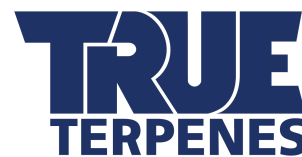


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1. Identification

Product Description	Cadinene
CAS #	29350-73-0
FEMA Number	N/A
True Terpenes Item #	RM10003
Recommended Use	Concentrated aromatic and flavor ingredient which may be used in flavor and fragrance compounds according to legal and IFRA or FEMA GRAS/FDA guidelines.
Recommended Restrictions	For manufacturing use only
Company	True Terpenes (888) 954-8550 TrueTerpenes.com
Emergency Contact	Poison Control Helpline: 1 (800) 222-1222

2. Hazard(s) Identification



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Physical Hazards	Not Classified
Health Hazards	Not Classified
Environmental Hazards	Not Classified
Label Elements	None
Signal Word	None
Hazard Statement	The substance does not meet the criteria for classification.
Precautionary Statement	
Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not Otherwise Classified (HNOC)	None known.
Supplemental Information	None.

3. Composition / Information on Ingredients

Substances The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR



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1910.1200.

Chemical Name	Common Name and Synonyms	CAS Number	Percent
CADINENE	(1S,4aR,8aS)-4,7-dimethyl-1-propan-2-yl-1,2,4a,5,8,8a-hexahydronaphthalene Naphthalene, 1,2,4a,5,8,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, (1S,4aR,8aS)-	29350-73-0	100

4. First-Aid Measures

Inhalation

If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.

Skin Contact

Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.

Eye Contact

Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.

Ingestion

Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

Most Important Symptoms / Direct contact with eyes may cause temporary irritation.



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Effects, Acute and Delayed

Indication of Immediate Medical Attentional and Special Treatment Needed

Not available.

General Advice

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-Fighting Measures

Suitable Extinguishing Media

Water spray, fog, CO₂, dry chemical, or alcohol resistant foam.

Unsuitable Extinguishing Media

Do not use a solid water stream as it may scatter and spread fire.

Specific Hazards Arising from the Chemical

Fire may produce irritating, corrosive and/or toxic gases.

Special Protective Equipment and Precautions for Firefighters

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.

Firefighting Equipment / Instructions

In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them.



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Keep run-off water out of sewers and water sources. Dike for water control.

Specific Methods

Use water spray to cool unopened containers.

General Fire Hazards

Static charges generated by emptying package in or near flammable vapor may cause flash fire.

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor.

Methods and Materials for Containment and Cleaning Up

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps.

The product is immiscible with water and will spread on the water surface.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Prevent product from entering drains. Do not allow material to contaminate ground water system. Absorb in vermiculite, dry sand or earth and place into containers.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean



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surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. This material and its container must be disposed of as hazardous waste. Collect and dispose of spillage as indicated in section 13 of the SDS.

Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not contaminate water. Retain and dispose of contaminated wash water. Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment.

7. Handling and Storage

Precautions for Safe Handling

Do not handle or store near an open flame, heat or other sources of ignition. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities

Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

8. Exposure Controls / Personal Protection



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Occupational Exposure Limits	No exposure limits noted for ingredient(s).
Biological Limit Values	No biological exposure limits noted for the ingredient(s).
Appropriate Engineering Controls	Use explosion-proof ventilation equipment to stay below exposure limits.
Individual Protection Measures, Such as Personal Protective Equipment	
Eye / Face Protection	Wear safety glasses with side shields (or goggles).
Skin Protection	
Hand Protection	Chemical resistant gloves.
Other	Not available.
Respiratory Protection	Respiratory protection not required. If ventilation is insufficient, suitable respiratory protection must be provided.
Thermal Hazards	Wear appropriate thermal protective clothing, when necessary.
General Hygiene Considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and Chemical Properties



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Appearance	Refer to Spec Sheet
Physical State	Liquid
Form	Liquid
Color	Refer to Spec Sheet
Odor	Characteristic
Odor Threshold	Not available
pH	Not available
Melting Point / Freezing Point	Not available
Initial Boiling Point and Boiling Range	Not available
Flash Point	> 200.0 °F (> 93.3 °C) Closed Cup
Evaporation Rate	Not available
Flammability (solid, gas)	Not available
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 mm Hg at 20 °C



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Vapor Density	7.2
Relative Density	Not available
Solubility(ies)	
Solubility (water)	Insoluble
Partition Coefficient (n-octanol/water)	Not available
Auto-ignition Temperature	501.8 - 503.6 °F (261 - 262 °C)
Decomposition Temperature	Not available
Viscosity	Not available
Other Information	
Explosive Properties	Combustible IIIB estimated
Molecular Formula	C ₁₅ H ₂₆
Molecular Weight	206.36 g/mol
Specific Gravity	0.92 at 25 °C

10. Stability and Reactivity

Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.



