

## **MATERIAL SAFETY DATA SHEET**

### **1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NAME:** BIDRIN® 8 WATER MISCIBLE INSECTICIDE

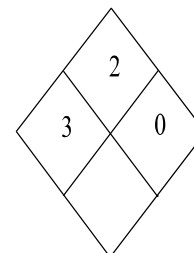
**GENERAL USE:** Organophosphorus insecticide

**PRODUCT DESCRIPTION:** Light yellow to dark amber liquid

**EPA Registration Number:** 5481-448

**MSDS No.:** 242\_11

**Current Revision Date:** 14 September, 2007



**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**

<b>COMPONENT</b>	<b>WT %</b>	<b>CAS No.</b>
DICROTOPHOS (Dimethyl phosphate of 3-Hydroxy-N,N-dimethyl-cis-crotonamide)	82.0%	141-66-2
Inert ingredients (Includes Isopropanol)	18.0%	67-63-0

#### **OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)**

<b>COMPONENT</b>	<b>HAZARD</b>	<b>OSHA PEL*</b>	<b>ACGIH TLV*</b>
Dicrotophos	POISON	None established	0.05 mg/m <sup>3</sup> (skin)
Isopropanol	FLAMMABLE	400 ppm	200 ppm 400 ppm (STEL)

\* Exposure Limits 8 hrs. TWA

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3. **HAZARDS IDENTIFICATION**

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**EMERGENCY OVERVIEW:**

**DANGER! POISON!** Poisonous if swallowed, inhaled or absorbed through skin. Rapidly absorbed through the skin. Strong skin sensitizing potential. Inhalation or skin contact may, without symptoms, progressively increase susceptibility to BIDRIN® Insecticide (Dicrotophos) poisoning. Do not swallow or get in eyes, on skin or on clothing. Do not breathe vapors.

**KEEP OUT OF REACH OF CHILDREN!**

**Toxic to fish and wildlife. Do not contaminate bodies of water.**

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**POTENTIAL HEALTH EFFECTS**

**ROUTE(S) OF ENTRY:** Poisonous if swallowed, inhaled or absorbed through skin. Rapidly absorbed through skin. Inhalation or skin contact may, without symptoms, progressively increase susceptibility to BIDRIN® 8 Water Miscible Insecticide poisoning.

**SIGNS OF ACUTE OVEREXPOSURE:** Symptoms include weakness, headache, tightness in chest, blurred vision, non-reactive pinpoint pupils, salivation, sweating, nausea, vomiting, diarrhea, and abdominal cramps. In extreme cases unconsciousness, convulsions, severe respiratory depression and death may occur.

**SIGNS OF CHRONIC OVEREXPOSURE:** Repeated exposures to small doses of BIDRIN® 8 Water Miscible Insecticide and other organophosphates may lower the cholinesterase to levels where the above symptoms of acute overexposure are observed.

**OTHER POTENTIAL HEALTH EFFECTS:** Laboratory studies have shown some carcinogenic and reproductive effects at high dose levels in laboratory animals. EPA's Cancer Classification for Dicrotophos states only 'Suggestive Evidence of Carcinogenicity but Not Sufficient to Assess Human Carcinogenic Potential.' None of the following have classified Dicrotophos as carcinogenic: IARC, NTP, OSHA, or ACGIH.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Preexisting skin or respiratory disorders may be aggravated by exposure to components of this product. Preexisting conditions which lower cholinesterase levels increase vulnerability to cholinesterase depression. These include: (for plasma) chronic alcoholism; malnutrition; dermatomyositis; existing toxicity from exposure to carbon disulfide; benzalkonium salts, organic mercury compounds, ciguatoxins or solanines; and (for RBC) hemolytic anemia.

**Care should be taken when handling Dicrotophos and its formulations.**

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#### **4. FIRST AID MEASURES**

**BIDRIN® (DICROTOPHOS) IS A SEVERE CHOLINESTERASE INHIBITOR. A PHYSICIAN SHOULD BE CONTACTED IN ALL CASES OF EXPOSURE TO DICROTOPHOS AND ITS FORMULATIONS. WEAR PROTECTIVE EQUIPMENT WHEN TREATING SOMEONE EXPOSED TO DICROTOPHOS TO PREVENT EXPOSURE OF THE RESCUER.**

**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 mouth-to-mouth artificial respiration. If breathing is difficult, give oxygen. Contact a physician immediately. Be sure the contact areas are clean to prevent contamination of the rescuer.

