SAFETY DATA SHEET

In accordance with Regulation (EC) no. 1907/2006

alpha-Pinene

Version: 1.0/En

Revision date: 04/01/2024 **Supersedes: -**

1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name:	**alpha-Pinene**
Other names:	α-Pinene
Name of substance:	pin-2(3)-ene alpha-Pinene multiconstituent
CAS no./EC no.:	80-56-8/ 201-291-9
REACH registration number:	01-2119519223-49-0017

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

Identified uses:

Life cycle stage	Use
Formulation	Animal feeds
	Fragrance compounds
	Fragrance end-products
Industrial use	Washing and cleaning products
	Monomer for polymerisation
	Intermediate (transformed into another substance)
	Solvent
Professional use	Cleaning agents
	Washing and cleaning products
	Polishes and wax blends

Uses advised against: No uses identified

1.3 Details of the supplier of the safety data sheet

Name:	SunPine AB
Address:	Box 76 941 22 Piteå Sweden
Telephone number:	+46 911-23 28 00
E-mail address of publisher responsible for safety data sheet:	sds@sunpine.se

1.4 Emergency telephone number

Emergency telephone number in Sweden:	112

Telephone number of the Poisons Information Centre:	010-456 67 00
On duty off hours:	Yes

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classified in accordance with Regulation (EC) no. 1272/2008:

Flam. Liquid, 3: H226
Acute tox. 4: H302
Skin irrit. 2: H315
Skin Sens. 1B: H317
Asp. Tox. 1: H304
Aquatic Acute, 1: H400
Aquatic Chronic, 1: H410

See section 16 for full description of hazard classes and hazard statements.

2.2 Labelling details

Labelling in accordance with Regulation (EC) no. 1272/2008

Hazard pictogram:

Signal word: Danger

Hazard statements:
H226: Flammable liquid and vapour
H302: Harmful if swallowed
H315: Causes skin irritation
H317: May cause an allergic skin reaction
H304: May be fatal if swallowed and enters airways
H400: Very toxic to aquatic life
H410: Very toxic to aquatic life with long lasting effects

Precautionary statements:
P273: Avoid release to the environment
P280: Wear protective gloves/protective clothing/eye protection/face protection

P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor
P331: Do NOT induce vomiting.
P302+P352: IF ON SKIN: Wash with plenty of water/soap
P333+P313: If skin irritation or rash occurs: Get medical advice/attention
P501: Dispose of contents/container to approved disposal site

2.3 Other hazards

The product does not fulfil the PBT and vPvB criteria in accordance with Annex XIII to REACH.

3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Classification of components in accordance with the CLP Regulation (1272/2008/EC):

Hazardous substance	Conc. (w/w %)	CAS/ EC No.	Hazard class and category codes	Hazard statements
(+)-pin-2(3)-ene (1R,5R)-2,6,6-trimethylbicyclo[3.1.1]hept-2-ene	50-90	7785-70-8/ 232-087-8	Flam. Liq. 3 Acute Tox. 4 Skin Irrit. 2 Skin Sens. 1B Asp. Tox. 1 Aquatic Acute 1 Aquatic Chronic 1	H226 H302 H315 H317 H304 H400 H410
(-)-pin-2(3)-ene (1S,5S)-2,6,6-trimethylbicyclo[3.1.1]hept-2-ene	15-50	7785-26-4/ 232-077-3	Flam. Liq. 3 Acute Tox. 4 Skin Irrit. 2 Skin Sens. 1B Asp. Tox. 1 Aquatic Acute 1 Aquatic Chronic 1	H226 H302 H315 H317 H304 H400 H410

See section 16 for full wording of hazard phrases. M-factor for alpha-pinen multiconstituent: 1. M (chronic)=1.

4 FIRST AID MEASURES

4.1 Description of first aid measures

If inhalation occurs: Supply fresh air. If symptoms are experienced, get medical attention.In case of unconsciousness place patient stably in side position for transportation.

If skin contact occurs: Immediately rinse with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation or skin rash occurs.

