

control center or doctor, or going for treatment.

- Ingestion:** If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
- Eye Contact:** If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Skin Contact:** If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Inhalation:** If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Notes to Physician

Persons suffering a temporary allergic reaction may respond to treatment with antihistamines or steroid creams and/or systemic steroids.

Recommendations for Medical Treatment for Abamectin Acute Toxicity: Early signs of intoxication include dilation of pupils, muscular incoordination, and muscular tremors. Toxicity following accidental ingestion of the technical product can be minimized by vomiting within one-half hour of exposure; rapidly after exposure (< 15 minutes) administer repeatedly medical charcoal in a large quantity of water or ipecac. If toxicity from exposure has progressed to cause severe vomiting, the extent of resultant fluid and electrolyte imbalance should be gauged. Appropriate supportive parental fluid replacement therapy should be given, along with other required supportive measures (such as maintenance of blood pressure levels and proper respiratory functionality) as indicated by clinical signs, symptoms and measurements.

In severe cases, observations should continue for at least several days until clinical condition is stable and normal. Since abamectin is believed to enhance GABA activity in animals, it is probably wise to avoid drugs that enhance GABA activity (barbiturates, benzodiazepines, valproic acid) in patients with potentially toxic abamectin exposure.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	161°F	
Flammable Limits (% in Air):	Lower: % Not Applicable	Upper: % Not Applicable
Autoignition Temperature:	Not Available	
Flammability:	Combustible liquid	

Unusual Fire, Explosion and Reactivity Hazards

Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and flash back.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use appropriate extinguishing media for combustibles in the area. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

- Ingestion:** Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.
- Eye Contact:** Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- Skin Contact:** Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.
- Inhalation:** A combination particulate/organic vapor respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with an HE prefilter.

Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance:** Yellow to red brown liquid
- Odor:** Not determined
- Melting Point:** Not Applicable
- Boiling Point:** Not Available
- Specific Gravity/Density:** 0.96 g/cm³ (68 - 77°F [20 - 25°C])
- pH:** 2.6 - 3.6 (1% in deionized H₂O)

Solubility in H₂O

Abamectin: 0.007 - 0.01 mg/l @ 68°F (20°C)

Vapor Pressure

Abamectin: 7.5 x 10⁻⁸ mmHg @ 77°F (25°C)

10. STABILITY AND REACTIVITY

- Stability:** Stable under normal use and storage conditions.
- Hazardous Polymerization:** Will not occur.
- Conditions to Avoid:** None known.
- Materials to Avoid:** None known.
- Hazardous Decomposition Products:** Can decompose at high temperatures forming toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

- Ingestion:** Moderately Toxic
- Oral (LD₅₀ Rat) : ~ 300 mg/kg body weight
- Dermal:** Moderately Toxic
- Dermal (LD₅₀ Rabbit) : > 1,800 mg/kg body weight
- Inhalation:** Practically Non-Toxic
- Inhalation (LC₅₀ Rat) : 3.5 mg/l air - 4 hours
- Eye Contact:** Moderately Irritating (Rabbit)

Product Name: AGRI-MEK 0.15 EC MITICIDE/INSECTICIDE

Page: 3

Skin Contact: Moderately Irritating (Rabbit)
Skin Sensitization: Sensitizing (Guinea Pig)

Reproductive/Developmental Effects

Abamectin: Reproductive toxin in animal studies only at doses acutely toxic to the maternal animal.

Chronic/Subchronic Toxicity Studies

Abamectin: Central nervous system effects in animals.

Carcinogenicity

Abamectin: None observed.

Other Toxicity Information

None

Toxicity of Other Components

Butylated Hydroxytoluene (BHT)

Listed as an IARC (Group 3) carcinogen not classifiable as human (no data available) with limited animal evidence. Exposure may result in irritation to eyes, skin and respiratory tract. Ingestion may cause diarrhea, respiratory depression, tremors, and chronic pulmonary edema or congestion and hemorrhage.

Mineral Oil

May cause respiratory irritation when inhaled as a mist.

n-Methylpyrrolidone (<= 30%)

May cause respiratory tract irritation. Repeated or prolonged exposure may cause drying and cracking of the skin.