**INGESTION:** Immediately dilute the swallowed product by giving large quantities of water. Induce vomiting by giving Syrup of Ipecac according to directions on the bottle or by sticking a finger down the throat. Never give anything by mouth to an unconscious or convulsing person. Contact a physician immediately. Be sure the mouth is clean or wear a rubber glove to prevent contamination of the rescuer.

**SKIN:** Immediately flush all affected areas with large amounts of clear water for at least 15 minutes. Remove contaminated clothing. Do not attempt to neutralize with chemical agents. Wash clothing before reuse. If skin irritation develops, contact a physician immediately.

**NOTE TO PHYSICIANS: This is an Organophosphate (OP) Insecticide.** Do not wait for laboratory confirmation to treat patients with strong clinical evidence of poisoning. In the USA and other countries, contact your local or national poison control center for more information.

**Do Not** handle the patient without the following protective equipment in place: chemical resistant gloves and apron (preferably nitrile). Remove contaminated clothing and do not reuse without thorough cleaning with detergent and hot water. Dispose of heavily contaminated clothing, including shoes, as a hazardous waste.

Establish airway and oxygenation. IV Atropine sulfate is the antidote of choice against parasympathetic nervous stimulation. If there are signs of parasympathetic stimulation, Atropine Sulfate should be injected at 10 minute intervals in doses of 1 to 2 milligrams until complete atropinization has occurred. Pralidoxime chloride (2-PAM chloride) may also be used as an effective antidote in addition to and while maintaining full atropinization. In adults, an initial dose of 1 gram of 2-PAM should be injected, preferably as an infusion, in 250 cc of saline over a 15 to 20 minute period. If this is not practical, 2-PAM may be administered slowly by intravenous injection as a 5% solution in water over not less than 2 minutes. After about an hour, a second dose of 1 gram of 2-PAM will be indicated if muscle weakness has not been relieved. For infants and children, the dose of 2-PAM is 0.25 grams. Avoid morphine, aminophylline, phenothiazines, reserpine, furosemide and ethacrynic acid. Clear chest by postural drainage. Oxygen administration may be necessary. Observe patient continuously for 48 hours. Repeated exposure to cholinesterase inhibitors may without warning cause prolonged susceptibility to very small doses of any cholinesterase inhibitor.

**4. FIRST AID MEASURES, cont'd**

Allow no further exposure until time for cholinesterase regeneration has been attained as determined by a blood test.

Bathe and shampoo contaminated skin and hair. If ingested, empty stomach; activated charcoal is useful to further limit absorption. If victim is alert, Syrup of Ipecac (2 tablespoons in adults, 1 tablespoon in small children) followed by water (2 glasses for adults, 1 glass for children) is indicated. If symptoms such as loss of gag reflex, convulsions, or unconsciousness occur before emesis, gastric lavage should be considered following intubation with a cuffed endotracheal tube.

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**5. FIRE FIGHTING MEASURES**

**FLAMMABLE PROPERTIES**

Flash Point: 100-109°F (38-43°C)  
Autoignition Temperature: 750°F (399°C)  
Flammable Limits:  
    Lower flammable limit: 2.0%  
    Upper flammable limit: 12.7%  
Flammability: This is a flammable liquid (NFPA rating = 2)

**EXPLOSIVITY:**

Mechanical Impact: Not explosive  
Static Discharge: Not available

**HAZARDOUS COMBUSTION PRODUCTS:** Heating or burning may release highly toxic vapors or fumes. Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure buildup, which could result in container rupture.

**EXTINGUISHING MEDIA:** Water fog, "Alcohol" Foam, Dry Chemical, CO<sub>2</sub>.

**FIRE FIGHTING INSTRUCTIONS:** Evacuate personnel to a safe area upwind of the fire. Wear self-contained breathing apparatus. Wear full protective equipment to prevent skin contact. Runoff from fire control may be a pollution hazard. Wash all equipment thoroughly with detergent and water before reuse.

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**6. ACCIDENTAL RELEASE MEASURES**

**GENERAL:** Use adequate ventilation and recommended personal protective equipment (see Section 8). Remove all sources of ignition. Use spark proof equipment. Keep bystanders upwind and away from the spill.

