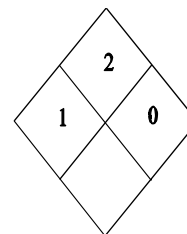


## MATERIAL SAFETY DATA SHEET

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION



**PRODUCT NAME:** DISCIPLINE™ 2 EC  
**GENERAL USE:** Pyrethroid type pesticide  
**PRODUCT DESCRIPTION:** Amber to dark liquid with an aromatic odor  
**EPA Registration Number:** 5481-517  
**MSDS No.:** 311\_3L  
**Current Revision Date:** 28 October, 2005

**MANUFACTURER:**  
AMVAC CHEMICAL CORPORATION  
4100 E. Washington Blvd.  
Los Angeles, CA 90023-4406  
Ph: 323-264-3910  
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	25.1	None	None
Aromatic Hydrocarbons	64742-94-5	< 67.0	Combustible (OSHA)	100 mg/m <sup>3</sup> (Vendor)
Xylene (from solvent)	1330-20-7	<2.0		100 ppm 150 ppm STEL
1,2,4-Trimethylbenzene (from solvent)	95-63-6	<21.4		25 ppm
Cumene (from solvent)	98-82-8	< 1.0		50 ppm (skin)
Surfactant Blend		<10		None

DISCIPLINE is a trademark of AMVAC Chemical Corporation

3. **HAZARDS IDENTIFICATION**

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**EMERGENCY OVERVIEW:**

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

**KEEP OUT OF REACH OF CHILDREN.**

**Highly toxic to fish and aquatic organisms.**

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**POTENTIAL HEALTH EFFECTS**

**ROUTE(S) OF ENTRY:** Ingestion, inhalation, eye contact, and skin contact.

**SIGNS OF ACUTE OVEREXPOSURE:** 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. Exposure to the vapors can cause irritation to eyes, lungs, and mucous membranes. Contact with liquid can cause eye irritation, skin irritation and skin defatting. Ingestion may result in vomiting. Aspiration (breathing) of the vomitus into the lungs must be avoided as even small quantities may result in aspiration pneumonitis (pneumonia). Prolonged exposure to aromatic hydrocarbons may result in congestive effects to a wide variety of internal organs. Symptoms of overexposure include tremors, convulsions, incoordination, decreased locomotion and nasal discharge.

**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.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Dermatitis, asthma-like conditions, other CNS related diseases.

**CARE SHOULD BE EXERCISED IN HANDLING THIS FORMULATION.**

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#### **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 immediately. If there will be a delay in getting medical attention, rinse the eyes for at least another 15 minutes.

**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:** DO NOT induce vomiting. If subject is conscious, administer an 8 oz. glass of water containing 2 tsp. activated charcoal. 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:** This product contains an aromatic hydrocarbon solvent. Aspiration of the vomitus may cause aspiration pneumonitis. In addition, the product is an eye irritant and a defatting agent. Treat symptomatically. Contact your local poison control center for more medical information.

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#### **5. FIRE FIGHTING MEASURES**

##### **FLAMMABLE PROPERTIES**

Flash Point: 108°F/42°C (TCC)  
Autoignition Temperature: 894°F  
Flammable Limits:

Lower flammable limit: 0.9%  
Upper flammable limit: 6.0%

##### **EXPLOSIVITY**

Mechanical Impact: Not expected to be explosive under mechanical impact conditions.  
Static Discharge: May accumulate static electricity.

**HAZARDOUS COMBUSTION PRODUCTS:** Combustible liquid. 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.

5. **FIRE FIGHTING MEASURES, cont'd**

**FIRE FIGHTING INSTRUCTIONS:** Use water spray to cool fire exposed surfaces and to protect personnel. Isolate "fuel" supply from fire. Avoid spraying water directly into storage containers due to danger of boilover. This product contains a volatile liquid and gives off invisible vapors. Either the liquid or the vapor may settle in low areas or travel some distance along the ground or surface to ignition sources where they may ignite or explode.

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6. **ACCIDENTAL RELEASE MEASURES**

**GENERAL:** Eliminate all sources of ignition. Thoroughly ventilate area. Wear self-contained breathing apparatus and complete protective clothing. Keep unauthorized personnel out of the area.

**SMALL SPILL:** Dike area to prevent contamination of water bodies. Absorb liquid on solid nonflammable support (Diatomaceous earth, Kitty Litter, Clean Dri, etc.). Place in covered containers. Clean area with soap and water. The cleaning solutions are also hazardous wastes.

**LARGE SPILL:** Dike the spill area to prevent contamination of water bodies. Siphon as much liquid as possible into drums for reuse or disposal, using explosion proof or hand pump. Absorb remaining liquid on a solid absorbent. Place absorbed material into a sealable container and seal. Clean the spill area with soap and water. The cleaning solutions are also hazardous wastes.

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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. Do not freeze. Store above 32°F (0°C). Store away from sources of heat and ignition.