Target Organs

Active Ingredients

Abamectin: Skin, eye, CNS

Inert Ingredients

Butylated Hydroxytoluene (BHT): Eye, skin, respiratory tract

Mineral Oil: Respiratory tract

n-Methylpyrrolidone: Eye, skin

12. ECOLOGICAL INFORMATION

Summary of Effects

Abamectin:

Highly toxic to fish, invertebrates, birds and bees. Not bioconcentrateable in fish.

Eco-Acute Toxicity

Abamectin:

Bees LC50/EC50 0.002 ug/bee

Invertebrates (Water Flea) LC50/EC50 0.00037 ppm

Fish (Trout) LC50/EC50 0.0036 ppm

Fish (Bluegill) LC50/EC50 0.0096 ppm

Birds (8-day dietary - Bobwhite Quail) LC50/EC50 3,102 ppm

Birds (8-day dietary - Mallard Duck) LC50/EC50 383 ppm

Eco-Chronic Toxicity

Abamectin:

Not Available

Environmental Fate

Abamectin:

The information presented here is for the active ingredient, abamectin.

Low bioaccumulation potential. Not persistent in soil. Stable in water. Low mobility in soil. Mixes in water (after 24 h).

13. DISPOSAL CONSIDERATIONS

Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA

Proper Shipping Name: Pesticides, Liquid, Toxic, N.O.S. (Abamectin Solution), Marine Pollutant

Hazard Class or Division: Division 6.1

Identification Number: UN 2902

Packing Group: PG III

Air Transport

Proper Shipping Name: Pesticides, Liquid, Toxic, N.O.S. (Abamectin Solution), Marine Pollutant

Hazard Class or Division: Division 6.1

Identification Number: UN 2902

Packing Group: PG III

Packing Instructions: Passenger: PI 611 - Max. inner pkg. 2.5 liters, single pkg. 60 liters

Cargo: PI 618 - Max. inner pkg. 5 liters, single pkg. 220 liters

R/L Freight Classification

Insecticides, NOI, Poison

Comments

Water Transport - International

Proper Shipping Name: Pesticides, Liquid, Toxic, N.O.S. (Abamectin Solution), Marine Pollutant

Hazard Class or Division: Division 6.1

Identification Number: UN 2902

Packing Group: PG III

IMDG EMS#: F-A, S-A

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard
Chronic Health Hazard
Fire Hazard

Section 313 Toxic Chemicals: n-Methylpyrrolidone (<= 30%) (CAS No. 872-50-4)

California Proposition 65

Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)

None

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

Product Name: AGRI-MEK 0.15 EC MITTICIDE/INSECTICIDE

Page: 5



NFPA Hazard Ratings

Health: 2
Flammability: 2
Instability: 0

HMIS Hazard Ratings

Health: 2
Flammability: 2
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 04/15/1991

Revision Date: 05/16/2005

Replaces: 04/15/2004

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

RSVP#: SCP-955-89&A-00126M

End of MSDS

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Material Safety Data Sheet

**GUTHION® SOLUPAK 50% WETTABLE POWDER CROP
INSECTICIDE IN WATER SOLUBLE PACKETS**

MSDS Number: 102000014237
MSDS Version 1.0
Revision Date: 05/12/2006

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name GUTHION® SOLUPAK 50% WETTABLE POWDER CROP INSECTICIDE IN WATER SOLUBLE PACKETS
MSDS Number 102000014237
EPA Registration No. 284-733

Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
USA

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
For Product Information call: 1-866-89BAYER (1-866-892-2937)

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS No.</u>	<u>Average % by Weight</u>
Azinphos-methyl	86-50-0	50.00

SECTION 3. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview Danger! Fatal if swallowed. May be fatal if inhaled. Harmful if absorbed through skin. Moderate eye irritation. Do not breathe dust or spray mist. Do not get in eyes, on skin, or on clothing. Cholinesterase inhibitor. Extremely toxic to fish.

Physical State powder

Odor sulfur-like

Appearance tan

Routes of Exposure Ingestion, Inhalation, Eye contact, Skin Absorption

Immediate Effects

Eye Moderate eye irritation. Do not get in eyes.

Skin Causes skin irritation. May produce symptoms similar to those from ingestion. Harmful if absorbed through skin. Avoid contact with skin and clothing.