If eye contact occurs: Immediately rinse with plenty of water. Remove contact lenses, if present and easy to do. Hold eyelids apart and flush eyes with plenty of cool low-pressure water for 15 minutes. Consult an ophthalmologist.

If ingestion occurs: Do NOT induce vomiting. If person is conscious, rinse out mouth with water. Call for a doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: Abdominal pain, gastrointestinal discomfort and risk of aspiration.

Skin contact: Causes skin irritation. May cause an allergic skin reaction.

Contact with eyes: May cause irritation, tearing, redness, swelling and blurred vision.

Ingestion: Ingestion and subsequent entry into the airways may be fatal.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Seek medical attention if unsure or in case of persisting adverse health effects. Never give anything by mouth to an unconscious person.

5 FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable media:

Foam, CO_2, fire-extinguishing powder.

Unsuitable media:

Do not use powerful water jet as this can cause the fire to spread.

5.2 Special hazards arising from the substance or mixture

In case of fire, may release irritant and toxic fumes.

5.3 Advice for firefighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus.

Other

Eliminate all fire/ignition sources. Containers in the vicinity of fires should be moved immediately or cooled with water.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment. Keep unprotected persons away. Provide adequate ventilation. Keep away from sources of ignition.

6.2 Environmental precautions
Do not allow product to reach soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (soil, waterways, drains or sewers).

6.3 Methods and material for containment and cleaning up
Small spills: Absorb spilled liquid with inert absorbent. Collect in an appropriate container properly labelled. Close it for disposal.

Large spills: Stop spill if it can be done without danger. Dike. Pump as much liquid as possible with an explosion-proof pump or a hand pump. Absorb the remaining liquid with inert absorbent. Collect in an appropriate container properly labelled. Close it for disposal. Use only non-sparking tools.

6.4 Reference to other sections
See section 8 for information on personal protection equipment and section 13 for disposal information.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling
Wear appropriate personal protective equipment. Provide adequate ventilation in the workplace. Use suitable respiratory protective device in case of insufficient ventilation. Protect against electrostatic charges. Use only non-sparking tools. Protect from heat. Keep ignition sources away.

7.2 Conditions for safe storage, including any incompatibilities
Store in a dry, cool and well-ventilated area. Keep container tightly sealed. All equipment including ventilation systems must be equipotential and earthed. Keep away from sources of ignition. Protect from heat and direct sunlight.

Recommended materials for storage: stainless steel, aluminium

Unsuitable materials for storage: certain plastics and elastomers may not be compatible with the product. Test or get manufacturers recommendation prior to use.

7.3 Specific end use(s)
No data available

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure limits:

Derived no effect level (DNEL) – Workers:

Exposure pattern	Exposure route	Descriptors	Value	Most sensitive endpoint

Acute systemic effects	No risk identified			
Acute local effects	No risk identified			
Long-term systemic effects	Skin	DNEL	0.542 mg/kg bw/day	Fertility
	Inhalation	DNEL	3.8 mg/m3	Fertility
Long-term local effects	No risk identified			

Predicted no effect concentration (PNEC) – Environment:

Protection target	Risk characterisation type	Hazard conclusion
Fresh water	Quantitative	PNEC aqua (freshwater) = 0.606 µg/L
Sediment (freshwater)	Quantitative	PNEC sediment (freshwater) = 157 µg/kg sediment dw
Marine water	Quantitative	PNEC aqua (marine water) = 0.061 µg/L
Sediment (marine water)	Quantitative	PNEC sediment (marine water) = 15.7 µg/kg sediment dw
Sewage Treatment Plant	Quantitative	PNEC STP = 0.2 mg/L
Air	Not needed	No hazard identified
Agricultural soil	Quantitative	PNEC soil = 31.7 µg/kg soil dw
Predators, secondary poisoning	Quantitative	PNEC oral = 8.76 mg/kg food

International limit values:

Substance	alpha-Pinene (cf. Terpenes)			
CAS No.	80-56-8			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m³	ppm	mg/m³
Belgium	20			
Canada - Ontario	20			
Canada - Québec	20	112		
Norway	25 (1)	140 (1)		
Spain	20	113		
Sweden	25	150	50 (1)	300 (1)
Switzerland	20	112	40 (1)	224 (1)

	Remarks
Norway	(1) Skin
Sweden	(1) 15 minutes average value
Switzerland	(1) 15 minutes average value

8.2 Exposure controls

For specific information on personal protective equipment, see the relevant exposure scenario (appendix).

