SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name: Methanol
Product Number: 179337
Brand: SIGALD
Index-No.: 603-001-00-X
CAS-No.: 67-56-1

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 Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 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), Eyes, 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

SIGALD - 179337
Hazard statement(s)
H225 Highly flammable liquid and vapor.
H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled.
H370 Causes damage to organs (Eyes).

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/ vapors/ 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/ 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

SECTION 3: Composition/information on ingredients

3.1 Substances
Synonyms : Methyl alcohol

Formula : CH₄O
Molecular weight : 32.04 g/mol
CAS-No. : 67-56-1
EC-No. : 200-659-6
Index-No. : 603-001-00-X

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
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</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301, H331, H311, H370</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

SIGALD - 179337
For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures
No data available

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

SECTION 5: Firefighting measures

5.1 Extinguishing media
No data available

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.

5.3 Advice for firefighters
No data available

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
For personal protection see section 8.

6.2 Environmental precautions
No data available

6.3 Methods and materials for containment and cleaning up
No data available

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.
### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

<table>
<thead>
<tr>
<th>Ingredients with workplace control parameters</th>
</tr>
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<tbody>
<tr>
<td><strong>Component</strong></td>
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<tr>
<td>Methanol</td>
</tr>
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</table>

#### Biological occupational exposure limits

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Component</strong></td>
</tr>
<tr>
<td>Methanol</td>
</tr>
</tbody>
</table>

Remarks: End of shift (As soon as possible after exposure ceases)
Derived No Effect Level (DNEL)

<table>
<thead>
<tr>
<th>Application Area</th>
<th>Routes of exposure</th>
<th>Health effect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>40mg/kg BW/d</td>
</tr>
<tr>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>8mg/kg BW/d</td>
</tr>
<tr>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>8mg/kg BW/d</td>
</tr>
<tr>
<td>Workers</td>
<td>Skin contact</td>
<td>Acute systemic effects</td>
<td>40mg/kg BW/d</td>
</tr>
<tr>
<td>Consumers</td>
<td>Skin contact</td>
<td>Acute systemic effects</td>
<td>8mg/kg BW/d</td>
</tr>
<tr>
<td>Consumers</td>
<td>Ingestion</td>
<td>Acute systemic effects</td>
<td>8mg/kg BW/d</td>
</tr>
<tr>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute systemic effects</td>
<td>260 mg/m3</td>
</tr>
<tr>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>260 mg/m3</td>
</tr>
<tr>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>260 mg/m3</td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td>Acute systemic effects</td>
<td>50 mg/m3</td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>50 mg/m3</td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>50 mg/m3</td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>50 mg/m3</td>
</tr>
</tbody>
</table>

Predicted No Effect Concentration (PNEC)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Soil</td>
<td>23.5 mg/kg</td>
</tr>
<tr>
<td>Sea water</td>
<td>15.4 mg/l</td>
</tr>
<tr>
<td>Fresh water</td>
<td>154 mg/l</td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>570.4 mg/kg</td>
</tr>
<tr>
<td>Onsite sewage treatment plant</td>
<td>100 mg/kg</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Personal protective equipment

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: 0.7 mm
Break through time: > 480 min
Material tested: KCL 898 Butoject®

Splash contact
Material: Viton®
Minimum layer thickness: 0.7 mm
Break through time: > 120 min
Material tested: KCL 890 Vitoject®

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 EC 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.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
   - Form: liquid
   - Color: colorless

b) Odor
   - Characteristic

c) Odor Threshold
   - No data available

d) pH
   - No data available

e) Melting point/freezing point
   - Melting point range: -98 °C (-144 °F)

f) Initial boiling point and boiling range
   - 64.7 °C 148.5 °F

g) Flash point
   - 9.7 °C (49.5 °F) - closed cup - Tested according to Directive 92/69/EEC.

h) Evaporation rate
   - 6.3 - Diethyl ether 1.9 - n-butyl acetate

i) Flammability (solid, gas)
   - No data available

j) Upper/lower flammability or explosive limits
   - Upper explosion limit: 44 %(V)
   - Lower explosion limit: 5.5 %(V)

k) Vapor pressure
   - 128 hPa at 20 °C (68 °F)

l) Vapor density
   - 1.11

m) Density
   - 0.791 g/mL at 25 °C (77 °F)
   - Relative density
   - No data available

n) Water solubility
   - Completely miscible

o) Partition coefficient: n-octanol/water
   - log Pow: -0.77 at 25 °C (77 °F) - (Lit.), Bioaccumulation is not expected.

p) Autoignition temperature
   - 455.0 °C (851.0 °F) at 1,013 hPa - DIN 51794

q) Decomposition temperature
   - Distillable in an undecomposed state at normal pressure.

r) Viscosity
   - 0.54 - 0.59 mm2/s at 20 °C (68 °F)

s) Explosive properties
   - No data available

t) Oxidizing properties
   - None

9.2 Other safety information

Minimum ignition energy
   - 0.14 mJ

Conductivity
   - < 1 µS/cm
SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
No data available

