

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1 Product identifiers

Product name : Methanol solution

Product Number : 632546

Brand : Sigma-Aldrich

Index-No. : 603-001-00-X

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

#### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

#### 1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

##### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225  
Acute toxicity, Oral (Category 3), H301  
Acute toxicity, Inhalation (Category 3), H331  
Acute toxicity, Dermal (Category 3), H311  
Specific target organ toxicity - single exposure (Category 1), H370

For the full text of the H-Statements mentioned in this Section, see Section 16.

#### 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour.  
H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled.  
H370 Causes damage to organs.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.

|                    |   |
|--------------------|---|
| P260               | Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.   |
| P264               | Wash skin thoroughly after handling.  |
| P270               | Do not eat, drink or smoke when using this product.   |
| P271               | Use only outdoors or in a well-ventilated area.   |
| P280               | Wear protective gloves/ protective clothing/ eye protection/ face protection.                           |
| P301 + P310 + P330 | IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.                                     |
| P303 + P361 + P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.     |
| P304 + P340 + P311 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor. |
| P307 + P311        | IF exposed: Call a POISON CENTER or doctor/ physician.  |
| P362               | Take off contaminated clothing and wash before reuse.   |
| P370 + P378        | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.                    |
| P403 + P233        | Store in a well-ventilated place. Keep container tightly closed.  |
| P403 + P235        | Store in a well-ventilated place. Keep cool.  |
| P405               | Store locked up.  |
| P501               | Dispose of contents/ container to an approved waste disposal plant.                                     |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2 Mixtures

|                  |                     |
|------------------|---------------------|
| Formula          | : CH <sub>4</sub> O |
| Molecular weight | : 32.04 g/mol       |

#### Hazardous components

| Component           | Classification        | Concentration |
|---------------------|-----------------------|---------------|
| <b>Methanol</b>     |                       |               |
| CAS-No.             | 67-56-1               | 90 - 100 %    |
| EC-No.              | 200-659-6             |               |
| Index-No.           | 603-001-00-X          |               |
| Registration number | 01-2119433307-44-XXXX |               |
| <b>Formic acid</b>  |                       |               |
| CAS-No.             | 64-18-6               | 0.1 - 1 %     |
| EC-No.              | 200-579-1             |               |
| Index-No.           | 607-001-00-0          |               |

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of 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

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.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed**

No data available

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**5. FIREFIGHTING MEASURES****5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

No data available

**5.3 Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Further information**

Use water spray to cool unopened containers.

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**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid breathing vapours, 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.

For personal protection see section 8.

**6.2 Environmental precautions**

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

**6.3 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).

**6.4 Reference to other sections**

For disposal see section 13.

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**7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. 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.

For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

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.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters****Components with workplace control parameters**

| Component | CAS-No. | Value  | Control parameters                 | Basis  |
|-----------|---------|--|------------------------------------|--|
| Methanol  | 67-56-1 | TWA  | 200.000000 ppm                     | USA. ACGIH Threshold Limit Values (TLV)  |
|           | Remarks | Headache<br>Nausea<br>Dizziness<br>Eye damage<br>Substances for which there is a Biological Exposure Index or Indices (see BEI® section)<br>Danger of cutaneous absorption |                                    |  |
|           |         | STEL   | 250.000000 ppm                     | USA. ACGIH Threshold Limit Values (TLV)  |
|           |         | Headache<br>Nausea<br>Dizziness<br>Eye damage<br>Substances for which there is a Biological Exposure Index or Indices (see BEI® section)<br>Danger of cutaneous absorption |                                    |  |
|           |         | TWA  | 200.000000 ppm<br>260.000000 mg/m3 | USA. NIOSH Recommended Exposure Limits   |
|           |         | Potential for dermal absorption  |                                    |  |
|           |         | ST   | 250.000000 ppm<br>325.000000 mg/m3 | USA. NIOSH Recommended Exposure Limits   |
|           |         | Potential for dermal absorption  |                                    |  |
|           |         | TWA  | 200.000000 ppm<br>260.000000 mg/m3 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|           |         | The value in mg/m3 is approximate.   |                                    |  |
|           |         | TWA  | 200 ppm                            | USA. ACGIH Threshold Limit Values (TLV)  |
|           |         | Headache<br>Nausea<br>Dizziness<br>Eye damage<br>Substances for which there is a Biological Exposure Index or Indices (see BEI® section)<br>Danger of cutaneous absorption |                                    |  |
|           |         | STEL   | 250 ppm                            | USA. ACGIH Threshold Limit Values (TLV)  |
|           |         | Headache<br>Nausea<br>Dizziness<br>Eye damage<br>Substances for which there is a Biological Exposure Index or Indices (see BEI® section)<br>Danger of cutaneous absorption |                                    |  |
|           |         | TWA  | 200 ppm<br>260 mg/m3               | USA. NIOSH Recommended Exposure Limits   |
|           |         | Potential for dermal absorption  |                                    |  |

