SIGMA-ALDRICH

Material Safety Data Sheet

Version 3.5
Revision Date 11/12/2007
Print Date 12/11/2009

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Methanol
Product Number: M1775
Brand: Sigma-Aldrich
Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone: +18003255832
Fax: +18003255052
Emergency Phone #: (314) 776-6555

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formula: CH₂OH
Molecular Weight: 32.04 g/mol

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>200-659-6</td>
<td>803-001-00-X</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Emergency Overview
OSHA Hazards
Flammable Liquid
Target Organ Effect
Toxic by inhalation,
Toxic by ingestion
Toxic by skin absorption
Irremanent
Target Organs
Eyes, Kidney, Liver, Heart, Central nervous system

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

NFPA Rating
Health Hazard: 2
Fire: 3
Reactivity Hazard: 0

4. FIRST AID MEASURES

Potential Health Effects
Inhalation: Toxic if inhaled. Causes respiratory tract irritation.
Skin: Toxic if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Ingestion: Toxic if swallowed.

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

Flammable properties
Flash point: 11.0 °C (51.8 °F) - closed cup
Ignition temperature: 455 °C (851 °F)

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 for cleaning up
Contain spillage, and then collect with non-combustible absorbent material, e.g., sand, earth, disaposable earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

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.
### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<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</td>
<td>200 ppm</td>
<td>1994-09-01</td>
<td>US: American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004 Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>250 ppm</td>
<td>1994-09-01</td>
<td>US: American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004 Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs)</td>
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</table>

### Remarks
- Substances for which there is a Biological Exposure Index or Indices.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

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

- **Safety data**
  - pH: no data available
  - Melting point: -96.0 °C (-144.4 °F)
  - Boiling point: 64.0 - 65.0 °C (147.2 - 149.0 °F)
  - Flash point: 11.0 °C (51.8 °F) - closed cup
  - Ignition temperature: 455 °C (851 °F)
  - Lower explosion limit: 6 % (V)
  - Upper explosion limit: 38 % (V)
  - Vapour pressure: 546.6 hPa (410.0 mmHg) at 50.0 °C (122.0 °F)
  - 130.3 hPa (97.7 mmHg) at 20.0 °C (68.0 °F)
  - Density: 0.79 g/cm³
  - Water solubility: completely miscible
  - Partition coefficient: log Pow: -0.77
  - n-Octanol/water

### 10. STABILITY AND REACTIVITY

- **Storage stability**
  - Stable under recommended storage conditions.

- **Conditions to avoid**
  - Heat, flames and sparks.

- **Materials to avoid**
  - Acids, Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals. Reducing agents.
11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - rat: 5,628 mg/kg
LC50 Inhalation - rat: 4 h: 64000 ppm
LD50 Dermal - rabbit: 15,800 mg/kg

Irritation and corrosion
Skin - rabbit - Skin irritation: 24 h
Eyes - rabbit - Eye irritation: 24 h

Sensitisation
no data available

Chronic exposure

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.

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.

Potential Health Effects

Inhalation: Toxic if inhaled. Causes respiratory tract irritation.

Skin: Toxic if absorbed through skin. Causes skin irritation.

Eyes: Causes eye irritation.

Ingestion: Toxic if swallowed.

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

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)
no data available

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

and other aquatic invertebrates.
EC100 - Daphnia magna (Water flea) - 10,000.00 mg/l - 24 h

Further information on ecology
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. Observe all federal, state, and local environmental regulations. 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: 1290 Class: 3
Proper shipping name: Methanol
Packing group: II

IMDG
UN-Number: 1290 Class: 3 (6.1)
Proper shipping name: METHANOL
Marine pollutant: No
EMS-No: F-E, S-D

IATA
UN-Number: 1290 Class: 3 (6.1)
Proper shipping name: Methanol
Packing group: II

15. REGULATORY INFORMATION

OSHA Hazards
Flammable Liquid, Target Organ Effect, Toxic by inhalation, Toxic by ingestion, Toxic by skin absorption, Irritant

TSCA Status
On TSCA Inventory

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 1987-01-01

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 1987-01-01

Pennsylvania Right To Know Components

Methanol
CAS-No: 67-56-1
Revision Date 1987-01-01
New Jersey Right To Know Components

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

16. OTHER INFORMATION

Further information
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