



Material Safety Data Sheet

Bioallethrin 90% Concentrate

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products is regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling. All necessary and appropriate precautionary, use, and storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Bioallethrin 90% Concentrate
MSDS IDENTIFICATION NO.: ENV-0126
CHEMICAL NAME: Mixture: d-trans-allethrin
EPA REGISTRATION NUMBER: 73049-394
PRODUCT DESCRIPTION: This product is to be used only for the formulation of insecticides.

MANUFACTURER

Valent BioSciences Corporation
870 Technology Way
Libertyville, IL 60048

EMERGENCY TELEPHONE NUMBERS

HEALTH EMERGENCY OR SPILL (24 hr):
Within the United States: (877) 315-9819
Outside the United States: (651) 632-6184

PRODUCT INFORMATION

ENVIRONMENTAL SCIENCE PRODUCTS:
(866) 822-3731
www.valentbiosciences.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Weight/ Percent	ACGIH Exposure Limits	OSHA Exposure Limits	Manufacturer's Exposure Limits
Bioallethrin (2-methyl-4-oxo-3-(2-propenyl)-2-cyclopenten-1-yl 2,2-dimethyl-3-(2-methyl-1-propenyl) cyclopropanecarboxylate) * (28057-48-9)	90	None	None	See regulated exposure limits
Others ** (No CAS#)	10	None	None	See regulated exposure limits

* Active Ingredient

** Other ingredients, which are maintained as trade secrets, are any substances other than an active ingredient contained in this product. Some of these may be hazardous, but their identity is withheld because they are considered trade secrets. The hazards associated with the other ingredients are addressed in this document. Specific information on other ingredients for the management of exposures, spills, or safety assessments can be obtained by a treating physician or nurse by calling (877) 315-9819 (within the United States) or (651) 632-6184 (outside the United States) at any time.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

A CLEAR AMBER LIQUID

- CAUTION**
- Harmful if swallowed, inhaled or absorbed through skin.
 - Avoid contact with eyes, skin and clothing.
 - Avoid breathing vapors.
 - Highly toxic to fish.
 - Keep out of reach of children.

POTENTIAL HEALTH EFFECTS

Acute Toxicity (Primary Routes of Exposure): Inhalation, eye and skin contact

Signs and Symptoms of Systemic Effects: This product contains a pyrethroid. Pyrethroids produce salivation, diarrhea, weakness tremors and convulsions in laboratory animals exposed to high doses.

Acute Eye Contact: This product is expected to cause minimal or no eye irritation. The expected adverse health effects resulting from an exposure may include redness and possibly some minor swelling.

Acute Skin Contact: This product is slightly toxic when absorbed through the skin. This product can cause brief and/or minor irritation. The expected adverse health effects resulting from an exposure may include redness and possibly some minor swelling. This product is not expected to cause allergic skin reactions. This product contains a pyrethroid. Skin contact with pyrethroids can result in a temporary burning, tingling or itching sensation.

Acute Ingestion: This product is moderately toxic when ingested.

Acute Inhalation: This product is minimally toxic when inhaled.

Chronic Toxicity (including cancer): This product is not listed as a carcinogen by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), the Occupational Safety and Health Administration (OSHA) or ACGIH.

Potentially Aggravated Medical Conditions: Individuals with allergy history or pre-existing dermatitis should use extra precautions in handling this product.

For complete discussion of the toxicology data from which this evaluation was made, refer to Section 11. For Regulatory Information, refer to Section 15.

4. FIRST AID MEASURES

**EMERGENCY NUMBER: within the United States (877) 315-9819;
outside the United States (651) 632-6184**

EYE CONTACT:

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

SKIN CONTACT:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

INGESTION:

Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

INHALATION:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

NOTES TO PHYSICIAN:

This product has moderate oral, and low dermal and inhalation toxicity. It is mildly irritating to the eyes and minimally irritating to the skin. Do not administer milk, cream or other substances which contain vegetable or animal fats, as they enhance absorption. Central nervous system stimulation should be controlled with sedation by, e.g., barbiturates. Reversible skin sensations (paresthesia) may occur and ordinary skin salves have been found useful in reducing discomfort. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

Inducing vomiting as first aid for this substance may result in an increased risk of chemical pneumonia or pulmonary edema caused by aspiration of the hydrocarbon solvent. Vomiting should be induced only under professional supervision.