|             |         |   |                                |   |
|-------------|---------|---|--------------------------------|---|
|             |         | ST  | 250 ppm<br>325 mg/m3           | USA. NIOSH Recommended Exposure Limits  |
|             |         | Potential for dermal absorption   |                                |   |
|             |         | TWA   | 200 ppm<br>260 mg/m3           | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants        |
|             |         | The value in mg/m3 is approximate.                                      |                                |   |
|             |         | STEL  | 250 ppm<br>325 mg/m3           | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000                           |
|             |         | Skin notation   |                                |   |
|             |         | TWA   | 200 ppm<br>260 mg/m3           | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000                           |
|             |         | Skin notation   |                                |   |
|             |         | C   | 1,000 ppm                      | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|             |         | Skin  |                                |   |
|             |         | PEL   | 200 ppm<br>260 mg/m3           | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|             |         | Skin  |                                |   |
|             |         | STEL  | 250 ppm<br>325 mg/m3           | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|             |         | Skin  |                                |   |
| Formic acid | 64-18-6 | TWA   | 5.000000 ppm                   | USA. ACGIH Threshold Limit Values (TLV)   |
|             |         | Upper Respiratory Tract irritation<br>Eye irritation<br>Skin irritation |                                |   |
|             |         | STEL  | 10.000000 ppm                  | USA. ACGIH Threshold Limit Values (TLV)   |
|             |         | Upper Respiratory Tract irritation<br>Eye irritation<br>Skin irritation |                                |   |
|             |         | TWA   | 5.000000 ppm<br>9.000000 mg/m3 | USA. NIOSH Recommended Exposure Limits  |
|             |         | TWA   | 5.000000 ppm<br>9.000000 mg/m3 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants        |
|             |         | The value in mg/m3 is approximate.                                      |                                |   |
|             |         | PEL   | 5 ppm<br>9 mg/m3               | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|             |         | STEL  | 10 ppm<br>19 mg/m3             | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

#### Biological occupational exposure limits

| Component | CAS-No. | Parameters   | Value        | Biological specimen | Basis                                     |
|-----------|---------|--|--------------|---------------------|---|
| Methanol  | 67-56-1 | Methanol   | 15.0000 mg/l | Urine               | ACGIH - Biological Exposure Indices (BEI) |
|           | Remarks | End of shift (As soon as possible after exposure ceases) |              |                     |   |
|           |         | Methanol   | 15 mg/l      | Urine               | ACGIH - Biological Exposure Indices (BEI) |
|           |         | End of shift (As soon as possible after exposure ceases) |              |                     |   |

## 8.2 Exposure controls

### Appropriate engineering controls

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

### Personal protective equipment

#### Eye/face 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 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.

#### Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

#### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 30 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### 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.

#### 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).

#### Control of environmental exposure

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- |  |  |
|--|--|
| a) Appearance                              | Form: liquid<br>Colour: colourless         |
| b) Odour                                   | No data available                          |
| c) Odour Threshold                         | No data available                          |
| d) pH                                      | No data available                          |
| e) Melting point/freezing point            | No data available                          |
| f) Initial boiling point and boiling range | 64.7 °C (148.5 °F) at 1,013 hPa (760 mmHg) |
| g) Flash point                             | 11 °C (52 °F) - closed cup                 |

- |   |  |
|---|--|
| h) Evaporation rate                             | No data available                        |
| i) Flammability (solid, gas)                    | No data available                        |
| j) Upper/lower flammability or explosive limits | No data available                        |
| k) Vapour pressure                              | No data available                        |
| l) Vapour density                               | No data available                        |
| m) Relative density                             | 0.791 g/cm <sup>3</sup> at 25 °C (77 °F) |
| n) Water solubility                             | No data available                        |
| o) Partition coefficient: n-octanol/water       | No data available                        |
| p) Auto-ignition temperature                    | No data available                        |
| q) Decomposition temperature                    | No data available                        |
| r) Viscosity                                    | No data available                        |
| s) Explosive properties                         | No data available                        |
| t) Oxidizing properties                         | No data available                        |

## 9.2 Other safety information

No data available

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

### 10.4 Conditions to avoid

Heat, flames and sparks.