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Chemical Stability	Material is stable under normal conditions.
Possibility of Hazardous Reaction	No dangerous reaction known under conditions of normal use.
Conditions to Avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible Materials	Strong oxidizing agents.
Hazardous Decomposition Products	No hazardous decomposition products if stored and handled as indicated.

11. Toxicological Information

Information on Likely Routes of Exposure

Inhalation	No adverse effects due to inhalation are expected.
Skin Contact	Causes mild skin irritation.
Eye Contact	Causes mild eye irritation.
Ingestion	Expected to be a low ingestion hazard.

Symptoms Related to the Physical, Chemical and Toxicological Characteristics Direct contact with eyes may cause temporary irritation.

Information on Toxicological Effects



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Acute Toxicity

Product	Species	Test Results
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CADINENE (CAS 29350-73-0)

Acute

Dermal LD50	Rabbit	> 5000 mg/kg
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Oral LD50	Rat	> 5000 mg/kg
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* Estimates for product may be based on additional component data not shown.

Skin Corrosion / Irritation Prolonged skin contact may cause temporary irritation.

Serious Eye Damage / Eye Irritation Direct contact with eyes may cause temporary irritation.

Respiratory or Skin Sensitization

Respiratory Sensitization Not available.

Skin Sensitization This product is not expected to cause skin sensitization.

Germ Cell Mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not listed.

Reproductive Toxicity This product is not expected to cause reproductive or developmental effects.

Specific Target Organ Toxicity - Not classified.



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Single Exposure

Specific Target Organ Toxicity - Repeated Exposure Not classified.

Aspiration Hazard Not available.

12. Ecological Information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

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

Bioaccumulative Potential No data available.

Mobility in Soil No data available.

Other Adverse Effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal Considerations



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Disposal Instructions	Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local Disposal Regulations	Dispose in accordance with all applicable regulations.
Hazardous Waste Code	Not established.
Waste from Residues / Unused Products	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

ADN

Not regulated as dangerous goods.

ADR

Not regulated as dangerous goods.



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RID

Not regulated as dangerous goods.

DOT BULK

Not regulated as dangerous goods.

DOT NON-BULK

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory Information

US Federal Regulations

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency Release Notification

Not regulated.



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US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not listed.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely Hazardous Substance

Not listed.

SARA 311/312 Hazardous Chemical

No

Hazard Categories

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

SARA 313 (TRI reporting)

Not regulated.

Other Federal Regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)



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Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

US State Regulations

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. Rhode Island RTK

Not regulated.

California Proposition 65

California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed Substance

Not listed.

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



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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)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States and 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)

*A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other Information



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Revision Date New Document
Version # 00

HMIS® Ratings

Health 1
Flammability 1
Physical Hazard 0

Disclaimer

True Terpenes cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available. The above information relates only to this product and not to its use in combination with any other material or any particular process and is designed only as guidance for the safe handling, use, processing, storage, transportation, and disposal and should not be considered as a guarantee or quality specification. This product has not been evaluated for safe use in e-cigarettes or any vaping application where the product(s) is/are intentionally vaporized and inhaled. True Terpenes has performed no testing on these products in e-cig/vaping applications. It is the sole responsibility of the individual(s) purchasing this product to assess its' safety in the final application. The above information relates only to this product and not to its use in combination with any other material or any particular process and is designed only as guidance for the safe handling, use, processing, storage, transportation, disposal, and should not be considered as a guarantee or quality specification. The above information is based on data provided by and collected from recognized



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sources such as distributors, manufacturers, and technical groups and is considered to be accurate to the best of True Terpenes knowledge as of the date of this document. It is the responsibility of the user to review all safety information about this product and determine its safety and suitability in their own processes and operations. Appropriate warnings and safe handling procedures should be provided to all handlers and users, taking into account the intended use and the specific conditions and factors relating to such use in accordance with all applicable laws and regulations.