5. FIRE FIGHTING MEASURES

FLASH POINT:	196° F (91° C)
FLASH POINT METHOD:	TCC
FLAME EXTENSION:	Not applicable
AUTOIGNITION:	No data available
EXTINGUISHING MEDIA:	Foam, carbon dioxide, or dry chemical.
FLAMMABLE LIMITS IN AIR - LOWER (%):	Not applicable
FLAMMABLE LIMITS IN AIR - UPPER (%):	Not applicable
NFPA RATING:	
Health:	1
Flammability:	2
Reactivity:	0
Special:	None

(Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using professional judgement. Values were not available in the guidelines or published evaluations prepared by the National Fire Protection Association, NFPA.

FIRE & EXPLOSION HAZARDS: Combustible. Do not use or store near heat or open flame.

FIRE FIGHTING INSTRUCTIONS: Products of combustion from fires involving this material may be toxic. Avoid breathing smoke and mists. Avoid personnel and equipment contact with fallout and runoff. Minimize the amount of water used for fire fighting. Do not enter any enclosed area without full protective equipment, including self-contained breathing equipment. Contain and isolate runoff and debris for proper disposal. Decontaminate personal protective equipment and fire fighting equipment before reuse. Read the entire document.

HAZARDOUS COMBUSTION PRODUCTS: May form toxic materials: Carbon dioxide, carbon monoxide and various hydrocarbons etc.

6. ACCIDENTAL RELEASE MEASURES

EMERGENCY TELEPHONE NUMBERS HEALTH EMERGENCY OR SPILL (24 hr): Within the United States: (877) 315-9819 Outside the United States: (651) 632-6184

OBSERVE PRECAUTIONS IN SECTION 8: PERSONAL PROTECTION

If it is safe to do so:

- Evacuate non-essential personnel from the area to prevent human exposure.
- Remove all sources of ignition.
- Ventilate area.
- Stop the source of the spill.
- Contain the spill to prevent further contamination of the soil, surface water or ground water.
- May produce slippery conditions.

GENERAL AND DISPOSAL: Use proper protective equipment to minimize personal exposure (see Section 8). Take all necessary action to prevent and to remedy the adverse effect of the spill. Ensure that the disposal is in compliance with all Federal, Provincial, and local regulations (See Section 15 for applicable RCRA Number). Refer to Section 15 for applicable Reportable Quantity (RQ) and other regulatory requirements.

SPILL OR LEAK

CONTAINMENT: Soak up liquid with an absorbent material such as sand, sawdust, earth, Fuller's earth, etc. Place in an approved chemical waste container for disposal. Do not allow spilled material to enter any body water.

CLEANUP: Rinse spill area with small amount of soapy water. Contain and absorb the rinsate with inert adsorbents and place into an approved chemical waste container for disposal. Area can be washed with water to remove the last trace residue. Do not allow water to contaminate water supplies or sewers.

7. HANDLING AND STORAGE

END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

HANDLING PRECAUTIONS: Avoid contact with skin, eyes or clothing. Avoid breathing vapors. Avoid contamination of feed and foodstuffs.

STORAGE: Do not contaminate water, food or feed by storage or disposal. Store in a cool, dry place. Store upright at room temperature. Avoid exposure to extreme temperature.

WORK/HYGIENIC PRACTICES: Wash thoroughly with soap and water after handling and before smoking or eating. Remove contaminated clothing and wash clothing before reuse.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

EYES: Do not get this material in your eyes. Eye contact can be avoided by wearing safety goggles or a face shield.

RESPIRATORY PROTECTION: Use this material only in well ventilated areas. If operating conditions result in airborne concentrations of this material, the use of an approved respirator is recommended.

SKIN PROTECTION: Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including gloves.

ENGINEERING CONTROLS: Exhaust ventilation.

OTHER/GENERAL PROTECTION: Clean water should be available for washing in case of eye or skin contamination. Wash prior to eating, drinking or using tobacco. Shower at the end of the workday.

EXPOSURE LIMITS - See Section 2.

9. PHYSICAL AND CHEMICAL PROPERTIES

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PHYSICAL STATE:	Liquid
COLOR:	Clear amber
ODOR:	Mild motor oil, sweet and pine like odor
MELTING POINT:	No data available
BOILING POINT:	No data available
BULK DENSITY:	8.25 lbs/gal
VAPOR PRESSURE:	No data available
pH:	No data available
VISCOSITY:	188 cps @ 22° C
SOLUBILITY:	Insoluble in water.