Bayer CropScience



Material Safety Data Sheet

**GUTHION® SOLUPAK 50% WETTABLE POWDER CROP
INSECTICIDE IN WATER SOLUBLE PACKETS**

MSDS Number: 102000014237
MSDS Version 1.0

Ingestion	Cause nausea, vomiting, diarrhea, abdominal cramps, excess salivation, pinpoint pupils, blurred vision, profuse sweating, muscle spasms. Fatal if swallowed. Do not take internally.
Inhalation	May produce symptoms similar to those from ingestion. May be fatal if inhaled. Do not breathe dust or spray mist.
Chronic or Delayed Long-Term	This product or its components may have target organ effects.
Medical Conditions Aggravated by Exposure	No specific medical conditions are known which may be aggravated by exposure to this product. Any disease, medication or prior exposure which reduces normal cholinesterase activity may increase susceptibility to the toxic effects of the active ingredient.

SECTION 4. FIRST AID MEASURES

General	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Eye	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 physician or poison control center immediately.
Skin	Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Notes to Physician	This product is a cholinesterase inhibiting organophosphorous pesticide.
Hazards	
Treatment	ANTIDOTE: Administer atropine sulfate in large therapeutic doses. Repeat as necessary to the point of tolerance. 2-PAM is also antidotal and may be administered in conjunction with atropine. The product inhibits cholinesterase resulting in stimulation of the central nervous system, the parasympathetic nervous system, and the somatic motor nerves. Do not give morphine. Watch for pulmonary edema, which may develop in serious cases of poisoning even after 24-48 hours. At first sign of pulmonary edema, the

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Material Safety Data Sheet

**GUTHION® SOLUPAK 50% WETTABLE POWDER CROP
INSECTICIDE IN WATER SOLUBLE PACKETS**

MSDS Number: 102000014237
MSDS Version 1.0

patient should be placed in an oxygen tent and treated symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point	not applicable
Fire and Explosion Hazards	Accumulation of fine dust may entail the risk of a dust explosion in the presence of air. Heating or fire can release toxic gas.
Suitable Extinguishing Media	water, foam, dry chemical, carbon dioxide (CO ₂)
Fire Fighting Instructions	Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Dike area to prevent runoff and contamination of water sources. Equipment or materials involved in pesticide fires may become contaminated. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.
Methods for Cleaning Up	Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.
Additional Advice	Use personal protective equipment. Do not allow product to enter streams, sewers or other waterways. Do not allow product to contact vegetation.

SECTION 7. HANDLING AND STORAGE

Handling Procedures	Handle and open container in a manner as to prevent spillage. Keep away from heat and flame.
Storing Procedures	Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.
Work/Hygienic Procedures	Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Bayer CropScience



Material Safety Data Sheet

**GUTHION® SOLUPAK 50% WETTABLE POWDER CROP
INSECTICIDE IN WATER SOLUBLE PACKETS**

MSDS Number: 102000014237
MSDS Version 1.0

Take off contaminated clothing and shoes immediately. Then wash thoroughly and put on clean clothing.

Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. As soon as practical, wash thoroughly and change into clean clothing.

**Min/Max Storage
Temperatures**

Do not transport or store below 0 °C / 32 °F
30 day average temperature not to exceed 37.8°C / 100°F

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection

Follow all label instructions. Train employees in safe use of the product.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

Engineering Controls

Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

Eye/Face Protection

tightly fitting safety goggles

Hand Protection

Chemical resistant nitrile rubber gloves

Body Protection

Wear long-sleeved shirt and long pants and shoes plus socks.

Respiratory Protection

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Exposure Limits

This product contains material which are Trade Secret and may have Occupational Exposure Limits. If more information is required, call the product information number listed in Section 1.

Azinphos-methyl	88-50-0	ACGIH	TWA	0.2 mg/m ³
		Form of Exposure		Inhalable fraction and vapor
		NIOSH	REL	0.2 mg/m ³
		OSHA Z1	PEL	0.2 mg/m ³
		OSHA Z1A	TWA	0.2 mg/m ³
		US CA OEL	TWA PEL	0.2 mg/m ³

Bayer CropScience



Material Safety Data Sheet

**GUTHION® SOLUPAK 50% WETTABLE POWDER CROP
INSECTICIDE IN WATER SOLUBLE PACKETS**

MSDS Number: 102000014237
MSDS Version 1.0

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	tan
Physical State	powder
Odor	sulfur-like
pH	5.3 (10 %)
Bulk Density	12 - 16 lb./cu.ft. fluffed 21 - 25 lb./cu.ft. packed
Boiling Point	The substance decomposes before reaching the boiling point.

