1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Methanol

Product Number: 179337

Brand: Sigma-Aldrich

Company: Sigma-Aldrich

3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone: +1 800-325-5832
Fax: +1 800-325-6555
Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview
OSHA Hazards
Flammable liquid, Target Organ Effect, Toxic by ingestion, Toxic by skin absorption, Irritant

Target Organs
Eyes, Kidney, Liver, Heart, Central nervous system

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H311 + H314 Toxic if swallowed or in contact with skin.
H316 Causes skin irritation.
H318 Causes serious eye irritation.
H331 Toxic if inhaled.
H370 Causes damage to organs.

Precautionary statement(s)
P200 Keep away from heat, sparks, open flames and hot surfaces.
No smoking.
P260 Do not breathe dust, fume, gas, mist, vapour or spray.
P261 Wear protective gloves/protective clothing.
P263, P280 If swallowed: Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307 + P311 IF exposed: Call a POISON CENTER or doctor/physician.

HMIS Classification
Health hazard: 2
Chronic Health Hazard: 1
Flammability: 3
Physical hazards: 0

NFPA Rating
Health hazard: 2
Fire: 3

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Methyl alcohol

Formula: CH₃OH

Molecular Weight: 32.04 g/mol

CAS-No. 67-56-1 EC-No. 200-659-6 Index-No. 103-091-00-X Concentration Methanol

4. FIRST AID MEASURES

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

Inhalation
If inhaled
If breathless, 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. 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

Contains spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national 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 retaped and kept upright to prevent leakage. Store in cool place.

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>Methanol</td>
<td>67-56-1</td>
<td>TWA 200 ppm</td>
<td>2007-01-01</td>
<td>USA, ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL 250 ppm</td>
<td>2007-01-01</td>
<td>USA, ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
</tbody>
</table>

Remarks

- Headache
- Eye damage
- Substances for which there is a Biological Exposure Index or Indices (see BEII section) Danger of cutaneous absorption

| TWA | 200 ppm | 286 mg/m³ | 1989-01-19 | USA, OSHA - Table Z-1 Limits for Air Contaminants - 1990.1000 |
| STEL | 250 ppm | 325 mg/m³ | 1989-01-19 | USA, OSHA - Table Z-1 Limits for Air Contaminants - 1990.1000 |

Skin irritation

| TWA | 200 ppm | 286 mg/m³ | 1997-08-04 | USA, Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |

The value in mg/m³ is approximate.

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.

Eye protection

Face shield and safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the 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: liquid
Colour: colourless

Safety data

- pH: no data available
- Melting point: -98 °C (-144 °F)
- Boiling point: 64.7 °C (148.5 °F)
- Flash point: 11.0 °C (51.6 °F) - closed cup
- Ignition temperature: 455 °C (851 °F)
- Lower explosion limit: 6 % (V)
- Upper explosion limit: 36 % (V)
- Vapour pressure: 246.6 kPa (410.0 mmHg) at 50 °C (122.0 °F)
- 130.0 kPa (97.7 mmHg) at 20.0 °C (68.0 °F)
- Density: 0.791 g/mL at 25 °C (77 °F)
- Water solubility: completely miscible
- Partition coefficient: log Pow: -0.77
n-octanol/water

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat: 5,626 mg/kg
LC50 Inhalation - rat: 4 h - 64000 ppm
LD50 Dermal - rabbit: 15,800 mg/kg
Skin corrosion/irritation
Skin - rabbit - Skin irritation: 24 h
Serious eye damage/eye irritation
Eyes - rabbit - 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
no data available

Specific target organ toxicity - single exposure (GHS): Causes damage to organs.

Specific target organ toxicity - repeated exposure (GHS) no data available

Aspiration hazard no data available

Potential health effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.

Ingestion Toxic if swallowed.

Skin Toxic if absorbed through skin. Causes skin irritation.

Eyes Causes eye irritation.

Signs and Symptoms of Exposure
Methyl alcohol may be fatal or cause blindness if swallowed. Cannot be made non-poisonous. Effects due to ingestion may include: Nausea, Headache, Vomiting, Gastrointestinal disturbance, Dizziness, Weakness, Confusion, Drowsiness, Unconsciousness. May cause convulsions.

Additional Information
RTECS: PC1400000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 19,000.00 mg/l - 96 h

LC50 - Cyprinus carpio (Carp) - 36,000.00 mg/l - 48 h

Toxicity to daphnia and other aquatic invertebrates:

EC50 - Daphnia magna (Water flea) - 24,500.00 mg/l - 48 h

EC100 - Daphnia magna (Water flea) - 10,000.00 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

14. TRANSPORT INFORMATION

DOT (US)

UN Number: 1230 Class: 3

Proper shipping name: Methanol

Reportable Quantity (RQ): 5000 lbs

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG

UN Number: 1230 Class: 3 (6.1)

Proper shipping name: METHANOL

Marine pollutant: No

IATA

UN Number: 1230 Class: 3 (6.1)

Proper shipping name: Methanol

15. REGULATORY INFORMATION

OSHA Hazards

Flammable liquid, Target Organ Effect, Toxic by ingestion, Toxic by skin absorption, Irritant

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

Methanol

CAS No. 67-56-1

Revision Date 2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Methanol

CAS No. 67-56-1

Revision Date 2007-07-01

Pennsylvania Right To Know Components

Methanol

CAS No. 67-56-1

Revision Date 2007-07-01

New Jersey Right To Know Components

Methanol

CAS No. 67-56-1

Revision Date 2007-07-01

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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