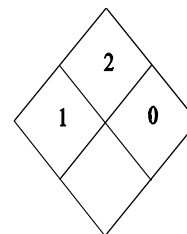


MATERIAL SAFETY DATA SHEET

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_2L
Current Revision Date: 5 March 2004

MANUFACTURER:
AMVAC CHEMICAL CORPORATION
4100 E. Washington Blvd.
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Ph: 323-264-3910
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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 ³ (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**

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.

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. EPA has classified Bifenthrin as a class C carcinogen, a possible human carcinogen.

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

CARE SHOULD BE EXERCISED IN HANDLING THIS FORMULATION.

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 tbsp. 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.

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.

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.

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.

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 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION, cont'd

SKIN PROTECTION: Applicators and other handlers must wear long-sleeved shirt and long pants; waterproof gloves; and shoes plus socks. 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:	Amber to dark liquid
Odor:	Solvent odor
Odor Threshold:	None established
Boiling Point:	> 318°F/159°C
Freezing/Melting Point:	< 0°C/32°F
Specific gravity:	0.97 g/mL @ 20°C
Density:	8.1 lb/gal
Vapor Pressure (mm/Hg):	approx 2.08 mm Hg @ 68°F
Vapor Density:	Heavier than air
Percent Volatile by Vol:	68%
Solubility in Water:	Emulsifiable
Solubility (Other):	This product is soluble in aromatic solvents
Partition Coefficient (O/W):	Not determined for formulation
pH (5% in water):	7.0
Evaporation Rate:	0.1 as compared to n-Butyl acetate

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.

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

INGESTION:	Oral LD ₅₀ (rat):	262 mg/kg
DERMAL:	Skin LD ₅₀ (rabbit):	> 2000 mg/kg
INHALATION:	Inhalation LC ₅₀ (rat):	1.86 mg/L (aerosol, 4 hour test)
IRRITATION:	Eye irritation:	Minimally irritating
	Skin irritation: (rabbit)	Non irritating
SENSITIZATION:	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. EPA has classified Bifenthrin as a class C carcinogen, a possible human carcinogen.

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

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: No information is available.

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

DOT Class	6.1
UN Number	UN3351
IMDG Class (sea)	6.1
IATA Class	6.1
Marine Pollutant	Yes (Bifenthrin = Severe marine pollutant)
Packing Group	III
Hazard label(s)	Toxic
Proper shipping name(s)	Pyrethroid pesticide, liquid, toxic, flammable (Bifenthrin, Xylene)
Reportable Quantity	None
US Surface Freight Class	Insecticides, NOI, Poison other than Class A Poison

PACKAGING

General description 8 oz, 1 quart and 1 gallon glass or plastic bottles

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:	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

16. OTHER INFORMATION

MSDS Status:

Date This Revision: 5 March 2004

Date Previous Revision: 5 June 2003

Person Responsible for Preparation: Gary A. Braden

Reasons for Revision: Revised to include EPA registration number in section 1.

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.

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

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