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8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

**ENGINEERING CONTROLS:** Ventilation should be sufficient to keep the exposure below applicable TLV's.

**RESPIRATORY PROTECTION:** A properly FIT-TESTED NIOSH/MSHA approved respirator fitted with organic vapor cartridges and dust caps (or equivalent dust protection device) is required if exposures will be at or above the TLV for this product.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION, cont'd

**SKIN PROTECTION:** Applicators and other handlers must wear long-sleeved shirt and long pants or coveralls, waterproof gloves, and shoes plus socks. Cleanup of a large spill will probably require the use of chemically impervious clothing such as PVC clothing. 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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Liquid
<b>Appearance:</b>	Amber to dark liquid
<b>Odor:</b>	Solvent odor
<b>Odor Threshold:</b>	None established
<b>Boiling Point:</b>	> 318°F/159°C
<b>Freezing/Melting Point:</b>	< 0°C/32°F
<b>Specific gravity:</b>	0.97 g/mL @ 20°C
<b>Density:</b>	8.1 lb/gal
<b>Vapor Pressure (mm/Hg):</b>	approx 2.08 mm Hg @ 68°F
<b>Vapor Density:</b>	Heavier than air
<b>Percent Volatile by Vol:</b>	68%
<b>Solubility in Water:</b>	Emulsifiable
<b>Solubility (Other):</b>	This product is soluble in aromatic solvents
<b>Partition Coefficient (O/W):</b>	Not determined for formulation
<b>pH (5% in water):</b>	7.0
<b>Evaporation Rate:</b>	0.1 as compared to n-Butyl acetate

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## 10. STABILITY AND REACTIVITY

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

**INCOMPATIBILITY:** Avoid heat, flame, and strong oxidizing materials.

## 10. STABILITY AND REACTIVITY, cont'd

**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.

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## 11. TOXICOLOGICAL INFORMATION

<b>INGESTION:</b>	Oral LD <sub>50</sub> (rat):	262 mg/kg
<b>DERMAL:</b>	Skin LD <sub>50</sub> (rabbit):	> 2000 mg/kg
<b>INHALATION:</b>	Inhalation LC <sub>50</sub> (rat):	1.86 mg/L (aerosol, 4 hour test)
<b>IRRITATION:</b>	Eye irritation:	Minimally irritating
	Skin irritation: (rabbit)	Non irritating
<b>SENSITIZATION:</b>	Skin sensitization (guinea pig)	Sensitizer

**TERATOGENICITY:** In studies with animals, bifenthrin did not cause teratogenicity.

**MUTAGENICITY:** Tests with bifenthrin have shown an absence of genotoxicity.

**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. None of the following agencies have classified Bifenthrin as carcinogenic: IARC, NTP, OSHA, and ACGIH. Only EPA has classified Bifenthrin as a Group C possible human carcinogen based on this limited animal data and no human data.

**REPRODUCTIVE TOXICITY:** In studies with animals, Bifenthrin did not cause reproductive toxicity.

**TOXICOLOGICALLY SYNERGISTIC PRODUCTS:** No information is available.

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## 12. ECOLOGICAL INFORMATION

**General:** 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.

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**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.

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**14. TRANSPORTATION INFORMATION**

<b>DOT Class:</b>	6.1, 3
<b>UN Number:</b>	UN3351
<b>IMDG Class (sea):</b>	6.1, 3
<b>IATA Class:</b>	6.1, 3
<b>Marine Pollutant:</b>	Yes (Bifenthrin = Severe marine pollutant)
<b>Packing Group:</b>	III
<b>Hazard Label(s):</b>	Toxic, Flammable
<b>Proper Shipping Name(s):</b>	Pyrethroid pesticide, liquid, toxic, flammable (Bifenthrin, Xylene)
<b>Reportable Quantity:</b>	None
<b>US Surface Freight Class:</b>	Insecticides, NOI, Poison other than Class A Poison

**PACKAGING**

**General Description:** 8 oz, 1 quart, 1 gallon and 2 ½ gallon glass or plastic bottles; 15 gallon poly drum; 275 gallon tote

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**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.

**15. REGULATORY INFORMATION, cont'd**

**SARA TITLE III DATA**

**Section 311 & 312 Hazard Categories:**

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

**Section 302 Extremely Hazardous Substances:** None

**Section 313 Toxic Chemicals:**

Bifenthrin (CAS 82657-04-3)	25.1%
1,2,4-trimethylbenzene (CAS 95-63-6)	< 21.4%
Xylene (CAS 1330-20-7)	< 2.0%
Cumene (CAS 98-82-8)	< 1.0%

**CERCLA Reportable Quantities (RQ):**

Xylene	100 lb
Cumene	5000 lb
Product (calculated)	5000 lb

**STATE REGULATIONS:**

**CALIFORNIA (Proposition 65):** None

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**16. OTHER INFORMATION**

**MSDS Status:**

**Date This Revision: 28 October, 2005**

**Date Previous Revision: 5 March 2004**

**Person Responsible for Preparation: Gary A. Braden**

**Reasons for Revision:** Annual review. Information was updated in sections 11 and 14 to reflect current knowledge of the product.

**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 its 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.

**16. OTHER INFORMATION, cont'd**

**ABBREVIATIONS:**

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
OSHA	-	Occupational Safety and Health Agency
SARA	-	Superfund Amendments and Reauthorization Act
TSCA	-	Toxic Substances Control Act

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This is the last page of this MSDS. There should be 9 pages.