**6. ACCIDENTAL RELEASE MEASURES, cont'd**

**SMALL SPILL:** Cover with nonflammable absorbent (clay, kitty litter, etc.), to absorb the liquid. Sweep or shovel the absorbed material, using spark proof equipment, into an open drum. Decontaminate the area and equipment with dilute alkali or ammonia (less than 5% solution) and detergent. Absorb and sweep into the same open drum. Rinse with water, absorb, and add to the waste drum. Close the drum and dispose of properly, according to hazardous waste disposal procedures for your locality.

**LARGE SPILL:** Dike the spill to prevent contamination of local water sources. Siphon the majority of the liquid into drums for use or disposal, depending on the circumstances. Clean the area as described for a small spill.

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**7. HANDLING AND STORAGE**

**HANDLING:** Avoid exposure to vapors and liquid by wearing appropriate personal protective equipment (PPE, section 8) and adequate ventilation. Always wash hands, face, and arms with soap and water before smoking, eating, drinking, or going to the toilet.

**STORAGE:** Store in the original container in a secure, temperate, dry place. Keep away from heat and open flame. Do not contaminate water, food, or feed. Do not contaminate bodies of water.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**ENGINEERING CONTROLS:** Ventilation should be sufficient to keep exposures to vapors below the TLV for Dicrotophos and other ingredients in this product.

**RESPIRATORY PROTECTION:** A properly FIT-TESTED NIOSH/MSHA approved respirator fitted with organic vapor cartridges is required when working with this product. Specific use regulations are listed on the label. For emergency and other conditions where the exposure limit may be greatly exceeded, use an approved positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.

**SKIN PROTECTION:** Wear clean nitrile gloves, clean impervious protective clothing, impervious shoes or boots and goggles. Replace gloves every eight hours or sooner if exposure has been heavy. If there is a potential for splashing a full face shield should also be worn. Always wash hands, face and arms with soap and water before smoking, eating, drinking, or going to the toilet.

**EYE PROTECTION:** Goggles are required for use of this product. In addition, a full face shield may also be required if splashing is a possibility.

**OTHER PROTECTION:** There should be an eyewash station and a safety shower in the work area.

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9. **PHYSICAL AND CHEMICAL PROPERTIES**

<b>PHYSICAL STATE:</b>	Liquid
<b>APPEARANCE:</b>	Light yellow to dark amber
<b>ODOR:</b>	Mild Ester
<b>ODOR THRESHOLD:</b>	Not established
<b>BOILING POINT:</b>	Not determined
<b>FREEZING/MELTING POINT:</b>	Not available
<b>DENSITY/SPECIFIC GRAVITY:</b>	1.19 g/mL / 9.9 lb/gal @ 20°C
<b>VAPOR PRESSURE:</b>	$2.9 \times 10^{-3}$ Pa/ $2.2 \times 10^{-5}$ torr (a.i.)
<b>VAPOR DENSITY:</b>	Heavier than air
<b>PERCENT VOLATILE BY VOL:</b>	Not determined
<b>SOLUBILITY IN WATER:</b>	Miscible
<b>SOLUBILITY (Other):</b>	This product is soluble in ketones, esters, aromatic hydrocarbons
<b>PARTITION COEFFICIENT (<math>K_{ow}</math>):</b>	E-isomer = 2.445; Z-isomer = 0.000481
<b>pH:</b>	Not available (Note: 1% of technical Dicrotophos pH = 2.75-2.80)
<b>EVAPORATION RATE:</b>	Not available

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10. **STABILITY AND REACTIVITY**

**CHEMICAL STABILITY (Conditions to avoid):** Stable at normal temperatures and storage conditions.

**INCOMPATIBILITY:** Incompatible with alkaline materials.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide and unidentified organic compounds may be formed during combustion.

**HAZARDOUS POLYMERIZATION:** This product will not polymerize.

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11. **TOXICOLOGICAL INFORMATION**

No data is available for this product. The following information is available for the active ingredient, Dicrotophos Technical, and may be used to estimate toxicological effects.

