

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

- 1.1 Product Code:** 21577
Product Name: .beta.-Pinene
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**
Relevant identified uses: For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet:**
Company Name: Cayman Chemical Company
 1180 E. Ellsworth Rd.
 Ann Arbor, MI 48108
Web site address: www.caymanchem.com
Information: Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**
Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300
 CHEMTREC Outside USA and Canada: +1 (703)527-3887

Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**
 Flammable Liquids, Category 3
 Skin Corrosion/Irritation, Category 2
 Skin Sensitization, Category 1
 Aspiration Toxicity, Category 1

2.2 Label Elements:



GHS Signal Word: **Danger**

GHS Hazard Phrases:

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.

GHS Precaution Phrases:

P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.
 P261: Avoid breathing {dust/fume/gas/mist/vapors/spray}.
 P264: Wash {hands} thoroughly after handling.
 P272: Contaminated work clothing should not be allowed out of the workplace.
 P280: Wear {protective gloves/protective clothing/eye protection/face protection}.

GHS Response Phrases:

P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
 P302+352: IF ON SKIN: Wash with plenty of soap and water.
 P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
 P331: Do NOT induce vomiting.
 P332+313: If skin irritation occurs, get medical advice/attention.
 P333+313: If skin irritation or rash occurs, seek medical advice/attention.
 P362+364: Take off contaminated clothing and wash it before reuse.

GHS Storage and Disposal Phrases:

Please refer to Section 7 for Storage and Section 13 for Disposal information.

- 2.3 Adverse Human Health** Causes skin irritation.
- Effects and Symptoms:** Material may be irritating to the mucous membranes and upper respiratory tract.
- May be fatal if swallowed and enters airways.
- May be harmful by skin absorption.
- May cause an allergic skin reaction.
- May cause eye, skin, or respiratory system irritation.
- To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	GHS Classification
127-91-3 DT5077000	Bicyclo3.1.1heptane, 6,6-dimethyl-2-methylene-	100.0 %	204-872-5 NA	Flam. Liq. 3: H226 Asp. Toxic. 1: H304 Skin Corr. 2: H315 Skin Sens. 1: H317

Section 4. First Aid Measures

- 4.1 Description of First Aid Measures:**
- In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.
- In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.
- In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

Section 5. Fire Fighting Measures

- 5.1 Suitable Extinguishing** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
- Media:** Use water spray to cool fire-exposed containers.
- Unsuitable Extinguishing** A solid water stream may be inefficient.
- Media:**
- 5.2 Flammable Properties and Hazards:** No data available.
- Flash Pt:** No data.
- Explosive Limits:** LEL: No data. UEL: No data.
- Autoignition Pt:** No data.
- 5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

Section 6. Accidental Release Measures

- 6.1 Protective Precautions,** Avoid raising and breathing dust, and provide adequate ventilation.
- Protective Equipment and** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator,
- Emergency Procedures:** and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental** Take steps to avoid release into the environment, if safe to do so.
- Precautions:**
- 6.3 Methods and Material For** Contain spill and collect, as appropriate.
- Containment and Cleaning** Transfer to a chemical waste container for disposal in accordance with local regulations.
- Up:**

Section 7. Handling and Storage

- 7.1 Precautions To Be Taken** Avoid breathing dust/fume/gas/mist/vapours/spray.
- in Handling:** Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken** Keep container tightly closed.
- in Storing:** Store in accordance with information listed on the product insert.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Chemical Name	Jurisdiction	Recommended Exposure Limits	Notations
127-91-3	Bicyclo3.1.1heptane, 6,6-dimethyl-2-methylene-	ACGIH TLV	TLV: 20 ppm	