### 10.5 Incompatible materials

Strong bases, Acids, Oxidizing agents, Alkali metals, Powdered metals, Strong oxidizing agents, Acid chlorides, Acid anhydrides, Reducing agents

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

No data available

#### Respiratory or skin sensitisation

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.

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

No data available

### Specific target organ toxicity - single exposure

No data available

### Specific target organ toxicity - repeated exposure

No data available

### Aspiration hazard

No data available

### Additional Information

RTECS: Not available

Methyl alcohol may be fatal or cause blindness if swallowed., Cannot be made non-poisonous., Effects due to ingestion may include:, Nausea, Dizziness, Gastrointestinal disturbance, Weakness, Confusion., Drowsiness, Unconsciousness, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

Kidney - Irregularities - Based on Human Evidence (Formic acid)

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## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

No data available

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## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### 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: 1230      Class: 3      Packing group: II  
Proper shipping name: Methanol, solution  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No

### IMDG

UN number: 1230      Class: 3 (6.1)      Packing group: II      EMS-No: F-E, S-D  
Proper shipping name: METHANOL, SOLUTION

### IATA

UN number: 1230      Class: 3 (6.1)      Packing group: II  
Proper shipping name: Methanol, solution

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## 15. REGULATORY INFORMATION

### SARA 302 Components

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:

|          | CAS-No. | Revision Date |
|----------|---------|---------------|
| Methanol | 67-56-1 | 2007-07-01    |

### SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

|          | CAS-No. | Revision Date |
|----------|---------|---------------|
| Methanol | 67-56-1 | 2007-07-01    |

### Pennsylvania Right To Know Components

|             | CAS-No. | Revision Date |
|-------------|---------|---------------|
| Methanol    | 67-56-1 | 2007-07-01    |
| Formic acid | 64-18-6 | 2007-07-01    |

### New Jersey Right To Know Components

|          | CAS-No. | Revision Date |
|----------|---------|---------------|
| Methanol | 67-56-1 | 2007-07-01    |

### California Prop. 65 Components

|   | CAS-No. | Revision Date |
|---|---------|---------------|
| WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. | 67-56-1 | 2012-03-16    |

Methanol

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## 16. OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3.

|                    |   |
|--------------------|---|
| Acute Tox.         | Acute toxicity  |
| Aquatic Acute      | Acute aquatic toxicity                                  |
| Eye Dam.           | Serious eye damage                                      |
| Flam. Liq.         | Flammable liquids                                       |
| H225               | Highly flammable liquid and vapour.                     |
| H226               | Flammable liquid and vapour.                            |
| H301               | Toxic if swallowed.                                     |
| H301 + H311 + H331 | Toxic if swallowed, in contact with skin or if inhaled. |
| H302               | Harmful if swallowed.                                   |

|            |  |
|------------|--|
| H311       | Toxic in contact with skin.                      |
| H314       | Causes severe skin burns and eye damage.         |
| H318       | Causes serious eye damage.                       |
| H331       | Toxic if inhaled.                                |
| H370       | Causes damage to organs.                         |
| H402       | Harmful to aquatic life.                         |
| Skin Corr. | Skin corrosion                                   |
| STOT SE    | Specific target organ toxicity - single exposure |

#### HMIS Rating

|                        |   |
|------------------------|---|
| Health hazard:         | 2 |
| Chronic Health Hazard: | * |
| Flammability:          | 3 |
| Physical Hazard        | 0 |

#### NFPA Rating

|                    |   |
|--------------------|---|
| Health hazard:     | 2 |
| Fire Hazard:       | 3 |
| Reactivity Hazard: | 0 |

#### Further information

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#### Preparation Information

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

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