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable
Conditions to Avoid	Sustained temperatures above 37.8 °C (100 °F).
Incompatibility	strong oxidizing agents bases
Hazardous Decomposition Products	In case of fire hazardous decomposition products may be produced such as: hydrogen sulfide dimethyl sulphide sulfur dioxide Carbon monoxide
Hazardous Reactions	No hazardous reactions when stored and handled according to prescribed instructions.

SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on this product as formulated. The non-acute information pertains to the active ingredient, azinphos-methyl.

Acute Oral Toxicity	male rat: LD50: 12.3 mg/kg female rat: LD50: 24.7 mg/kg
Acute Dermal Toxicity	male/female rat: LD50: > 2,000 mg/kg

Bayer CropScience



Material Safety Data Sheet

**GUTHION® SOLUPAK 50% WETTABLE POWDER CROP
INSECTICIDE IN WATER SOLUBLE PACKETS**

MSDS Number: 102000014237
MSDS Version 1.0

Acute Inhalation Toxicity male rat: LC50: 0.168 mg/l
Exposure time: 4 h
Determined in the form of dust
(actual)

female rat: LC50: ca. 0.148 mg/l
Exposure time: 4 h
Determined in the form of dust
(actual)

male rat: LC50: 0.664 mg/l
Exposure time: 1 h
Determined in the form of dust.
Extrapolated from the 4 hr LC50.
(actual)

female rat: LC50: 0.584 mg/l
Exposure time: 1 h
Determined in the form of dust.
Extrapolated from the 4 hr LC50.
(actual)

Skin Irritation rabbit: Moderate skin irritation.

Eye Irritation rabbit: Mild eye irritation.

Sensitization guinea pig: Non-sensitizing.

Chronic Toxicity Major effects in rats and dogs from long-term exposure to azinphos-methyl included alopecia, diarrhea, reduced body weight gains, elevated liver enzymes and/or cholinesterase inhibition.

Assessment Carcinogenicity
In oncogenicity studies in rats and mice, azinphos-methyl was not considered carcinogenic in either species.

ACGIH
Azinphos-methyl 88-50-0

NTP
None.

IARC
None.

OSHA
None.

Reproductive & Developmental Toxicity **REPRODUCTION:** Azinphos-methyl was not a primary reproductive toxicant in a two-generation study in rats. Reproductive effects observed occurred only in conjunction with maternal toxicity.

Bayer CropScience



Material Safety Data Sheet

MSDS Number: 102000014237
MSDS Version 1.0

**GUTHION® SOLUPAK 50% WETTABLE POWDER CROP
INSECTICIDE IN WATER SOLUBLE PACKETS**

DEVELOPMENTAL TOXICITY: Azinphos-methyl did not produce any developmental, embryonic or teratogenic effects in developmental toxicity studies in rats and rabbits.

Neurotoxicity

There was no evidence of delayed neurotoxicity in hens treated by oral gavage with azinphos-methyl.

Azinphos-methyl produced clinical signs of toxicity, cholinesterase inhibition and neurobehavioral effects in acute and subchronic neurotoxicity screening studies in rats. All of these effects were ascribed to cholinergic toxicity. There were no correlative micropathologic findings within the skeletal muscles or neural tissues.

Azinphos-methyl caused a dose-related increase in cholinesterase inhibition in dams in a developmental neurotoxicity screening study in rats. There was no detectable effect on the offspring, including cholinesterase inhibition.

Mutagenicity

Several positive in vitro mutagenicity studies have been reported on azinphos-methyl, however, negative results have been obtained in all in vivo studies conducted on azinphos-methyl.

SECTION 12. ECOLOGICAL INFORMATION

**Environmental
Precautions**

Highly toxic to bees. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

Extremely toxic to fish. Toxic to wildlife. For terrestrial uses, do not apply directly to water, or to areas where surface water is present, or to intertidal areas below mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Drift or run-off from treated areas may be hazardous to aquatic organisms in neighboring areas. Apply this product only as specified on the label.

