

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 17-Dec-2009 Revision Date 25-Jan-2024 Revision Number 3

# SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1. Product identifier

Product Description: (+)-alpha-Pinene

 Cat No. :
 L04941

 CAS No
 7785-70-8

 EC No
 232-087-8

 Molecular Formula
 C10 H16

REACH registration number -

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

Recommended Use Laboratory chemicals.
Uses advised against No Information available

## 1.3. Details of the supplier of the safety data sheet

Company

Avocado Research Chemicals Ltd. (Part of Thermo Fisher Scientific)

Shore Road, Heysham Lancashire, LA3 2XY, United Kingdom

Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 **CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

## **SECTION 2: HAZARDS IDENTIFICATION**

#### 2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

**Physical hazards** 

Flammable liquids Category 3 (H226)

**Health hazards** 

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Aspiration Toxicity	Category 1 (H304)
Skin Corrosion/Irritation	Category 2 (H315)
Skin Sensitization	Category 1 (H317)
Environmental hazards	
Environmental hazards	
Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 1 (H410)
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Full text of Hazard Statements: see section 16

#### 2.2. Label elements



Signal Word

Danger

#### **Hazard Statements**

H226 - Flammable liquid and vapor

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H410 - Very toxic to aquatic life with long lasting effects

#### **Precautionary Statements**

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

P280 - Wear protective gloves/protective clothing

P264 - Wash face, hands and any exposed skin thoroughly after handling

P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

#### 2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

## **SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

#### 3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-, (1R)-	7785-70-8	EEC No. 232-087-8	>95	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) Skin Sens. 1 (H317) Aquatic Acute 1 (H400)

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Aquatic Chionic 1 (H410)					Aquatic Chronic 1 (H410)
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Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-, (1R)-	-	1	-

REACH registration number	-

Full text of Hazard Statements: see section 16

## **SECTION 4: FIRST AID MEASURES**

#### 4.1. Description of first aid measures

**General Advice** If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get

medical attention.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists,

call a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Call

a physician or poison control center immediately. If vomiting occurs naturally, have victim

lean forward.

**Inhalation** Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if

symptoms occur. Risk of serious damage to the lungs (by aspiration).

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination.

## 4.2. Most important symptoms and effects, both acute and delayed

None reasonably foreseeable. May cause allergic skin reaction. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

#### 4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

## **SECTION 5: FIREFIGHTING MEASURES**

## 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

#### Extinguishing media which must not be used for safety reasons

No information available.

#### 5.2. Special hazards arising from the substance or mixture

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Do not allow run-off from fire-fighting to enter drains or water courses.

#### **Hazardous Combustion Products**

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Carbon monoxide (CO), Carbon dioxide (CO2).

#### 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

#### 6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

#### 6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

#### 6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

#### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## **SECTION 7: HANDLING AND STORAGE**

#### 7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

#### 7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area.

Technical Rules for Hazardous Substances (TRGS) 510 Class 3 Storage Class (LGK) (Germany)

#### 7.3. Specific end use(s)

Use in laboratories

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

#### 8.1. Control parameters

**Exposure limits** 

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List source(s):

## **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
Bicyclo[3.1.1]hept-2-ene,				DNEL = 77mg/kg
2,6,6-trimethyl-, (1R)-				bw/day
7785-70-8 ( >95 )				-

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-, (1R)-				DNEL = 871mg/m <sup>3</sup>
7785-70-8 ( >95 )				

#### **Predicted No Effect Concentration (PNEC)**

See values below.

#### 8.2. Exposure controls

## **Engineering Measures**

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

#### Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material Nitrile rubber Neoprene Natural rubber	Breakthrough time See manufacturers recommendations	Glove thickness	EU standard EN 374	Glove comments (minimum requirement)
PVC				

**Skin and body protection** Long sleeved clothing.

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Respiratory Protection** No protective equipment is needed under normal use conditions.

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits

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are exceeded or if irritation or other symptoms are experienced

Small scale/Laboratory use Maintain adequate ventilation

system. Local authorities should be advised if significant spillages cannot be contained.

## **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

#### 9.1. Information on basic physical and chemical properties

Physical State Liquid

Appearance Colorless Odor Odorless

Odor Threshold

Melting Point/Range
Softening Point

Boiling Point/Range

No data available
No data available
155 °C / 311 °F

Boiling Point/Range155 °C / 311 °F@ 760 mmHgFlammability (liquid)FlammableOn basis of test dataFlammability (solid,gas)Not applicableLiquid

Explosion Limits Lower 0.8 vol%

Upper 6 vol%

Flash Point 33 °C / 91.4 °F Method - CC (closed cup)

Autoignition Temperature

Decomposition Temperature
pH

Viscosity

255 °C / 491 °F
No data available
No information available
No data available

Water Solubility Insoluble

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

**Component** log Pow Bicyclo[3.1.1]hept-2-ene, 4.44

2,6,6-trimethyl-, (1R)-

Vapor Pressure 5 hPa @ 25°C

Density / Specific Gravity 0.860

Bulk DensityNot applicableLiquidVapor Density4.7(Air = 1.0)

Particle characteristics Not applicable (liquid)

#### 9.2. Other information

Molecular Formula C10 H16 Molecular Weight 136.24

**Explosive Properties** explosive air/vapour mixtures possible

## **SECTION 10: STABILITY AND REACTIVITY**

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

**Hazardous Polymerization** Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

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10.4. Conditions to avoid

Incompatible products. Heat, flames and sparks. Keep away from open flames, hot

surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents.