10.3 Possibility of hazardous reactions
Risk of explosion with:
Oxidizing agents
Halogens
sodium hypochlorite
sulfuric acid
nitrogen oxides
chlorates
chromium(VI) oxide
chromosulfuric acid
halogen oxides
hydrides
salts of oxyhalogenic acids
perchlorates
 perchloric acid
permanganic acid
hydrogen peroxide
zinc diethyl
nonmetallic oxides
powdered magnesium
Nitric acid
Exothermic reaction with:
Acids
Chloroform
Acid anhydrides
Reducing agents
Bromine
Chlorine
tetrachloromethane
acid halides
magnesium
Risk of ignition or formation of inflammable gases or vapours with:
Fluorine
Oxides of phosphorus
Raney-nickel
Generates dangerous gases or fumes in contact with:
Alkali metals
Alkaline earth metals

10.4 Conditions to avoid
No data available
10.5 Incompatible materials
Magnesium, zinc alloys, various plastics
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 100.1 mg/kg
(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Symptoms: Nausea, Vomiting
Acute toxicity estimate Inhalation - 4 h - 3.1 mg/l - vapor
(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Symptoms: Irritation symptoms in the respiratory tract.
Acute toxicity estimate Dermal - 300.1 mg/kg
(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
Remarks: (ECHA)
Remarks: Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
Remarks: (ECHA)

Respiratory or skin sensitization
Sensitisation test: - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Based on available data the classification criteria are not met.
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

**Carcinogenicity**
Did not show carcinogenic effects in animal experiments.

IARC: No ingredient 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 ingredient 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 on OSHA’s list of regulated carcinogens.

**Reproductive toxicity**
Based on available data the classification criteria are not met.

**Specific target organ toxicity - single exposure**
Causes damage to organs. - Eyes, Central nervous system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

11.2 Additional Information

RTECS: PC1400000
Acute effects:, Headache, Dizziness, Drowsiness, narcosis, Blindness, Impairment of vision, irritant effects, Nausea, Vomiting, agitation, spasms, inebriation, Coma
Drying-out effect resulting in rough and chapped skin.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

acidosis
drop in blood pressure
agitation, spasms
inebriation
Dizziness
Drowsiness
Headache
Impairment of vision
Blindness
narcosis
Coma

Symptoms may be delayed.

Damage to:

Liver
Kidney
Cardiac
Irreversible damage of the optical nerve.
Other dangerous properties can not be excluded.
This substance should be handled with particular care.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish
- Flow-through test LC50 - Lepomis macrochirus (Bluegill) - 15,400.0 mg/l - 96 h
  (US-EPA)

Toxicity to daphnia and other aquatic invertebrates
- Semi-static test EC50 - Daphnia magna (Water flea) - 18,260 mg/l - 96 h
  (OECD Test Guideline 202)

Toxicity to algae
- Static test ErC50 - Pseudokirchneriella subcapitata (green algae) - ca. 22,000.0 mg/l - 96 h
  (OECD Test Guideline 201)

Toxicity to bacteria
- Static test IC50 - activated sludge - > 1,000 mg/l - 3 h
  (OECD Test Guideline 209)

Toxicity to fish (Chronic toxicity)
- NOEC - Oryzias latipes (Orange-red killifish) - 7,900 mg/l - 200 h
  Remarks: (External MSDS)

12.2 Persistence and degradability

Biodegradability
- Result: 99 % - Readily biodegradable.
  (OECD Test Guideline 301D)

Biochemical Oxygen Demand (BOD)
- 600 - 1,120 mg/g
  Remarks: (IUCLID)

Chemical Oxygen Demand (COD)
- 1,420 mg/g
  Remarks: (IUCLID)

Theoretical oxygen demand
- 1,500 mg/g
  Remarks: (Lit.)

Ratio BOD/ThBOD
- 76 %
  Remarks: Closed Bottle test (IUCLID)

12.3 Bioaccumulative potential

Bioaccumulation
- Cyprinus carpio (Carp) - 72 d
  at 20 °C - 5 mg/l (Methanol)

Bioconcentration factor (BCF): 1.0

12.4 Mobility in soil

Will not adsorb on soil.
12.5 **Results of PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 **Endocrine disrupting properties**
No data available

12.7 **Other adverse effects**

- Additional ecological information
- Avoid release to the environment.

- Stability in water
  - at 19 °C83 - 91 % - 72 h
  - Remarks: Hydrolyzes on contact with water.Hydrolyzes readily.
  - Remarks: reaction with hydroxyl radicals(IUCLID)

SECTION 13: Disposal considerations

13.1 **Waste treatment methods**
No data available

SECTION 14: Transport information

**DOT (US)**
- UN number: 1230  Class: 3
- Proper shipping name: Methanol
- Reportable Quantity (RQ): 5000 lbs
- Reportable Quantity (RQ): 100 lbs
- Reportable Quantity (RQ): 5000 lbs
- Poison Inhalation Hazard: No

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

**IATA**
- UN number: 1230  Class: 3 (6.1)
- Proper shipping name: Methanol
- Packing group: II

SECTION 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:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>
**SARA 311/312 Hazards**
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Reportable Quantity**  
F003 lbs

**Massachusetts Right To Know Components**

<table>
<thead>
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<th>Component</th>
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</table>

**Pennsylvania Right To Know Components**

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<th>CAS-No.</th>
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<tr>
<td>Methanol</td>
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<td>2007-07-01</td>
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**California Prop. 65 Components**

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</thead>
<tbody>
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<td>67-56-1</td>
<td>2012-03-16</td>
</tr>
</tbody>
</table>

*which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.*

**SECTION 16: Other information**
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.7  
Revision Date: 03/18/2023  
Print Date: 07/15/2023