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY:	Stable at normal ambient temperatures.
OXIDATION/REDUCTION PROPERTIES:	No data available
EXPLODABILITY:	No data available
HAZARDOUS POLYMERIZATION :	Will not occur.
HAZARDOUS DECOMPOSITION PRODUCTS:	Heat and fire may result in thermal decomposition. May form toxic materials such as: Carbon dioxide, carbon monoxide, various hydrocarbons, etc.
CONDITIONS TO AVOID:	Open heat or flame

11. TOXICOLOGICAL INFORMATION

ACUTE (Product Specific Information):

Oral Toxicity LD ₅₀ (rats)	709.0 mg/kg (males) 1041.9 mg/kg (females)	EPA Tox Category	III
Oral Toxicity LD ₅₀ (mice)			
Dermal Toxicity LD ₅₀ (rabbits)	> 3000 mg/kg	EPA Tox Category	III
Inhalation Toxicity LC ₅₀ (rats)	2.51 mg/L	EPA Tox Category	IV
Eye Irritation (rabbits)	Mildly irritating	EPA Tox Category	IV
Skin Irritation (rabbits)	Mildly irritating	EPA Tox Category	IV
Skin Sensitization (guinea pigs)	Non-sensitizer	EPA Tox Category	Not applicable

CHRONIC/CARCINOGENICITY: Studies conducted on a product similar to bioallethrin did not reveal any evidence of oncogenicity.

Carcinogenicity: NTP: No IARC: No OSHA: No

REPRODUCTION: No data available

DEVELOPMENTAL TOXICITY: Studies conducted on a product similar to bioallethrin in rats and mice did not reveal any evidence of teratogenicity.

MUTAGENICITY: Bioallethrin is not considered to be mutagenic based on *in vitro* studies conducted.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

ACUTE AND LONG-TERM TOXICITY TO FISH AND INVERTEBRATES:

This product is highly toxic to fish.

ECOLOGICAL TOXICITY:**AVIAN**

Allethrin (similar to bioallethrin) is slightly toxic to birds with a mallard oral LC₅₀ value less than 2000 mg/kg.

AQUATIC

Allethrin (similar to bioallethrin) is very highly toxic to freshwater organisms:
 96 hour LC₅₀ Rainbow Trout: 19.0 µg/l;
 96 hour LC₅₀ Bluegill Sunfish: 56 µg/l;
 96 hour LC₅₀ Scuds: 11.0 µg/l

OTHER ENVIRONMENTAL INFORMATION:

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollution Discharge Elimination system (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product into sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. Do not contaminate water when disposing of equipment wash waters.

13. DISPOSAL CONSIDERATIONS

END USERS MUST DISPOSE OF ANY UNUSED PRODUCT AS PER THE LABEL RECOMMENDATIONS.

PRODUCT DISPOSAL:

If partly filled: Call your local solid waste agency or 1-800-CLEANUP for disposal instructions. Never place unused product down any indoor or outdoor drain.

CONTAINER DISPOSAL:

Triple rinse (or equivalent). Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

DISPOSAL METHODS:

Wastes resulting from use of this product may be disposed of on site or at a waste disposal facility. Never place unused product down any indoor or outdoor drain.

Check government regulations and local authorities for approved disposal of this material. Dispose in accordance with applicable laws and regulations.

14. TRANSPORT INFORMATION

DOT (ground) SHIPPING NAME:

Environmentally hazardous substance, liquid, n.o.s.
(bioallethrin)

DOT TECHNICAL SHIPPING NAME:

Bioallethrin 90% Liquid

DOT REPORTABLE QUANTITY (RQ):

None

UN/NA NUMBER:

UN 3082

HAZARD CLASS:

9

PACKING GROUP:

III

REMARKS:

Marine pollutant when shipped in bulk or non-bulk by water.
 For transportation purposes (49 CFR Part 173.132), the calculated 1-Hour LC50 (rat) is > 10.04 mg/l.

EXEMPTION REQUIREMENT:

49 CFR 173.155

15. REGULATORY INFORMATION

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REGULATIONS UNDER FIFRA: All pesticides are governed under FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act). Therefore, the regulations presented below are pertinent only when handled outside of the normal use and applications of pesticides. This includes waste streams resulting from manufacturing/formulation facilities, spills or misuse of products, and storage of large quantities of products containing hazardous or extremely hazardous substances.