Technical measures:
Keep exposure at all times to a minimum through adequate ventilation. Ensure that there are eye wash facilities in close proximity to the workplace. Immediately remove all soiled and contaminated clothing. Avoid contact with eyes and skin.

Eye/face protection:
Use safety glasses according to standard EN 166. (See the relevant exposure scenario)

Dermal protection/Protective gloves:
Use protective gloves if there is a risk of direct contact or splashes. Use chemical-resistant protective gloves that comply with EN 374-1 with a breakthrough time of at least 480 minutes, for example nitrile rubber. They should be replaced regularly and if there is any indication of degradation or chemical breakthrough. (See the relevant exposure scenario)

For short-term contact or splashes: Gloves with a lower thickness can be used which offer adequate protection against occasional exposures. These gloves should be replaced regularly and after each contact with the substance to ensure continuous protection.

Use protective clothing if there is a risk of direct contact.

Respiratory protection:
Use suitable respiratory protective device in case of insufficient ventilation. Type A gas filters should be used if there is a risk of inhaling vapours, fumes and mist (e.g. when cleaning, working in enclosed spaces and tanks). For more information, see relevant exposure scenario. (See the relevant exposure scenario)

Limitation of environmental exposure:
Collect spillage. Prevent dispersal of spilled materials to waterways, drains and sewers and pollution of soil and vegetation.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state:	Liquid	
Colour:	Colourless	
Odour:	Pine odour	
Odour threshold:	No information	
pH:	Not applicable	
Melting point/freezing point:	No information	
Initial boiling point and boiling range:	130-145 °C	ASTM D6352
Flash point:	31 °C	ASTM D 3828
Evaporation rate:	No information	
Flammability:	No information	
Lower and upper explosive (flammable) limits:	No information	

Vapour pressure:	No information	
Vapour density:	No information	
Relative density:	0.8725	ASTM D4052
Solubility in water:	No information	
Partition coefficient: n-octanol/water:	No information	
Auto-ignition temperature:	No information	
Decomposition temperature:	No information	
Viscosity:	1.4 mPas @20 °C	ASTM D7042
Explosive properties:	Not explosive	
Oxidising properties:	Not oxidising	

9.2 Other information

No data available

10 STABILITY AND REACTIVITY

10.1 Reactivity

No data from specific reactivity tests are available for this product or this class of product.

10.2 Chemical stability

Product is stable under storage and handling conditions according to specifications.

10.3 Possibility of hazardous reactions

Explodes in contact with nitrosyl perchlorate.

10.4 Conditions to avoid

Prolonged or excessive heat and/or exposure to air may cause non-hazardous decomposition and/or oxidation of the substance. Keep away from heat and sources of ignition.

10.5 Incompatible materials

Avoid contact with strong acids and strong oxidizing agents.

10.6 Hazardous decomposition products

No hazardous decomposition products known.

11 TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

a) Acute toxicity

Alpha-Pinene is classified as category 4 for acute oral toxicity:
LD50 Oral: > 500 mg/kg (rat) (OECD 423)
LD50 Dermal: >2,000 mg/kg bw (rat) (OECD 402)

The hazard statement H302 “Harmful if swallowed” is required.

b) Skin corrosion/irritation
Alpha-Pinene multiconstituent is classified as irritating to skin, category 2 according to CLP Regulation (EC) no. 1272/2008.

c) Serious eye damage/irritation

Alpha-Pinene multiconstituent does not need classification as eye irritant or serious eye damage according to CLP Regulation (EC) no. 1272/2008. (OECD 492)

d) Respiratory - skin sensitisation

Alpha-Pinene multiconstituent is classified as skin sensitiser: Skin Sens. 1B, H317 (May cause an allergic skin reaction) according to CLP Regulation (EC) No. 1272/2008. (QSAR model)

