

## SAFETY DATA SHEET

Version 5.1  
Revision Date 04/12/2017  
Print Date 10/25/2018

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	: LIMONENE		
Product Number	: CRM40448		
Brand	: Supelco		
Product Use	: For laboratory research purposes.		
Supplier	: Sigma-Aldrich Canada Co. 2149 Winston Park Drive OAKVILLE ON L6H 6J8 CANADA	Manufacturer	: Sigma-Aldrich Corporation 3050 Spruce St. St. Louis, Missouri 63103 USA
Telephone	: +1 9058299500		
Fax	: +1 9058299292		
Emergency Phone # (For both supplier and manufacturer)	: +1-703-527-3887 (CHEMTREC)		
Preparation Information	: Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956		

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

#### Target Organs

Eyes, Kidney, Liver, Heart, Central nervous system

#### WHMIS Classification

B2	Flammable liquid	Flammable liquid
D1B	Toxic Material Causing Immediate and Serious Toxic Effects	Toxic by ingestion
		Toxic by skin absorption
		Toxic by inhalation.
		Specific target organ toxicity - single exposure

#### GHS Classification

Flammable liquids (Category 2)  
Acute toxicity, Oral (Category 3)  
Acute toxicity, Inhalation (Category 3)  
Acute toxicity, Dermal (Category 3)  
Skin sensitisation (Category 1)  
Specific target organ toxicity - single exposure (Category 1)  
Acute aquatic toxicity (Category 3)  
Chronic aquatic toxicity (Category 3)

#### 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.

H317	May cause an allergic skin reaction.
H370	Causes damage to organs.
H412	Harmful to aquatic life with long lasting effects.
<b>Precautionary statement(s)</b>	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
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.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
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.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor.
P308 + P311	IF exposed or concerned: Call a POISON CENTER/doctor.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
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.

#### HMIS Classification

<b>Health hazard:</b>	2
<b>Chronic Health Hazard:</b>	*
<b>Flammability:</b>	3
<b>Physical hazards:</b>	0

#### Potential Health Effects

<b>Inhalation</b>	Toxic if inhaled. May cause respiratory tract irritation.
<b>Skin</b>	Toxic if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.
<b>Ingestion</b>	Toxic if swallowed.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS-No.	EC-No.	Index-No.	Concentration
<b>Methanol</b>			
67-56-1	200-659-6	603-001-00-X	99.8 %
<b>p-Mentha-1,8-diene</b>			
138-86-3	205-341-0	601-029-00-7	0.2 %

### 4. 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.

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

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

**Special protective equipment for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**Hazardous combustion products****Explosion data - sensitivity to mechanical impact**

No data available

**Explosion data - sensitivity to static discharge**

No data available

**Further information**

Use water spray to cool unopened containers.

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

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.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**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).

**7. HANDLING AND STORAGE****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.

**Conditions for safe storage**

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.

Recommended storage temperature 2 - 8 °C

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

Components	CAS-No.	Value	Control parameters	Basis
Methanol	67-56-1	TWA	200.000000 ppm 262.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Substance may be readily absorbed through intact skin			

		STEL	250.000000 ppm 328.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Substance may be readily absorbed through intact skin				
		TWA	200.000000 ppm	Canada. British Columbia OEL
Contributes significantly to the overall exposure by the skin route.				
		STEL	250.000000 ppm	Canada. British Columbia OEL
Contributes significantly to the overall exposure by the skin route.				
		TWAEV	200.000000 ppm 262.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Skin (percutaneous)				
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		STEV	250 ppm 328 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Skin (percutaneous)				
		TWA	200.000000	USA. ACGIH Threshold Limit Values (TLV)

			ppm	
		STEL	250.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
		STEL	250 ppm	USA. ACGIH Threshold Limit Values (TLV)

## 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. 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.

### Eye 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 and 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.

### Hygiene measures

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

### Specific engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	liquid
Colour	colourless

### Safety data

pH	No data available
Melting point/freezing point	Melting point/range: -98.0 °C (-144.4 °F)
Boiling point	64.0 - 65.0 °C (147.2 - 149.0 °F) at 1,013 hPa (760 mmHg)
Flash point	9.7 °C (49.5 °F) - closed cup
Ignition temperature	455 °C (851 °F)
Auto-ignition temperature	455.0 °C (851.0 °F) at 1,013 hPa (760 mmHg)
Lower explosion limit	6 %(V)
Upper explosion limit	36 %(V)
Vapour pressure	130.3 hPa (97.7 mmHg) at 20.0 °C (68.0 °F) 546.6 hPa (410.0 mmHg) at 50.0 °C (122.0 °F) 169.27 hPa (126.96 mmHg) at 25.0 °C (77.0 °F)
Density	0.79 g/cm <sup>3</sup> at 20 °C (68 °F)

Water solubility	completely miscible
Partition coefficient: n-octanol/water	log Pow: -0.77
Relative vapour density	1.11
Odour	pungent
Odour Threshold	No data available
Evaporation rate	No data available

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions. Stable under recommended storage conditions.

### Possibility of hazardous reactions

Vapours may form explosive mixture with air.

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### Conditions to avoid

Heat, flames and sparks.

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

Other decomposition products - No data available

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

Oral LD50

Inhalation LC50

Dermal LD50

Other information on acute toxicity

No data available

### Skin corrosion/irritation

No data available

### Serious eye damage/eye irritation

Eyes: 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.

### Reproductive toxicity

No data available

### Teratogenicity

No data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

No data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

No data available

**Aspiration hazard**

No data available

**Potential health effects**

<b>Inhalation</b>	Toxic if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	Toxic if swallowed.
<b>Skin</b>	Toxic if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.

**Signs and Symptoms of Exposure**

Methyl alcohol may be fatal or cause blindness if swallowed.

Effects due to ingestion may include:, Headache, Dizziness, Drowsiness, metabolic acidosis, Coma, Seizures.

Symptoms may be delayed., Damage of the:, Liver, Kidney

**Synergistic effects**

No data available

**Additional Information**

RTECS: Not available

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**12. ECOLOGICAL INFORMATION**

**Toxicity**

No data available

**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**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life with long lasting effects.

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**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. 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):

Marine pollutant: No  
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  
Marine pollutant: No

**IATA**

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

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**15. REGULATORY INFORMATION**

**WHMIS Classification**

B2	Flammable liquid	Flammable liquid
D1B	Toxic Material Causing Immediate and Serious Toxic Effects	Toxic by ingestion Toxic by skin absorption Toxic by inhalation. Specific target organ toxicity - single exposure

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

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**16. OTHER INFORMATION**

**Text of H-code(s) and R-phrase(s) mentioned in Section 3**

**Further information**

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