Bayer CropScience



Material Safety Data Sheet

**GUTHION® SOLUPAK 50% WETTABLE POWDER CROP
INSECTICIDE IN WATER SOLUBLE PACKETS**

MSDS Number: 102000014237
MSDS Version 1.0

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance Pesticide wastes are acutely hazardous. Follow container label instructions for disposal of wastes generated during use in compliance with the product label. The product should not be allowed to enter drains, water courses or the soil.

Container Disposal Do not re-use empty containers. Completely empty container into application equipment, then dispose of empty container in a sanitary landfill, by incineration or by other procedures approved by state/provincial and local authorities. If burned, stay out of smoke. Refer to the product label for other disposal instructions.

SECTION 14. TRANSPORT INFORMATION

TRANSPORTATION CLASSIFICATION:
Organophosphorus Pesticides, Solid, Toxic // 6.1 // UN2783 // PG II // RQ (Guthion)

FREIGHT CLASSIFICATION:
Insecticides or Fungicides, N.O.I.; poison, other than gases that are poisonous by inhalation

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 264-733

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

Azinphos-methyl 86-50-0

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

Azinphos-methyl 86-50-0 CA, CT, IL, LA, MA, MN, NJ, PA, RI

Canadian Regulations

Canadian Domestic Substance List

Bayer CropScience



Material Safety Data Sheet

**GUTHION® SOLUPAK 50% WETTABLE POWDER CROP
INSECTICIDE IN WATER SOLUBLE PACKETS**

MSDS Number: 102000014237
MSDS Version 1.0

None.

Environmental

CERCLA

Azinphos-methyl 86-50-0

1 lbs

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

International Regulations

European Inventory of Existing Commercial Substances (EINECS)

Azinphos-methyl 86-50-0

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 3 Flammability - 2 Reactivity - 2 Others - none

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason to Revise: Re-numbered due to system update; Updated sections as needed.

Revision Date: 05/12/2006

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.

SUNIVO

Shanghai Sunivo Supply Chain Management Co., Ltd

Your Chemical Partner

6TH FLR. BUILDG. 5, LANE 289, BISHENG RD., PUDONG DIST. SHANGHAI, CHINA

MATERIAL SAFETY DATA SHEET

(MSDS)

Cyfluthrin

1. IDENTIFICATION OF SUBSTANCE/PREPARATION & COMPANY.

Product name: Cyfluthrin

Urgent contact: Shanghai Sunivo Supply Chain Management Co., Ltd.

Tel: +86 21 3393 3299

Fax: +86 21 5830 7878

URL: www.sunivo.com

Address: Room 502, Building 5, Lane 289 Bisheng Rd., Pudong District, Shanghai, 201204 - P.R. of China

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance number: 000000395631

Synonyms: Cyfluthrin

Hazards Identification

Emergency overview

CAUTION:

KEEP OUT OF REACH OF CHILDREN.

KEEP OUT OF REACH OF DOMESTIC ANIMALS.

HARMFUL IF ABSORBED THROUGH SKIN.

Avoid contact with the skin, eyes and clothing.

Wash thoroughly after handling.

State of matter: liquid

Colour: beige to yellow

Odour: characteristic

Potential health effects

Primary routes of exposure:

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity: Relatively nontoxic after single ingestion. Relatively nontoxic after short-term skin contact.

Irritation / corrosion: May cause slight but temporary irritation to the eyes. May cause moderate irritation to the skin.

Sensitization:

Skin sensitizing effects were not observed in animal studies.

Potential environmental effects

Aquatic toxicity:

Acutely toxic for aquatic organisms. The product has not been tested. The statement has been derived from the properties of the individual components.

<http://www.sunivo.com> | MSDS |

Page 1

SUNIVO

Shanghai Sunivo Supply Chain Management Co., Ltd

Your Chemical Partner

6TH FLR, BLDG.6, LANE 289, SONGHANG RD, PUJING DIST, SHANGHAI, CHINA

CAS Number Content (W/W) Chemical name

68359-37-5 90.0 % Cyfluthrin

10.0 % