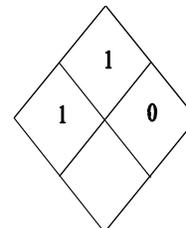


MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION



PRODUCT NAME: DISCIPLINE™ Flowable; WISDOM™ Flowable;
DISCIPLINE™ TC Flowable; WISDOM™ TC Flowable

GENERAL USE: Pyrethroid type insecticide/miticide

PRODUCT DESCRIPTION: Beige liquid with a bland odor

MOLECULAR FORMULA: C₂₃H₂₂ClF₃O₂ (Bifenthrin)

EPA Registration Number: 5481-519; 5481-520

MSDS No.: 317_2

Current Revision Date: 9 June, 2004 (Draft 2)

MANUFACTURER:
AMVAC CHEMICAL CORPORATION
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FAX: 323-268-1028

EMERGENCY TELEPHONE NUMBERS:
MANUFACTURER: 323-264-3910
TRANSPORTATION (24 HOURS)
CHEMTREC: 800-424-9300
OTHER (24 HOURS)
AMVAC: 323-264-3910

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS #	Wt%	Hazard(s)	PEL/TLV
Bifenthrin	82657-04-3	7.9%	None	None
Propylene glycol	57-55-6	<6.2%		10 mg/m ³ (WEEL)
Inert Ingredients		92.1%	None	

DISCIPLINE and WISDOM are trademarks of AMVAC Chemical Corporation.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

WARNING: Causes eye irritation. Causes skin irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed, inhaled or absorbed through the skin. Avoid breathing vapors or spray mist. Use with adequate ventilation. Do not contaminate feed or foodstuffs.

KEEP OUT OF REACH OF CHILDREN.

Toxic to fish and aquatic organisms.

3. **HAZARDS IDENTIFICATION, cont'd**

POTENTIAL HEALTH EFFECTS

ROUTE(S) OF ENTRY: Typical routes of exposure are swallowing, inhalation, or coming into contact with the skin.

SIGNS OF ACUTE OVEREXPOSURE: Symptoms of overexposure include tremors, convulsions, incoordination, decreased locomotion and nasal discharge, including bleeding. Contact with Bifenthrin may occasionally produce skin sensations such as rashes, numbing, burning or tingling. These skin sensations are reversible and usually subside within 12 hours.

SIGNS OF CHRONIC OVEREXPOSURE: Same as acute.

OTHER POTENTIAL HEALTH EFFECTS: Bifenthrin has produced an increased incidence of urinary bladder tumors in male mice at the highest dose level tested. This response however was considered equivocal and not evidence of a clear compound related effect. EPA has classified Bifenthrin as a class C carcinogen, a possible human carcinogen.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None presently known.

CARE SHOULD BE EXERCISED IN HANDLING THIS PRODUCT.

4. **FIRST AID MEASURES**

EYES: Immediately flush the eyes with copious amounts of clear, cool running water for a minimum of 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyes and lids with water. Contact a physician if irritation occurs and persists.

INHALATION: Remove victim to fresh air. If breathing has ceased, clear the victim's airway and start artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Contact a physician immediately.

INGESTION: Induce vomiting by giving two glasses of water and sticking a finger down throat or giving syrup of ipecac. Never give anything by mouth to an unconscious person. Contact a physician immediately.

SKIN: Remove contaminated clothing. Wash thoroughly with soap and clean water. If a rash or any of the symptoms of acute exposure appear, contact a physician immediately.

NOTE TO PHYSICIANS: Bifenthrin is moderately toxic if swallowed and has low dermal toxicity. It may be slightly irritating to the skin and practically non-irritating to the eyes. Bifenthrin has high toxicity by the ingestion route of exposure. Gastric lavage using an endotracheal tube may be preferred to vomiting. Reversible skin sensations (paresthesia) may occur and ordinary skin salves have been found useful in reducing discomfort. Treatment is otherwise controlled by removal of exposure followed by symptomatic and supportive care. Contact your local poison control center for more medical information.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flash Point: >212°F/100°C (TCC)

Autoignition Temperature: Not determined

Flammable Limits:

Lower flammable limit: Not determined

Upper flammable limit: Not determined

EXPLOSIVITY:

Mechanical Impact: Not expected to be explosive under mechanical impact conditions.

Static Discharge: Not expected to be explosive.

