

Material Safety Data Sheet
Prepared March 3, 2005
Revised March 29, 2007

Section 1 Product and Supplier Information



Chemtica Internacional, S.A.
Industrial Park Z Sta Rosa
Sto. Domingo, Heredia
Costa Rica 003105

Emergency Phone Numbers:
1-800-424-9300
Chemtrec (North America) emergency
number

1-703-527-3887
Chemtrec(International) emergency
number

506-261-5396, 506-261-2424
Chemtica Internacional

Product Name: Verbenone

This product consists of verbenone. The product is intended for use in forests as a repellent for forest insect pests.

Section 2 Hazards Identification

Emergency Overview

Combustible. Irritant.
Irritating to eyes, respiratory system and skin.

HMIS ® Rating
Health: 0
Flammability: 2
Reactivity: 0

For additional information on toxicity, please refer to section 11.

Section 3: Composition / Information

Chemical Name: 4,6,6-Trimethylbicyclo[3.1.1]hept-3-en-2-one
Common Name: Verbenone
CAS: 1196-01-6 (levorotatory) & 18309-32-5 (dextrorotatory)
Formula: C₁₀H₁₄O
Synonyms: Bicyclo[3.3.1] hept-3-en-2-one, 4, 6, 6-trimethyl-
Pin-2-en-4-one
Verbenone
Verbinone

Section 4 First Aid Measures

Oral Exposure: Harmful liquid. If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

Inhalation Exposure: If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Dermal Exposure: In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Eye Exposure: Irritating to eyes. In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 Fire Fighting Measures

Flash Point: 92°C

Autoignition Temperature: N/A

Flammability: Combustible

Extinguishing Media: Suitable: Water spray. Carbon dioxide, dry chemical powder or appropriate foam.

Firefighting: Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s): Combustible liquid. Emits toxic fumes under fire conditions.

Section 6 Accidental Release Measures

Procedure to be followed in case of leak or spill: Apply inert absorbent such as vermiculite, sweep up, place in impermeable container and dispose of in approved manner.

Procedure(s) of personal precaution(s): Working in well ventilated environment no protective apparatus necessary for clean-up. Working in poorly ventilated environment use self contained breathing apparatus.

Methods for cleaning up: Apply inert absorbent such as vermiculite, sweep up, place in impermeable container and dispose of in approved manner.

Section 7 Handling and Storage

Handling: Keep inside shipping container until use. Transfer liquid from shipping container to other containers inside well ventilated area or laboratory hood.

Storage: Suitable: Keep away from heat, sparks and open flame, store at or below 25°C.

Section 8 Exposure Controls / PPE

Engineering Controls: No open flames.

Personal Protective Equipment: No respiratory equipment required unless working in area with poor ventilation.

Hand: Compatible chemical resistant gloves recommended for prolonged handling.

Eye: Laboratory safety glasses are recommended when handling.

General Hygiene Measures: Wash contaminated clothing before reuse. Wash thoroughly after handling.

Emergency Overview – for product

Non-Harmful

Combustible

For additional information on toxicity refer to Section 11.

Section 9 Physical / Chemical Properties

Appearance: Liquid

Physical State: Liquid

Verbenone

Property of Active Ingredient

Value

Molecular Weight

150.24

pH

N/A

BP/BP Range

85 °C @ 0.5 mm Hg

MP / MP Range

N/A

Freezing Point	N/A
Vapor Pressure	N/A
Vapor Density (Air =1)	>1
Saturated Vapor Conc	N/A
SG / Density (water =1)	0.9720:0.9790
Bulk Density	N/A
Odor Threshold	N/A
Volatile %	N/A
VOC Content	N/A
Water Content	N/A
Solvent Content	N/A
Evaporation Rate	N/A
Viscosity mm ² /sec @ 40°C	3.288
Surface Tension	N/A
Partition Coefficient	N/A
Decomposition Temp.	N/A
Flash Point	92°C closed cup
Explosion Limits	N/A
Auto-ignition Temp.	N/A
Refractive Index	N/A
Optical Rotation	N/A
Miscellaneous Data	N/A
Solubility	Sol in org/Insol in water

N/A = not available

Section 10 Stability and Reactivity

Stability: Stable. Materials to avoid: Strong oxidizing agents. Strong reducing agents.

Hazardous Decomposition Products: Carbon dioxide and Carbon monoxide.

Hazardous polymerization: Will not occur.

Section 11 Toxicological Information

Skin Contact: Product will cause skin irritation upon prolonged contact.

Skin Absorption: Product absorbed through the skin upon prolonged contact.

Eye Contact: Product causes eye irritation if directly rubbed in eye.

Inhalation: Product is irritating when inhaled.

Ingestion: Product is irritating when swallowed.

Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical and toxicological properties of active ingredient have not been thoroughly investigated.

Toxicity Data

Acute Dermal Irritation (Rabbit): Category IV

Acute Oral (Rat):LD 50 1,570 mg/kg

Skin Sensitization (Guinea pig): Slight Sensitizer

Acute Inhalation (Rat): LD50 > 2.1 mg/L air (Category IV)

Acute Eye Irritation (Rabbit): Category IV

LDLo - Lowest published lethal dose: (Intraperitoneal) Rodent – mouse: 250 mg/kg

TLV: Not Established

PEL: Not established

OSHA , NTP, IRC Carcinogen: No

Section 12 Ecological Information

No data available.

Section 13 Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local environmental regulations.

Section 14 Transport Information

DOT

Shipping Name: Combustible liquid n.o.s.

Class: Combustible Liquid

Label(s): None

PIH: Not PIH

IATA

Non dangerous for air transportation

Label: COMBUSTIBLE LIQUID

Section 15 Regulatory Information

EU Additional Classification

Based on toxicological studies in the published literature, there are no risk and safety phrases to assign for this product.

US classification and label text:

Indication of Danger: Combustible. Irritant.

Risk Statements: Irritating to eyes, respiratory system and skin.

Safety Statements: Keep away from sources of ignition – No Smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

United States Regulatory Information

SARA listed: No

TSCA inventory item: Yes

Canada regulatory information: WHMIS classification: this product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

Section 16 Other Information

HMIS® Hazardous Materials Identification System

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used only in conjunction with a fully implemented HMIS® program by workers who have received appropriate HMIS® training. HMIS® is a registered trade and service mark of the NPCA.

Acronyms: NTP (National Toxicology Program); IARC (International Agency for Research on Cancer); OSHA (Occupational Health and Safety Administration); DOT (U.S. Dept. of Transportation)

Disclaimer:

For use in forests.

Warranty:

The above information was obtained from sources we believe to be reliable, however the information in this MSDS is provided without any warranty, express or implied regarding its correctness. ChemTica Internacional makes no representations or warranties either express or implied, of merchantability, fitness for a particular purpose or of any other nature with respect to the information or the product to which the information refers. ChemTica's sole and exclusive liability with respect to products that are proven to ChemTica's satisfaction to be defective or nonconforming shall be the replacement of such products in accordance with ChemTica's instructions. This remedy, in the manner provided herein, shall constitute fulfillment of all liabilities of ChemTica whether based on contract, tort or otherwise with respect to, or arising out of the products. ChemTica shall not be liable for any incidental, consequential or contingent or special damages.