#### 10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## **SECTION 11: TOXICOLOGICAL INFORMATION**

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

#### **Product Information**

(a) acute toxicity;

Oral Based on available data, the classification criteria are not met **Dermal** Based on available data, the classification criteria are not met Inhalation Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-,	LD50 = 3.7 g/kg (rat)	LD50 >5g/kg (rabbit)	-
(1R)-			

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

Respiratory No data available Skin Category 1

May cause sensitization by skin contact

No data available (e) germ cell mutagenicity;

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

No data available (h) STOT-single exposure;

(i) STOT-repeated exposure; No data available

**Target Organs** No information available.

(j) aspiration hazard; Category 1

delayed

Symptoms / effects,both acute and Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling

of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

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**Endocrine Disrupting Properties** 

Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## **SECTION 12: ECOLOGICAL INFORMATION**

12.1. Toxicity

**Ecotoxicity effects** 

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-,	10		
(1R)-	flow-through (Pimephales promelas)		
	ρ.σσ.ασ,		

Component	Microtox	M-Factor
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-,		1
(1R)-		

#### 12.2. Persistence and degradability

Persistence

Degradation in sewage

treatment plant

May persist.

Contains substances known to be hazardous to the environment or not degradable in waste

water treatment plants.

#### 12.3. Bioaccumulative potential Pro

Product has a high potential to bioconcentrate

Component	log Pow	Bioconcentration factor (BCF)
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-,	4.44	No data available
(1R)-		

#### 12.4. Mobility in soil

Spillage unlikely to penetrate soil The product is insoluble and floats on water The product evaporates slowly . Is not likely mobile in the environment due its low water solubility. Is not likely mobile in the environment due its low water solubility and propensity to bind to soil particles

12.5. Results of PBT and vPvB

assessment

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

12.6. Endocrine disrupting

properties

**Endocrine Disruptor Information** 

This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant Ozone Depletion Potential This product does not contain any known or suspected substance This product does not contain any known or suspected substance

## **SECTION 13: DISPOSAL CONSIDERATIONS**

#### 13.1. Waste treatment methods

Waste from Residues/Unused

**Products** 

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging** 

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and

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empty container away from heat and sources of ignition.

European Waste Catalogue (EWC) According to the European Waste Catalog, Waste Codes are not product specific, but

application specific.

Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the

application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not let this chemical enter the environment. Do not

empty into drains.

## **SECTION 14: TRANSPORT INFORMATION**

#### IMDG/IMO

**14.1. UN number** UN2368 alpha-PINENE

14.3. Transport hazard class(es) 3 14.4. Packing group III

#### <u>ADR</u>

**14.1. UN number** UN2368 **14.2. UN proper shipping name** upha-PINENE

14.3. Transport hazard class(es) 3 14.4. Packing group III

#### IATA

14.1. UN numberUN236814.2. UN proper shipping namealpha-PINENE

14.3. Transport hazard class(es) 3 14.4. Packing group III

**14.5. Environmental hazards** Dangerous for the environment

Product is a marine pollutant according to the criteria set by IMDG/IMO

**14.6. Special precautions for user** No special precautions required.

<u>14.7. Maritime transport in bulk</u> according to IMO instruments

Not applicable, packaged goods

## **SECTION 15: REGULATORY INFORMATION**

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

#### **International Inventories**

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

L	Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
	Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-, (1R)-	7785-70-8	232-087-8	-	-	Х	Х	KE-34428	Χ	Х

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-, (1R)-	7785-70-8	Х	ACTIVE	Х	-	Х	Х	Х

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Legend: X - Listed '-' - Not Listed KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH Not applicable

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	J	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-, (1R)-	7785-70-8	-	-	-

#### Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-, (1R)-	7785-70-8	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

#### **National Regulations**

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Bicyclo[3.1.1]hept-2-ene,	WGK3	
2.6.6-trimethyl-, (1R)-		

## 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## **SECTION 16: OTHER INFORMATION**

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

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

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H226 - Flammable liquid and vapor

#### Legend

**CAS** - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b)

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances/EU List of Notified Chemical Substances

Substances List

PICCS - Philippines Inventory of Chemicals and Chemical Substances

**ENCS** - Japanese Existing and New Chemical Substances AICS - Australian Inventory of Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances **KECL** - Korean Existing and Evaluated Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

TWA - Time Weighted Average

**DNEL** - Derived No Effect Level

IARC - International Agency for Research on Cancer

RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50%

Predicted No Effect Concentration (PNEC) LD50 - Lethal Dose 50%

NOEC - No Observed Effect Concentration PBT - Persistent, Bioaccumulative, Toxic

EC50 - Effective Concentration 50% POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

Dangerous Goods Code

MARPOL - International Convention for the Prevention of Pollution from Ships

**OECD** - Organisation for Economic Co-operation and Development **BCF** - Bioconcentration factor

ATE - Acute Toxicity Estimate VOC - (Volatile Organic Compound)

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

#### **Training Advice**

Chemical incident response training.

Health, Safety and Environmental Department **Prepared By** 

**Creation Date** 17-Dec-2009 25-Jan-2024 **Revision Date** 

**Revision Summary** New emergency telephone response service provider.

## This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**