SAFETY DATA SHEET

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

1.1 Product identifiers

Product name: 1-Methoxy-2-propanol EMPLURA®

Product Number: 1.16738
Catalogue No.: 116738
Brand: Millipore
CAS-No.: 107-98-2

1.2 Other means of identification

No data available

1.3 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Chemical production, Solvent

1.4 Details of the supplier of the safety data sheet

Company: SIGMA-ALDRICH NEW ZEALAND CO.
PO Box 106-406
1143 AUCKLAND
NEW ZEALAND

Telephone: 0800 936 666
Fax: 0800 937 777

1.5 Emergency telephone

Emergency Phone #: 0800 928 888 (NZ)
+64 9 801 0034 (Int’l CHEMTREC)

SECTION 2: Hazards identification

2.1 GHS Classification

Flammable Liquids (Category C), H226
Acute toxicity, Oral (Category E), H303
Toxic to Reproduction (Category A), H360
Specific Target Organ Toxicity (Category B), Central nervous system, H336

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)

H226 Flammable liquid and vapor.
H303 May be harmful if swallowed.
H336 May cause drowsiness or dizziness.
H360 May damage fertility or the unborn child.
Precautionary statement(s)

Prevention
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
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.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage
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.

Disposal
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards - none

SECTION 3: Composition/information on ingredients

Substance / Mixture : Substance

3.1 Substances

Formula : C4H10O2
Molecular weight : 90.12 g/mol
CAS-No. : 107-98-2
EC-No. : 203-539-1
Index-No. : 603-064-00-3

Hazardous ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-methoxy-2-propanol</td>
<td>3.1 C; 6.1 E; 6.9 B; H226, H303, H336</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>2-methoxy-1-propanol</td>
<td>3.1 C; 6.3 A; 8.3 A; 6.8 A;</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

4.1 Description of first-aid measures

**General advice**
Show this material safety data sheet to the doctor in attendance.

**If inhaled**
After inhalation: fresh air. Call in physician.

**In case of skin contact**
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

**In case of eye contact**
After eye contact: rinse out with plenty of water. Remove contact lenses.

**If swallowed**
After swallowing: immediately make victim drink water (two glasses at most). 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

SECTION 5: Firefighting measures

5.1 Extinguishing media

**Suitable extinguishing media**
Water Foam Carbon dioxide (CO2) Dry powder

**Unsuitable extinguishing media**
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Protected from light. Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-methoxy-2-propanol</td>
<td>107-98-2</td>
<td>WES-TWA</td>
<td>100 ppm 369 mg/m³</td>
<td>New Zealand. Workplace Exposure Standards for Atmospheric Contaminants</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested: Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 120 min
Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
Form: liquid
Color: colorless

b) Odor
ethanolic

c) Odor Threshold
No data available
d) pH  
No data available

e) Melting point/freezing point  
Melting point: -96 °C at 1,013 hPa - (ECHA)

f) Initial boiling point and boiling range  
118 - 119 °C at 1,013 hPa

g) Flash point  
34 °C - closed cup

h) Evaporation rate  
No data available

i) Flammability (solid, gas)  
No data available

j) Upper/lower flammability or explosive limits  
Upper explosion limit: 16 %(V)  
Lower explosion limit: 1.8 %(V)

k) Vapor pressure  
14.53 hPa at 25 °C

l) Vapor density  
3.11 - (Air = 1.0)

m) Density  
0.921 g/cm³ at 25 °C - DIN 51757  
Relative density  
No data available

n) Water solubility  
1,000 g/l at 20 °C - Regulation (EC) No. 440/2008, Annex, A.6- completely miscible

o) Partition coefficient: n-octanol/water  
Pow: < 1 at 20 °C - Bioaccumulation is not expected.