HAZARDOUS COMBUSTION PRODUCTS: Slightly combustible liquid, and may support combustion at elevated temperatures. This product may emit hazardous fumes of hydrogen chloride, hydrogen fluoride, carbon oxides, and unidentified organic compounds when it is heated excessively or burned. WEAR SELF-CONTAINED BREATHING APPARATUS.

EXTINGUISHING MEDIA: Water spray, dry chemical, foam, or carbon dioxide.

FIRE FIGHTING INSTRUCTIONS: Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases or vapors generated.

6. ACCIDENTAL RELEASE MEASURES

GENERAL: Thoroughly ventilate area. Wear self-contained breathing apparatus and complete protective clothing as listed in Section 8. Keep unauthorized personnel out of the area.

SMALL SPILL: Dike area to prevent contamination of water bodies. If liquid, absorb liquid on solid nonflammable support (Diatomaceous earth, Kitty Litter, Clean Dri, etc.). Place in covered containers. Clean area first with an alcoholic caustic or soda ash solution, then follow with soap and water. The cleaning solutions are also hazardous wastes.

LARGE SPILL: Dike the spill area to prevent contamination of water bodies. If liquid, siphon as much liquid as possible into drums for reuse or disposal. Absorb remaining liquid on a solid absorbent. Place absorbed material into a sealable container and seal. Clean the spill area first with an alcoholic caustic or soda ash solution, then follow with soap and water. The cleaning solutions are also hazardous wastes.

7. HANDLING AND STORAGE

HANDLING: Keep this product cool and dry. Keep container closed. Store away from feed, food, and drink. Keep away from children and pets. Wash thoroughly after handling this product. Make certain containers are grounded to prevent static buildup and discharge.

STORAGE: Store product in its original container in a cool, dry, locked place out of the reach of children. Store away from sources of heat and ignition.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: General air replacement or dilution ventilation is sufficient for material handling and storage, but local ventilation should be used when removing this product from containers. Ventilate all transport vehicles prior to unloading.

RESPIRATORY PROTECTION: A properly FIT-TESTED NIOSH/MSHA-approved respirator fitted with organic vapor cartridges with a prefilter approved for pesticides is required for exposures in enclosed areas. For exposures outdoors, a NIOSH/MSHA-approved dust/mist filtering respirator is required.

SKIN PROTECTION: Applicators and other handlers must wear long-sleeved shirt and long pants; waterproof gloves (such as rubber, neoprene or PVC); and shoes plus socks. For cleanup of spills or other large exposures, wear full body cover barrier suit, such as a PVC suit. Follow manufacturer's instructions for cleaning/ maintaining personal protection equipment (PPE). If no such instructions are available, use detergent and hot water. Keep and wash PPE separately from other laundry.

EYE PROTECTION: Safety glasses with side shields should be used whenever hazardous chemicals are being handled. Goggles or full face shield should be used if there is a potential for splashing.

OTHER PROTECTION: An eyewash station and a safety shower should be located in the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Beige liquid
Odor:	Bland
Odor Threshold:	None established
Boiling Point:	Not available
Freezing/Melting Point:	-2 °C (28.4 °F)
Specific Gravity:	1.024 g/mL @ 20°C
Density:	8.53 lb/gal
Vapor Pressure (mm/Hg):	1.81 x 10 ⁻⁷ mm Hg @ 25°C (ai)

9. **PHYSICAL AND CHEMICAL PROPERTIES, cont'd**

Vapor Density:	Heavier than air
Percent Volatile by Vol:	Not applicable
Solubility in Water:	Dispersible
Solubility (Other):	This product is soluble in aromatic solvents
Partition Coefficient (Log P _{ow}):	> 6.0 (Bifenthrin)
pH (5% in water):	6.7 @ 25°C
Evaporation Rate:	Not available

10. **STABILITY AND REACTIVITY**

CHEMICAL STABILITY (Conditions to avoid): This product is stable under normal storage and use conditions.

INCOMPATIBILITY: Avoid excessive heat and flame.

HAZARDOUS DECOMPOSITION PRODUCTS: This product may emit hazardous fumes of hydrogen chloride, hydrogen fluoride, carbon oxides, and unidentified organic compounds when it is heated excessively or burned. WEAR SELF-CONTAINED BREATHING APPARATUS when these conditions are present.

HAZARDOUS POLYMERIZATION: This product will not polymerize.

11. **TOXICOLOGICAL INFORMATION**

The information listed below are either for this formulation (f) or for the active ingredient (ai).

