1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 2-Methoxyethanol
Product Number : 284467
Brand : Sigma-Aldrich
Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Target Organ Effect, Harmful by skin absorption., Teratogen, Reproductive hazard

Target Organs
Blood, Kidney, Liver, Lungs, Central nervous system, Male reproductive system., Immune system., Thymus., Bone marrow

GHS Classification
Flammable liquids (Category 3)
Acute toxicity, Oral (Category 5)
Acute toxicity, Inhalation (Category 3)
Acute toxicity, Dermal (Category 4)
Skin irritation (Category 3)
Eye irritation (Category 2B)
Reproductive toxicity (Category 1B)

GHS Label elements, including precautionary statements

Pictogram

Signal word : Danger
Hazard statement(s)
H226 Flammable liquid and vapour.
H303 May be harmful if swallowed.
H312 Harmful in contact with skin.
H316 Causes mild skin irritation.
H320 Causes eye irritation.
H331 Toxic if inhaled.
H360 May damage fertility or the unborn child.

Precautionary statement(s)
P201 Obtain special instructions before use.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wear protective gloves/ protective clothing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard: 1
Chronic Health Hazard: *
Flammability: 2
Physical hazards: 0

NFPA Rating

Health hazard: 2
Fire: 2
Reactivity Hazard: 0

Potential Health Effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
Skin May cause skin irritation.
Eyes May cause eye irritation.
Ingestion May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Methyl Cellosolve
            Methyl glycol
            Ethylene glycol monomethyl ether

Formula : C₃H₈O₂
Molecular Weight : 76.09 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
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<tbody>
<tr>
<td>2-Methoxyethanol</td>
<td></td>
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<tr>
<td>CAS-No.</td>
<td>109-86-4</td>
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<tr>
<td>EC-No.</td>
<td>203-713-7</td>
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<td>Index-No.</td>
<td>603-011-00-4</td>
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<tr>
<td>Registration number</td>
<td>01-2119494721-33-XXXX</td>
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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. 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.

5. FIREFIGHTING MEASURES

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. 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
Wear respiratory protection. 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
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. 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. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

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>
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<tbody>
<tr>
<td>2-Methoxyethanol</td>
<td>109-86-4</td>
<td>TWA</td>
<td>0.1 ppm 0.3 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
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<td>Remarks</td>
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<td>TWA</td>
<td>0.1 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
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<td>Hematologic effects</td>
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<td>Reproductive effects</td>
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<td></td>
<td>Danger of cutaneous absorption</td>
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<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>25 ppm 80 mg/m3</td>
<td>USA. Occupational Exposure Limits (OSHA) -</td>
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<td></td>
<td>Table Z-1 Limits for Air Contaminants</td>
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<td>Skin designation The value in mg/m3 is</td>
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<td>approximate.</td>
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<td>TWA</td>
<td>25 ppm 80 mg/m3</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air</td>
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<td>Contaminants - 1910.1000</td>
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<td>Personal protective equipment</td>
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<td>Respiratory protection</td>
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<td>Where risk assessment shows air-purifying</td>
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<td></td>
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<td>respirators are appropriate use a full-</td>
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<td>face respirator with multi-purpose</td>
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<td>combination (US) or type ABEK (EN 14387)</td>
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<td>respirator cartridges as a backup to</td>
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<td>engineering controls. If the respirator</td>
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<td>is the sole means of protection, use a</td>
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<td>full-face supplied air respirator. Use</td>
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<td>respirators and components</td>
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<td>tested and approved under appropriate</td>
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<td>government standards such as NIOSH (US) or</td>
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<td>CEN (EU).</td>
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</tbody>
</table>
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
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.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
- Form: clear, liquid
- Colour: colourless

**Safety data**
- pH: 5.0 - 7.0 at 25 °C (77 °F)
- Melting point/freezing point: Melting point/range: -85 °C (-121 °F) - lit.
- Boiling point: 124 - 125 °C (255 - 257 °F) - lit.
- Flash point: 40 °C (104 °F) - closed cup
- Ignition temperature: 310 °C (590 °F)
- Autoignition temperature: no data available
- Lower explosion limit: 2.5 % (V)
- Upper explosion limit: 24.5 % (V)
- Vapour pressure: 10 hPa (8 mmHg) at 20 °C (68 °F)
- Density: 0.965 g/cm³ at 25 °C (77 °F)
- Water solubility: soluble
- Partition coefficient: n-octanol/water: log Pow: -0.8
- Relative vapour density: 2.63 - (Air = 1.0)
- Odour: no data available
- Odour Threshold: no data available
- Evaporation rate: no data available

10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
Heat. 45°C
Heat, flames and sparks.

**Materials to avoid**
Strong oxidizing agents

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

**Thermal decomposition**
204 - 232 °C

**11. TOXICOLOGICAL INFORMATION**

**Acute toxicity**

**Oral LD₅₀**
LD₅₀ Oral - rat - 2,370 mg/kg
Remarks: Behavioral: Altered sleep time (including change in righting reflex). Lungs, Thorax, or Respiration: Other changes.

**Inhalation LC₅₀**
LC₅₀ Inhalation - rat - 7 h - 1500 ppm

**Dermal LD₅₀**
LD₅₀ Dermal - rabbit - 1,280 mg/kg

**Other information on acute toxicity**
LD₅₀ Intraperitoneal - rat - 2,500 mg/kg

**Skin corrosion/irritation**
Skin - rabbit - Mild skin irritation - 24 h

**Serious eye damage/eye irritation**
Eyes - rabbit - Mild eye irritation - 24 h

**Respiratory or skin sensitization**
no data available

**Germ cell mutagenicity**
no data available

**Carcinogenicity**

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**
May cause reproductive disorders.

**Teratogenicity**
May cause congenital malformation in the fetus.
Presumed human reproductive toxicant
Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

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.
- **Ingestion**: May be harmful if swallowed.
- **Skin**: May cause skin irritation.
- **Eyes**: May cause eye irritation.

Synergistic effects
no data available

Additional Information
RTECS: KL5775000

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### 12. ECOLOGICAL INFORMATION

**Toxicity**
- Toxicity to fish: LC50 - Lepomis macrochirus (Bluegill) - 10,000 mg/l - 96 h
- Toxicity to daphnia and other aquatic invertebrates: LC50 - Daphnia magna (Water flea) - 10,000 mg/l - 24 h

**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

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### 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.

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### 14. TRANSPORT INFORMATION

**DOT (US)**
- UN number: 1188
- Class: 3
- Packing group: III
- Proper shipping name: Ethylene glycol monomethyl ether
- Marine pollutant: No
- Poison Inhalation Hazard: No

**IMDG**
- UN number: 1188
- Class: 3
- Packing group: III
- EMS-No: F-E, S-D
- Proper shipping name: ETHYLENE GLYCOL MONOMETHYL ETHER
- Marine pollutant: No
15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid, Target Organ Effect, Harmful by skin absorption., Teratogen, Reproductive hazard

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>
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SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

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<tbody>
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16. OTHER INFORMATION

Further information
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