<b>INGESTION:</b>	Oral LD <sub>50</sub> (rat):	8/11 mg/kg (females/males) (Tox Category I)
<b>INHALATION:</b>	Inhalation LC <sub>50</sub> (rat):	> 0.059 mg/L (Tox Category II)
<b>DERMAL:</b>	Skin LD <sub>50</sub> (rabbit):	876/487 mg/kg (males/females) (Tox Category II)
<b>IRRITATION:</b>	Eye irritation:	Irritating (Tox Category II)
	Skin irritation:	Non-irritating (Tox Category IV)
<b>SENSITIZATION:</b>	Skin sensitization: (guinea pig)	Skin sensitizer

**11. TOXICOLOGICAL INFORMATION, cont'd**

**TERATOGENICITY:** No evidence of teratogenicity in laboratory animals.

**MUTAGENICITY:** Dicrotophos is not considered to be mutagenic.

**CARCINOGENICITY:** Dicrotophos has shown an increased incidence of thyroid follicular cell adenomas in male mice receiving 50 ppm dicrotophos, the highest dose level tested in a two year study. EPA's Cancer Classification for Dicrotophos states only 'Suggestive Evidence of Carcinogenicity but Not Sufficient to Assess Human Carcinogenic Potential.' None of the following have classified Dicrotophos as carcinogenic: IARC, NTP, OSHA, or ACGIH.

**REPRODUCTIVE TOXICITY:** Dicrotophos has shown effects on reproductive performance, pup survival and pup growth but only at dose levels (25 to 5 ppm) that also showed paternal toxicity in a rat multigeneration study.

**TOXICOLOGICAL SYNERGISTIC PRODUCTS:** No data are available.

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**12. ECOLOGICAL INFORMATION**

**GENERAL:** This product is toxic to fish and wildlife. Keep out of surface waters, sewers, and waterways entering or leading to surface waters. Notify authorities if any exposure to the general public or environment occurs or is likely to occur.

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**13. DISPOSAL CONSIDERATIONS**

**WASTE 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 by use according to label instructions, contact your nearest State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA regional office for guidance. Open dumping is prohibited.

**CONTAINER DISPOSAL:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose in a sanitary landfill, or by other procedures approved by state and local authorities. Contact your nearest State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA regional office for guidance. Open dumping is prohibited.

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**14. TRANSPORTATION INFORMATION**

<b>DOT CLASS:</b>	6.1, 3
<b>UN NUMBER:</b>	UN3017
<b>IMDG CLASS (sea):</b>	6.1, 3
<b>IATA CLASS (air):</b>	6.1, 3
<b>MARINE POLLUTANT:</b>	Yes
<b>PACKING GROUP:</b>	II
<b>HAZARD LABEL(s):</b>	Toxic, Flammable Liquid
<b>ADR CLASS (road):</b>	6.1, 3

**14. TRANSPORTATION INFORMATION, cont'd**

**PROPER SHIPPING NAME(s):** Organophosphorus pesticide(s), liquid, toxic,  
flammable (Dicrotophos, Isopropanol)  
**REPORTABLE QUANTITY:** No  
(DOT, 172.101, Appendix A)

**PACKAGING**

**GENERAL DESCRIPTION:** Bulk, 55 gallon & 30 gallon drums, 4 x 1 gallon  
containers

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**15. REGULATORY INFORMATION**

**U.S. FEDERAL REGULATIONS:** This product is registered under EPA/FIFRA Regulations as a  
RESTRICTED USE PESTICIDE. 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:** Dicrotophos (CAS No. 141-66-2)  
TPQ - 100 lbs

**Section 313 Toxic Chemicals:** None

**CERCLA Reportable Quantity (RQ):** None

**EPCRA Threshold Planning Quantity (TPQ):** Dicrotophos - 100 lbs;  
Product - 122 lbs

**STATE REGULATIONS:**

**CALIFORNIA (Proposition 65):** None

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**16. OTHER INFORMATION**

**MSDS STATUS:**

**Date This Revision:** 14 September, 2007  
**Date Previous Revision:** 24 January, 2006  
**Person Responsible for Preparation:** Gary A. Braden

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

**REASONS FOR REVISION:** Information was clarified in section 6.

**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:**

a.i.	-	active ingredient
ACGIH	-	American Conference of Governmental Industrial Hygienists
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
DOT	-	Department of Transportation
EPA	-	Environmental Protection Agency
EPCRA	-	Emergency Planning and Community Right-to-Know Act
FIFRA	-	Federal Insecticide, Fungicide, and Rodenticide Act
IARC	-	International Agency for Research on Cancer
IATA	-	International Air Transport Association
IMDG	-	International Maritime Dangerous Goods
NTP	-	National Toxicology Program
OSHA	-	Occupational Safety and Health Administration
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.