EPA REGISTRATION NUMBER: 73049-394

OTHER U.S. FEDERAL REGULATIONS:

Chemical Name	RCRA - U Series Wastes	Clean Water Act - Hazardous Substances	Clean Water Act Section 307
Bioallethrin (2-methyl-4-oxo-3-(2-propenyl)-2-cyclopenten-1-yl 2,2-dimethyl-3-(2-methyl-1-propenyl) cyclopropanecarboxylate) * (28057-48-9)	None	Not listed	Not listed

CWA Section 311: No data

Chemical Name	SARA 313 Chemicals	SARA Section 302	CERCLA Reportable Quantity (RQ):
Bioallethrin (2-methyl-4-oxo-3-(2-propenyl)-2-cyclopenten-1-yl 2,2-dimethyl-3-(2-methyl-1-propenyl) cyclopropanecarboxylate) * (28057-48-9)	1.0% de minimis concentration	Not listed	None

SARA (311, 312):

Immediate Health: Yes
 Chronic Health: Yes
 Fire: Yes
 Sudden Pressure: No
 Reactivity: No

Chemical Name	IARC - Group 1 (carcinogenic to humans)	IARC - Group 2A (Probably carcinogenic)	IARC - Group 2B (Possibly carcinogenic)	NTP Carcinogen List
Bioallethrin (2-methyl-4-oxo-3-(2-propenyl)-2-cyclopenten-1-yl 2,2-dimethyl-3-(2-methyl-1-propenyl) cyclopropanecarboxylate) * (28057-48-9)	No	No	No	Not listed

STATE REGULATIONS:

Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list of all state regulations. Therefore, the user should consult state or local authorities. The state regulations reviewed include: California Proposition 65, California Directors List of Hazardous Substances, Massachusetts Right to Know, Michigan Critical Materials List, New Jersey Right to Know, Pennsylvania Right to Know, Rhode Island Right to Know and the Minnesota Hazardous Substance list. For Washington State Right to Know, see Section 2 for Exposure Limit information. For Louisiana Right to Know refer to SARA information listed under U.S. Regulations above.

Chemical Name	California Proposition 65	California - Directors List of Hazardous Substances	NJ Environmental Hazardous Substances List
Bioallethrin (2-methyl-4-oxo-3-(2-propenyl)-2-cyclopenten-1-yl 2,2-dimethyl-3-(2-methyl-1-propenyl) cyclopropanecarboxylate) * (28057-48-9)	Not listed	Not listed	Listed

Chemical Name	MI - Critical Materials List	MA Right To Know	NJ Right To Know
Bioallethrin (2-methyl-4-oxo-3-(2-propenyl)-2-cyclopenten-1-yl 2,2-dimethyl-3-(2-methyl-1-propenyl) cyclopropanecarboxylate) * (28057-48-9)	Not listed	Not listed	Not listed

Chemical Name	PA Right To Know	RI Right To Know	MN Hazardous Substance
Bioallethrin (2-methyl-4-oxo-3-(2-propenyl)-2-cyclopenten-1-yl 2,2-dimethyl-3-(2-methyl-1-propenyl) cyclopropanecarboxylate) * (28057-48-9)	Not listed	Not listed	Not listed

California Proposition 65: Not listed

CHEMICAL INVENTORY INFORMATION:

TSCA Inventory List - Registered pesticide, exempt from TSCA.

Chemical Name	Canada NDSL Inventory List	Canada DSL Inventory List -	EINECS Inventory List -
Bioallethrin (2-methyl-4-oxo-3-(2-propenyl)-2-cyclopenten-1-yl 2,2-dimethyl-3-(2-methyl-1-propenyl) cyclopropanecarboxylate) * (28057-48-9)	Not listed	Not listed	Not listed

CANADIAN REGULATIONS:

WHMIS Hazard Class: Not determined

For information regarding potential adverse health effects from exposure to this product, refer to Sections 3 and 11.

16. OTHER INFORMATION

REASON FOR ISSUE: Input MSDS into the new system and minor edits throughout.
EPA REGISTRATION NUMBER: 73049-394
MSDS NO.: ENV-0126
REVISION NUMBER: 2
REVISION DATE: 10/18/2006
SUPERCEDES DATE: January 24, 2003

THE INFORMATION IN THIS MSDS IS BASED ON DATA AVAILABLE TO US AS OF THE REVISION DATE GIVEN HEREIN, AND BELIEVED TO BE CORRECT. CONTACT VALENT BIOSCIENCES TO CONFIRM IF YOU HAVE THE MOST CURRENT MSDS.

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