

SAFETY DATA SHEET

Version 5.6
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	α -Pinene	
Product Number	:	147524	
Brand	:	Aldrich	
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	
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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

WHMIS Classification

B2	Flammable liquid	Flammable liquid
D2B	Toxic Material Causing Other Toxic Effects	Moderate skin irritant Skin sensitiser

GHS Classification

Flammable liquids (Category 3)
Acute toxicity, Oral (Category 5)
Skin corrosion/irritation (Category 2)
Skin sensitisation (Category 1)
Aspiration hazard (Category 1)
Acute aquatic toxicity (Category 3)
Chronic aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H226	Flammable liquid and vapour.
H303	May be harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H402	Harmful to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

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.
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
 P264 Wash skin thoroughly after handling.
 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 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
 P312 Call a POISON CENTER/doctor if you feel unwell.
 P331 Do NOT induce vomiting.
 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.
 P391 Collect spillage.
 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

Health hazard: 2
Flammability: 3
Physical hazards: 0

Potential Health Effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : alpha-Pinene
 Formula : C₁₀H₁₆
 Molecular weight : 136.23 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
α-Pinene			
80-56-8	201-291-9	-	<=100%

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. 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

Dry powder Dry sand

Extinguishing media which shall not be used for safety reasons

Do NOT use water jet.

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

Use personal protective equipment. 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 non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe 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.

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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
α -Pinene	80-56-8	TWAEV	20.000000 ppm	Canada. Ontario OELs
		TWA	20.000000 ppm	Canada. British Columbia OEL
Remarks	Sensitizer: sensitization critical effect			
		TWA	20.000000 ppm 111.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required			
		TWA	20.000000 ppm	Canada. British Columbia OEL

	Sensitizer: sensitization critical effect			
		TWAEV	20.000000 ppm 112.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	Sensitizer			
		TWA	20.000000 ppm 111.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required			
		TWA	20.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		TWA	20 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 ABEK (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.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 480 min

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

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 480 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.

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

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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: -64 °C (-83 °F) at 1,013 hPa (760 mmHg)
Boiling point	155 - 156 °C (311 - 313 °F) - lit.
Flash point	31 °C (88 °F) at ca.1,013 hPa (760 mmHg) - closed cup
Ignition temperature	255 °C (491 °F)
Auto-ignition temperature	255 °C (491 °F) at 996 hPa (747 mmHg)
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour pressure	7 hPa (5 mmHg) at 20 °C (68 °F) - OECD Test Guideline 104
Density	0.858 g/cm ³ at 25 °C (77 °F) - lit.
Water solubility	0.00004 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - insoluble
Partition coefficient: n-octanol/water	log Pow: 4.487 - OECD Test Guideline 107
Relative vapour density	No data available
Odour	characteristic
Odour Threshold	No data available
Evaporation rate	No data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

Strong oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50

LD50 Oral - Rat - 3,700 mg/kg

Remarks: Brain and Coverings:Recordings from specific areas of CNS. Behavioral:Somnolence (general depressed activity). Lungs, Thorax, or Respiration:Other changes.

Inhalation LC50

No data available

Dermal LD50

LD50 Dermal - Rabbit - > 5,000 mg/kg

Other information on acute toxicity

No data available

Skin corrosion/irritation

Skin - Human - Irritating to skin. - 15 min - EPISKIN Human Skin Model Test

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Genotoxicity in vitro - Ames test - S. typhimurium - with and without metabolic activation - negative

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

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure

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

Synergistic effects

No data available

Additional Information

Repeated dose toxicity - Mouse - male and female - Inhalation

RTECS: DT7000000

12. ECOLOGICAL INFORMATION**Toxicity**

Toxicity to daphnia EC50 - Daphnia magna (Water flea) - 41 mg/l - 48 h

and other aquatic
invertebrates

Persistence and degradability

Biodegradability aerobic

Result: 62 % - Readily biodegradable.

Method: OECD Test Guideline 301B

Remarks: The 10 day time window criterion is not fulfilled.

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.

Toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. 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: 2368 Class: 3 Packing group: III

Proper shipping name: alpha-Pinene

Reportable Quantity (RQ):

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG

UN number: 2368 Class: 3 Packing group: III EMS-No: F-E, S-E

Proper shipping name: alpha-PINENE

Marine pollutant: No

IATA

UN number: 2368 Class: 3 Packing group: III

Proper shipping name: alpha-Pinene

15. REGULATORY INFORMATION

WHMIS Classification

B2 Flammable liquid
D2B Toxic Material Causing Other Toxic Effects

Flammable liquid
Moderate skin irritant
Skin sensitizer

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.

16. OTHER INFORMATION

Further information

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