p) Autoignition temperature  
No data available

q) Decomposition temperature  
No data available

r) Viscosity  
Viscosity, kinematic: No data available  
Viscosity, dynamic: 1.7 mPa.s at 25 °C

s) Explosive properties  
No data available

t) Oxidizing properties  
none

9.2 Other safety information

Surface tension  
70.7 mN/m at 1g/l at 20 °C  
- OECD Test Guideline 115

Relative vapor density  
3.11 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity  
Can violently decompose at elevated temperatures  
Stable under recommended storage conditions.  
Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability  
Sensitive to air.  
The product is chemically stable under standard ambient conditions (room temperature) .
10.3 Possibility of hazardous reactions
Violent reactions possible with:
- Strong oxidizing agents
- Acid halides
- Acid anhydrides
- Acid chlorides
Generates dangerous gases or fumes in contact with:
- Hydrides

10.4 Conditions to avoid
May form explosive peroxides.
Heating.

10.5 Incompatible materials
- Strong oxidizing agents

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

**Acute toxicity**
Acute toxicity estimate Oral - 4,028 mg/kg
(Calculation method)
LD50 Oral - Rat - male and female - 4,016 mg/kg
(EC Directive 92/69/EEC B.1 Acute Toxicity (Oral))
Symptoms: Nausea, Vomiting, Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.
LC50 Inhalation - Rat - 4 h - > 6 mg/l - aerosol

Remarks: (IUCLID)
Inhalation: Irritating to respiratory system.
LD50 Dermal - Rat - male and female - > 2,000 mg/kg

**Skin corrosion/irritation**
Skin - Rabbit
Result: No skin irritation - 4 h

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: No eye irritation
(Regulation (EC) No. 440/2008, Annex, B.5)

**Respiratory or skin sensitization**
Maximization Test - Guinea pig
Result: negative

**Germ cell mutagenicity**
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: without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

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

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness. - 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
Repeated dose toxicity - Rabbit - male and female - Dermal - 21 Days - NOAEL (No observed adverse effect level) - > 1,000 mg/kg

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption of toxic quantities:

CNS disorders
narcosis

Toxic effect on:

Liver
Kidney

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.
SECTION 12: Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>static test LC50 - Leuciscus idus (Golden orfe) - 6,812 mg/l - 96 h (DIN 38412 part 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>static test LC50 - Daphnia magna (Water flea) - 23,300 mg/l - 48 h</td>
</tr>
<tr>
<td>Toxicity to algae</td>
<td>static test ErC50 - Pseudokirchneriella subcapitata (green algae) - &gt; 1,000 mg/l - 7 d</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

Biodegradability: aerobic Dissolved organic carbon (DOC) - Exposure time 28 d | Result: 96 % - Readily biodegradable. (OECD Test Guideline 301E)

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 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

14.1 UN number

| ADR/RID: 3092 | IMDG: 3092 | IATA-DGR: 3092 |

14.2 UN proper shipping name

| ADR/RID: | 1-METHOXY-2-PROpanol |
| IMDG: | 1-METHOXY-2-PROpanol |
| IATA-DGR: | 1-Methoxy-2-propanol |

14.3 Transport hazard class(es)

| ADR/RID: 3 | IMDG: 3 | IATA-DGR: 3 |
14.4 Packaging group
ADR/RID: III  IMDG: III  IATA-DGR: III

14.5 Environmental hazards
ADR/RID: no  IMDG Marine pollutant: no  IATA-DGR: no

14.6 Special precautions for user
None

14.7 Incompatible materials
Strong oxidizing agents

**Other regulations**
Hazchem Code: •2Y

**SECTION 15: Regulatory information**

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**National regulatory information**
HSNO Approval Code: HSR001187

HSNO Group Standard Approval: not required
Tracking Required: not required
Approved Handler Cert.: not required

**Notification status**
DSL: All components of this product are on the Canadian DSL
ENCS: On the inventory, or in compliance with the inventory
ISHL: On the inventory, or in compliance with the inventory
KECI: On the inventory, or in compliance with the inventory
NZIoC: On the inventory, or in compliance with the inventory
PICCS: On the inventory, or in compliance with the inventory

**SECTION 16: Other information**

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

H226 Flammable liquid and vapor.
H303 May be harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.
H360 May damage fertility or the unborn child.
Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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