

1. Identification

Product identifier	Eucalyptol		
Other means of identification			
Catalog number	1268900		
Chemical name	2-Oxabicyclo[2.2.2]octane, 1,3,3-trimethyl-		
Synonym(s)	1,8-Cineole		
Recommended use	Specified quality tests and assay use only.		
Recommended restrictions	Not for use as a drug. Not for administration to humans or animals.		
Manufacturer/Importer/Supplier/Distributor information			
Company name	U. S. Pharmacopeia		
Address	12601 Twinbrook Parkway Rockville MD 20852-1790 US		
Telephone	RS Technical Services	301-816-8129	
Website	www.usp.org		
E-mail	RSTECH@usp.org		
Emergency phone number	CHEMTREC within US & Canada	1-800-424-9300	
	CHEMTREC outside US & Canada	+1 703-527-3887	

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Sensitization, skin	Category 1
OSHA hazard(s)	Not classified.	

Label elements



Signal word	Warning
Hazard statement	Flammable liquid and vapor. May cause an allergic skin reaction.
Precautionary statement	
Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/eye protection/face protection.
Response	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. In case of fire: Use appropriate media to extinguish.
Storage	Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Not classified.

3. Composition/information on ingredients

Substance

Hazardous components

Chemical name	Common name and synonyms	CAS number	%
Eucalyptol	1,8-Cineole	470-82-6	100

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. For minor skin contact, avoid spreading material on unaffected skin. If skin irritation or rash occurs: Get medical advice/attention.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.
Most important symptoms/effects, acute and delayed	May cause allergic skin reaction. Gastrointestinal disturbances. Central nervous system effects.
Indication of immediate medical attention and special treatment needed	Treatment of overdose is symptomatic and supportive and may include: 1. Consider gastric lavage after ingestion of potentially life-threatening dose if it can be performed soon after ingestion. 2. Induced vomiting is not recommended. Administer activated charcoal as a slurry. 3. Most patients with mild to moderate CNS depression may be safely managed with conservative, supportive respiratory and cardiovascular care. 4. For seizures, administer diazepam. 5. In severe poisoning, peritoneal or haemodialysis is of value. [Meditext 2010]
General information	Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	By heating and fire, harmful vapors/gases may be formed. No unusual fire or explosion hazards noted.
Special protective equipment and precautions for firefighters	Wear suitable protective equipment. Use protective equipment appropriate for surrounding materials.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Avoid inhalation of vapors. Wear appropriate personal protective equipment.
Methods and materials for containment and cleaning up	Remove sources of ignition. Absorb spillage with suitable absorbent material. For waste disposal, see section 13 of the SDS. Clean surface thoroughly to remove residual contamination. Keep combustibles (wood, paper, oil, etc.) away from spilled material.

7. Handling and storage

Precautions for safe handling	As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly.
Conditions for safe storage, including any incompatibilities	Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

8. Exposure controls/personal protection

Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	No exposure standards allocated.
Appropriate engineering controls	Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the effectiveness of engineering controls. Effectiveness of engineering controls intended for use with highly potent materials should be assessed by use of nontoxic surrogate materials. Local exhaust ventilation such as a laboratory fume hood or other vented enclosure is recommended, particularly for aerosol-generating procedures.

Individual protection measures, such as personal protective equipment

Eye/face protection	Safety glasses with sideshields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area.
Skin protection	
Hand protection	Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact. Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic nonlatex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy.
Other	For handling of laboratory scale quantities, a cloth lab coat is recommended. Where significant quantities are handled, work clothing may be necessary to prevent take-home contamination.
Respiratory protection	Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place (applicable U.S. regulation OSHA 29 CFR 1910.134).
Thermal hazards	Not available.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	Clear, colorless liquid.
Physical state	Liquid.
Form	Liquid.
Odor	Camphor-like odor.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	34.7 °F (1.5 °C)
Initial boiling point and boiling range	349.52 °F (176.4 °C)
Flash point	116.60 - 118.40 °F (47.00 - 48.00 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0.2533 kPa at 25 °C
Vapor density	Not available.
Relative density	Not available.
Solubility in water	Practically insoluble.
Partition coefficient (n-octanol/water)	2.74
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	2.1 mm ² /s
Viscosity temperature	104 °F (40 °C)
Other information	
Chemical family	Monocyclic terpene.
Density	0.93 g/cm ³
Molecular formula	C ₁₀ -H ₁₈ -O
Molecular weight	154.25 g/mol
Solubility (other)	Soluble in chloroform, in ethanol, and in ethyl ether; slightly soluble in carbon tetrachloride.
Specific gravity	0.9268 at 25 °C