INGESTION:	Oral LD ₅₀ (rat):	632 mg/kg (f)
DERMAL:	Skin LD ₅₀ (rabbit):	> 2000 mg/kg (f)
INHALATION:	Inhalation LC ₅₀ (rat):	11.58 mg/L/1 hr (f)
IRRITATION:	Eye irritation:	Minimally irritating (f)
	Skin irritation: (rabbit)	Non irritating (f)
SENSITIZATION:	Skin sensitization: (guinea pig)	Not known to be a sensitizer (ai)

TERATOGENICITY: In studies with animals, Bifenthrin did not cause teratogenicity (ai).

MUTAGENICITY: Tests with Bifenthrin have shown an absence of genotoxicity (ai).

CARCINOGENICITY: Bifenthrin has produced an increased incidence of urinary bladder tumors in male mice at the highest dose level tested. This response however was considered equivocal and not evidence of a clear compound related effect. EPA has classified Bifenthrin as a class C carcinogen, a possible human carcinogen (ai).

11. TOXICOLOGICAL INFORMATION, cont'd

REPRODUCTIVE TOXICITY: In studies with animals, Bifenthrin did not cause reproductive toxicity (ai).

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: No information is available (ai).

12. ECOLOGICAL INFORMATION

This pesticide is highly toxic to fish and aquatic organisms. Drift and runoff from treated areas may be hazardous to fish and aquatic organisms in adjacent aquatic sites. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Do not apply directly adjacent to potable water supplies.

13. DISPOSAL CONSIDERATIONS

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional office for guidance.

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. Contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional office for guidance.

14. TRANSPORTATION INFORMATION

This product is not regulated when shipped by highway, railroad or air in packages < 119 gallons (450 L) in volume. When this product is shipped in bulk or is shipped by water (non-bulk or bulk), it is regulated according to the data listed below:

DOT Class:	9
UN Number:	UN3082
IMDG Class (sea):	9
IATA Class:	9
Marine Pollutant:	Yes (Bifenthrin = Severe marine pollutant)
Packing Group:	III
Hazard Label(s):	Environmentally Hazardous
Proper Shipping Name(s):	Environmentally hazardous substances, liquid, n.o.s. (Bifenthrin 7.9%)

14. TRANSPORTATION INFORMATION, cont'd

Reportable Quantity: None
US Surface Freight Class: Insecticides, NOI, Poison other than Poison, NMFC
Item 102120

PACKAGING

General Description: Pint, quart, 1 gallon bottles, 5 gal carboy; 55 gal drum

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

This product is registered under EPA/FIFRA Regulations. It is a violation of Federal Law to use this product in any manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPA/TSCA.

SARA TITLE III DATA:

Section 311 & 312 Hazard Categories:

Immediate Health Hazard:	Yes
Delayed Health Hazard:	Yes
Fire Hazard:	No
Reactive Hazard:	No
Sudden Pressure Release Hazard:	No

Section 302 Extremely Hazardous Substances: None

Section 313 Toxic Chemicals:

Bifenthrin (CAS 82657-04-3)	7.9%
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CERCLA Reportable Quantities (RQ): Not listed

STATE REGULATIONS:

CALIFORNIA (Proposition 65): Not listed

16. OTHER INFORMATION

MSDS Status:

Date This Revision: 9 June, 2004

Date Previous Revision: 6 November 2003

Person Responsible for Preparation: Gary A. Braden

Reasons for Revision: Registration of this product with the EPA has necessitated changes in sections 1 and 15.

16. OTHER INFORMATION, cont'd

DISCLAIMER: This information is provided for the limited guidance to the user. While AMVAC believes that the information is, as of the date hereof, reliable, it is the user's responsibility to determine the suitability of the information for the users' purposes. The user is advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional, or variable conditions or circumstances exist (like combinations with other materials), or because of applicable regulations. No express or implied warranty of merchantability or fitness for a particular purpose or otherwise is made hereunder with respect to the information or the product to which the information relates.

ABBREVIATIONS:

ai	-	active ingredient
ACGIH	-	American Conference of Governmental Industrial Hygienists
BEI	-	Biological Exposure Index
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	-	Environmental Protection Agency
FIFRA	-	Federal Insecticide, Fungicide, and Rodenticide Act
IARC	-	International Agency for Research on Cancer
NTP	-	National Toxicology Program
SARA	-	Superfund Amendments and Reauthorization Act
TSCA	-	Toxic Substances Control Act

This is the last page of this MSDS. There should be 8 pages.