**
Flush eyes with water as a precaution.

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

---

### 5. FIREFIGHTING MEASURES

**Conditions of flammability**
Flammable in the presence of an oxidizing gas (eg air), a source of ignition, and when the concentration of the gas is between the lower and upper explosive limits. Keep away from heat/sparks/open flame/hot surface/oxidizing gas. No smoking.

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**
Wear self-contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides

**Further information**
Use water spray to cool unopened containers.

---

### 6. ACCIDENTAL RELEASE MEASURES
Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up
Clean up promptly by sweeping or vacuum.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

Contents under pressure.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene</td>
<td>74-85-1</td>
<td>TWA</td>
<td>200 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks Asphyxia Not classifiable as a human carcinogen

Personal protective equipment

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).

Hand 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.

Eye 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 and body protection
Impervious clothing, 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.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

<table>
<thead>
<tr>
<th>Form</th>
<th>Liquefied gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>no data available</td>
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</tbody>
</table>
### Safety data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>no data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Melting point/range: -169 °C (-272 °F) - lit.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>-104 °C (-155 °F) - lit.</td>
</tr>
<tr>
<td>Flash point</td>
<td>-100 °C (-148 °F) - closed cup</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>450 °C (842 °F)</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>2.7 %(V)</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>36 %(V)</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>35,504.3 hPa (26,630.4 mmHg) at 20 °C (68 °F)</td>
</tr>
<tr>
<td>Density</td>
<td>no data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>no data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>no data available</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>0.97 (- (Air = 1.0))</td>
</tr>
<tr>
<td>Odour</td>
<td>no data available</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>no data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

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

**Materials to avoid**

Strong oxidizing agents, Carbon tetrachloride, Chlorine, Copper, Vinyl compounds

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

### 11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Oral LD50**

no data available

**Inhalation LC50**

no data available

**Dermal LD50**

no data available

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

no data available
Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component 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 component 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 component 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 identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Vapours may cause drowsiness and dizziness.

Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. May cause skin irritation.

Eyes May cause eye irritation.

Signs and Symptoms of Exposure
Nausea, Dizziness, Headache, narcosis. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information
RTECS: KU5340000
12. ECOLOGICAL INFORMATION

**Toxicity**
no data available

**Persistence and degradability**
no data available

**Bioaccumulative potential**
no data available

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
no data available

13. DISPOSAL CONSIDERATIONS

**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.

14. TRANSPORT INFORMATION

**DOT (US)**
UN number: 1962   Class: 2.1
Proper shipping name: Ethylene
Marine pollutant: No
Poison Inhalation Hazard: No

**IMDG**
UN number: 1962   Class: 2.1
Proper shipping name: ETHYLENE
Marine pollutant: No

**IATA**
UN number: 1962   Class: 2.1
Proper shipping name: Ethylene
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

**OSHA Hazards**
Flammable gas, Compressed Gas, Target Organ Effect

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

**SARA 313 Components**
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene</td>
<td>74-85-1</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazards**
Fire Hazard, Sudden Release of Pressure Hazard, Chronic Health Hazard
Massachusetts Right To Know Components

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>74-85-1</td>
<td>2007-07-01</td>
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</table>

Pennsylvania Right To Know Components

<table>
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<th>Revision Date</th>
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<tr>
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<td>2007-07-01</td>
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New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
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<tr>
<td>74-85-1</td>
<td>2007-07-01</td>
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</tbody>
</table>

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
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