10. Stability and reactivity

Reactivity	No reactivity hazards known.
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Chemical stability	Risk of ignition.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Heat, flames, and sparks.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Based on available data, the classification criteria are not met.
Inhalation	Due to lack of data the classification is not possible.
Skin contact	May cause an allergic skin reaction.
Eye contact	Due to lack of data the classification is not possible.
Symptoms related to the physical, chemical, and toxicological characteristics	Stomach pain. Nausea. Vomiting. Diarrhea. Difficulty breathing. Muscle weakness. Pinpoint pupils. Vertigo. Unsteadiness. Loss of reflexes. Convulsions. Loss of consciousness. Coma.
Cross sensitivity	Persons with skin sensitivity to turpentine may be sensitive to this material also.

Acute toxicity

Product	Species	Test Results
Eucalyptol (CAS 470-82-6)		
Acute		
<i>Oral</i>		
LD50	Rat	2480 mg/kg

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation Due to lack of data the classification is not possible.

Local effects

Isolated Bovine Corneal Opacity and Permeability Assay (OECD 437)
 Result: No ocular corrosivity or severe irritancy noted.
 Skin irritancy test
 Result: Negative.
 Species: Human
 Skin irritancy test
 Result: Negative.
 Species: Rabbit

Respiratory sensitization Due to lack of data the classification is not possible.

Skin sensitization May cause an allergic skin reaction.

Sensitization

Mouse local lymph node assay (OECD 429)
 Result: Positive.

Germ cell mutagenicity Due to lack of data the classification is not possible.
 Data from germ cell mutagenicity tests were not found.

Mutagenicity

Ames test in *S. typhimurium*
 Result: Negative.
 Chromosomal aberrations in Chinese hamster ovary cells
 Result: Negative.
 Rec-assay in *B. subtilis*
 Result: Negative.
 Sister chromatid exchange assay in Chinese Hamster Ovary cells
 Result: Negative (with activation); positive (without activation).

Carcinogenicity Based on available data, the classification criteria are not met.
 This material is not considered to be a carcinogen by IARC, NTP, or OSHA.

0 - 32 mg/kg/day Carcinogenicity study, administered by gavage.
 Result: No increase in the incidence of tumors.
 Species: Mouse
 Test Duration: 80 weeks

Reproductive toxicity Based on available data, the classification criteria are not met.

Reproductivity

136 mg/kg Reproductivity and development study,
eucalyptus oil (70% eucalyptol) administered subcutaneously
during gestation.
Result: No embryotoxicity or fetotoxicity noted.
Species: Mouse

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Due to lack of data the classification is not possible.

12. Ecological information

Ecotoxicity Contains a substance which causes risk of hazardous effects to the environment.

Product		Species	Test Results
Eucalyptol (CAS 470-82-6)			
<i>Acute</i>			
Crustacea	EC50	Daphnia magna	> 100 mg/l, 48 hours
Other	EC50	Pseudokirchnerella subcapitata	> 100 mg/l, 72 hours
<i>Aquatic</i>			
<i>Acute</i>			
Fish	LC50	Fathead minnow (Pimephales promelas)	95.4 - 109 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

Local disposal regulations Not available.

Hazardous waste code D001: Waste Flammable material with a flash point <140 F

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN1993
UN proper shipping name Flammable liquid, n.o.s. (Eucalyptol)
Transport hazard class(es) 3
Subsidiary class(es) Not available.
Packing group III

IATA

UN number UN1993
UN proper shipping name Flammable liquid, n.o.s. (Eucalyptol)
Transport hazard class(es) 3
Subsidiary class(es) -
Packaging group III

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available.

DOT



IATA



15. Regulatory information

US federal regulations CERCLA/SARA Hazardous Substances - Not applicable.

All components are on the U.S. EPA TSCA Inventory List.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

Other federal regulations

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA) Not regulated.

US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision

Issue date 09-14-2011

Revision date	02-09-2015
Version #	02
Further information	Not available.
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Revision Information	This document has undergone significant changes and should be reviewed in its entirety.