8.2 Exposure Controls:

- 8.2.1 Engineering Controls** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- (Ventilation etc.):**
- 8.2.2 Personal protection equipment:**
- Eye Protection:** Safety glasses
- Protective Gloves:** Compatible chemical-resistant gloves
- Other Protective Clothing:** Lab coat
- Respiratory Equipment** NIOSH approved respirator, as conditions warrant.
- (Specify Type):**
- Work/Hygienic/Maintenan** Do not take internally.
- ce Practices:** Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.
- Wash thoroughly after handling.
- No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States:	[] Gas	[X] Liquid	[] Solid
Appearance and Odor:	A liquid		
pH:	No data.		
Melting Point:	No data.		
Boiling Point:	No data.		
Flash Pt:	No data.		
Evaporation Rate:	No data.		
Flammability (solid, gas):	No data available.		
Explosive Limits:	LEL: No data.		UEL: No data.
Vapor Pressure (vs. Air or mm Hg):	No data.		
Vapor Density (vs. Air = 1):	No data.		
Specific Gravity (Water = 1):	No data.		
Solubility in Water:	No data.		
Octanol/Water Partition Coefficient:	No data.		
Autoignition Pt:	No data.		
Decomposition Temperature:	No data.		
Viscosity:	No data.		

9.2 Other Information

Percent Volatile:	No data.	
Molecular Formula & Weight:	C10H16	136.2

Section 10. Stability and Reactivity

10.1 Reactivity:	No data available.	
10.2 Stability:	Unstable []	Stable [X]
10.3 Stability Note(s):	Stable if stored in accordance with information listed on the product insert.	
Polymerization:	Will occur []	Will not occur [X]
10.4 Conditions To Avoid:	No data available.	
10.5 Incompatibility - Materials To Avoid:	strong oxidizing agents	
10.6 Hazardous Decomposition or Byproducts:	carbon dioxide carbon monoxide	

Section 11. Toxicological Information

11.1 Information on Toxicological Effects:	The toxicological effects of this product have not been thoroughly studied.
Chronic Toxicological Effects:	.beta.-Pinene - Toxicity Data: Oral LD50 (rat): 4700 mg/kg; Inhalation LC50 (mouse): 20000 mg/m3; Intraperitoneal LD50 (rat): 3388 mg/kg; Intraperitoneal TDLO (mouse): 54.8 mg/kg; .beta.-Pinene - Investigated as a natural product and primary irritant. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. .beta.-Pinene - RTECS Number: DT5077000

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
127-91-3	Bicyclo3.1.1heptane, 6,6-dimethyl-2-methylene-	n.a.	n.a.	A4	n.a.

Section 12. Ecological Information

12.1 Toxicity:	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
12.2 Persistence and Degradability:	No data available.
12.3 Bioaccumulative Potential:	No data available.
12.4 Mobility in Soil:	No data available.
12.5 Results of PBT and vPvB assessment:	No data available.
12.6 Other adverse effects:	No data available.

Section 13. Disposal Considerations

13.1 Waste Disposal Method:	Dispose in accordance with local, state, and federal regulations.
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Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT):

DOT Proper Shipping Name:	Terpene hydrocarbons, n.o.s.		
DOT Hazard Class:	3	FLAMMABLE LIQUID	
UN/NA Number:	UN2319	Packing Group:	III



14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name:	Terpene hydrocarbons, n.o.s.		
UN Number:	2319	Packing Group:	III
Hazard Class:	3 - FLAMMABLE LIQUID		

14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name:	Terpene hydrocarbons, n.o.s.		
UN Number:	2319	Packing Group:	III
Hazard Class:	3 - FLAMMABLE LIQUID	IATA Classification:	3

Additional Transport Information:	Transport in accordance with local, state, and federal regulations. When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.
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Section 15. Regulatory Information

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
127-91-3	Bicyclo3.1.1heptane, 6,6-dimethyl-2-methylene-	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
127-91-3	Bicyclo3.1.1heptane, 6,6-dimethyl-2-methylene-	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

Section 16. Other Information

Revision Date: 05/15/2017

Additional Information About This Product: No data available.

This Product:

Company Policy or Disclaimer: DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.