No information was available regarding respiratory sensitisation; however, based on the weak skin sensitising potential of the substance, it is not expected to be able to lead to respiratory sensitisation.

e) Germ cell mutagenicity

Alpha-Pinene multiconstituent has not been demonstrated to induce gene mutations according to tests conducted in accordance with OECD guidelines 471, 487, 476, and 474.

f) Carcinogenicity

Alpha-Pinene multiconstituent is not considered to cause cancer.

g) Reproductive toxicity

No adverse effects on reproductive function and on pre-natal development have been identified in the extended one generation toxicity study as well as in two pre-natal developmental toxicity studies in rats and rabbits. (OECD 414) Therefore, the registered substance does not need to be classified for reproductive toxicity according to CLP Regulation (EC) no. 1272/2008.

h) Specific target organ toxicity (single exposure)

alpha-pinene multiconstituent is not considered to cause organ damage through single exposures.

i) Specific target organ toxicity (repeated exposure)

Alpha-Pinene multiconstituent does not need to be classified for Specific Target Organ Toxicity in Repeated Exposure according to CLP Regulation (EC) no. 1272/2008. (Study conducted similarly to OECD guideline 413).

j) Aspiration hazard

Alpha-Pinene multiconstituent is classified under Aspiration Toxicity, Category 1. Ingestion and subsequent entry into the airways may be fatal.

11.2 Information on other hazards

11.2.1 Endocrine disruptive properties

No information available.

11.2.2 Other information

No known other effects.

12 ECOLOGICAL INFORMATION

12.1 Toxicity

alpha-Pinene multiconstituent is classified under CLP Regulation for acute toxic hazard - Category 1.

Acute toxicity for fish:

LC50, 96h, *Cyprinus c.* (OECD 203): 0.27 mg/L for alpha-Pinene multiconstituent

Acute toxicity for aquatic invertebrates:
EC50, 48h, *Daphnia m.* (OECD 202): 0.475 mg/L for (-)alpha-Pinene (measured concentrations)

Acute toxicity for algae:

ErC50, 72h, *Pseudokirchneriella s.* (OECD 201): 0.494 mg/L for (-)-alpha-Pinene (measured concentrations)

12.2 Persistence and degradability

alpha-Pinene multiconstituent is classified under CLP Regulation for chronic toxic hazard - Category 1. Alpha-Pinene multiconstituent is readily biodegradable according to the criteria of OECD 301 D guideline. The test item was biodegraded by 68% at day 28. The pass level of 60% was reached after less than 7 days (approximately 5 days) upon achieving 10% biodegradation. Log Kow > 4.

12.3 Bioaccumulative potential

The Bioconcentration Factor (BCF) (aquatic species): 855.7 L/kg ww. BCF has been estimated by the geometric mean of three QSAR data on (-)-alpha-Pinene. This indicates that the substance has a significant tendency to accumulate in living organisms, especially in aquatic species.

12.4 Mobility in soil

Koc at 20 °C: 2 547. Koc of alpha-Pinene has been estimated by 3 QSAR methods conducted on (-)-alpha-Pinene. This value indicates low mobility in soil.

12.5 Results of PBT and vPvB assessment

The substance is not PBT/vPvB according to REACH (regulation (EC) no. 1907/2006) annex XIII.

12.6 Endocrine disrupting properties

No information available.

12.7 Other adverse effects

No known other effects.

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product residues, spills, etc. are hazardous waste. National and regional regulations have to be adhered to.The product has to be disposed of in an authorised incinerator, according to regulation. Avoid contamination of soil or waterways with waste, and do not dispose of waste outdoors.

Uncleaned packaging: Packaging has to be sent to an authorised waste treatment facility, for recycling or disposal.

