1. PRODUCT AND COMPANY IDENTIFICATION

Product name: 2-Methoxyethanol
Product Number: 360503
Brand: Sigma-Aldrich
Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +18003255832
Fax: +18003255052
Emergency Phone #: (314) 776-6555

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 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.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311 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®
Ethylene glycol monomethyl ether
Methyl glycol

Formula: \( \text{C}_3\text{H}_8\text{O}_2 \)

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methoxyethanol</td>
<td>109-86-4</td>
<td>203-713-7</td>
<td>603-011-00-4</td>
</tr>
<tr>
<td>2,6-di-tert-Butyl-p-cresol</td>
<td>128-37-0</td>
<td>204-881-4</td>
<td>-</td>
</tr>
</tbody>
</table>

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. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

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

**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. Store in cool place.

Store under inert gas.

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>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methoxyethanol</td>
<td>109-86-4</td>
<td>TWA 0.1 ppm</td>
<td></td>
<td>2007-01-01</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td>TWA 25 ppm</td>
<td>80 mg/m^3</td>
<td>1997-08-04</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td>Skin designation</td>
<td></td>
<td>TWA 25 ppm</td>
<td>80 mg/m^3</td>
<td>1989-01-19</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
</tbody>
</table>

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 ABEK (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
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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>5.0 - 7.0 at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Melting point</td>
<td>-85 °C (-121 °F) - lit.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>124 - 125 °C (255 - 257 °F) - lit.</td>
</tr>
<tr>
<td>Flash point</td>
<td>40 °C (104 °F) - closed cup</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>310 °C (590 °F)</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>2.5 % (V)</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>24.5 % (V)</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>10 hPa (8 mmHg) at 20 °C (68 °F)</td>
</tr>
<tr>
<td>Density</td>
<td>0.965 g/mL at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Water solubility</td>
<td>soluble</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>log Pow: -0.8</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>2.63</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents

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

Thermal decomposition
204 - 232 °C

Contains the following stabiliser(s):
BHT (50 ppm)

11. TOXICOLOGICAL INFORMATION

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

LC50 Inhalation - rat - 7 h - 1500 ppm
LD50 Dermal - rabbit - 1,280 mg/kg
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 congenital malformation in the fetus.

Presumed human reproductive toxicant

May cause reproductive disorders.

**Specific target organ toxicity - single exposure (GHS)**

no data available

**Specific target organ toxicity - repeated exposure (GHS)**

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.

**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

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: 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

IATA
UN-Number: 1188  Class: 3  Packing group: III
Proper shipping name: Ethylene glycol monomethyl ether

15. REGULATORY INFORMATION

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

DSL Status
All components of this product are on the Canadian DSL list.

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

<table>
<thead>
<tr>
<th>Compound</th>
<th>CAS-No.</th>
<th>Revision Date</th>
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<tbody>
<tr>
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<td>109-86-4</td>
<td>2007-07-01</td>
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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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<tr>
<td>2-Methoxyethanol</td>
<td>109-86-4</td>
<td>2009-02-01</td>
</tr>
</tbody>
</table>
16. OTHER INFORMATION

Further information
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