14 TRANSPORT INFORMATION

14.1 UN number or ID number:

ADR/RID/ADN: 2368

IMDG-code: 2368

ICAO/IATA: 2368

14.2 UN proper shipping name:

ADR/RID/ADN: alpha-PINENE

IMDG-code: alpha-PINENE

ICAO/IATA: Alpha-Pinene

14.3 Transport hazard class(es):

ADR/RID/ADN: 3

IMDG-code: 3

ICAO/IATA: 3

14.4 Packing group:

ADR/RID/ADN: III

IMDG-koden: III

ICAO/IATA: III

14.5 Environmental hazards: Hazardous to the aquatic environment

14.6 Special precautions for user: Regulations for dangerous goods (ADR) must be followed even within the company’s premises. Tunnel restriction code: (D/E)

14.7 Maritime transport in bulk according to IMO instruments:

The substance is not intended for bulk transport (i.e., transport of liquid substances in large volumes directly in a ship's cargo space or tanks) as per Annex II of MARPOL 73/78 and the IBC Code. The substance can still be transported in containers or other packaging that meets the applicable safety requirements.

15 REGULATORY INFORMATION

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

EU regulations:

European parliament and council's regulation (EC) no. 1907/2006 (REACH).
European parliament and council regulation (EC) no. 1272/2008 about classification, labelling

and packing of substances and mixtures (CLP).

Directive (2012/18/EU) on the control of major-accident hazards involving dangerous substances (Seveso III).

National regulations:

This product is subject to specific regulatory requirements; users are responsible for ensuring full compliance with applicable national and local legislation.

15.2 Chemical safety assessment

A chemical safety assessment has been conducted for this substance. Relevant exposure scenarios are attached as an annex to this safety data sheet.

16 OTHER INFORMATION

Abbreviations

ADN: International Carriage of Dangerous Goods by Inland Waterways

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

BCF: Bioconcentration Factor

DNEL: Derived no effect level. The concentration or dose level of a substance below which no adverse effects are expected to occur over a specified exposure period.

EC50: "Effective Concentration 50%. The EC50 value corresponds to the concentration of a tested substance that results in a 50% change in response (e.g., in growth) over a certain time period.

EN: European Norm

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

IMDG: International Maritime Dangerous Good Code

OECD: Organisation for Economic Co-operation and Development

PBT: Persistent, Bioaccumulative and Toxic substances. PBT substances comply with the criteria in part 1, annex XIII in REACH.

PNEC: Predicted No-Effect Concentration

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail.

vPvB: Very persistent and bioaccumulative substances. A vPvB substance complies with the criteria in part 2, annex XIII in REACH.

QSAR: Quantitative Structure-Activity Relationship. A mathematical model used to predict the biological, ecological, or toxicological effects of chemical compounds based on their molecular structure.

Meaning of phrases

Flam. Liquid. 3: , Flammable liquid, Category 3

Acute tox. 4: , Acute toxicity, Category 4

Skin irrit. 2: , Skin irritation, Category 2

Skin Sens. 1: Skin sensitisation, Category 1

Asp. Tox. 1: , Aspiration Toxicity, Category 1

Aquatic Acute. 1: , Aquatic Acute. Category 1
Aquatic Chronic. 1: , Aquatic Acute, Category 1

H226: Flammable liquid and vapour
H302: Harmful if swallowed
H315: Causes skin irritation
H317: May cause an allergic skin reaction
H304: May be fatal if swallowed and enters airways
H400: Very toxic to aquatic life
H410: Very toxic to aquatic life with long lasting effects

Important literature references

Information from REACH registration of the substance.
Classification and labelling register
GESTIS database for international limit values

Manufacturer's notes

This safety data sheet has been compiled by SunPine AB in Piteå based on the details available to the company at the date of publication. The information should be seen as a guideline by purchasers of goods from SunPine AB and is meant to be used for health, safety and environmental purposes. The information cannot be seen as a specification or as a guarantee for any particular property in the product.

Document history

Version	Date	Comment
1	11/12/2023	First edition

Annexes

ES 1: Manufacture of alpha-Pinene
ES 2: Formulation of animal feeds
ES 3: Formulation of fragrance compounds
ES 4: Formulation of fragrance end-products
ES 5: Industrial end-use of washing and cleaning products
ES 6: Industrial use of Monomer for polymerisation
ES 7: Substance used as Intermediate (transformed into another substance)
ES 8: Industrial use as solvent
ES 9: Professional use in Cleaning agents
ES 10: Professional end-use of washing and cleaning products
ES 11: Professional end-use of polishes and wax blends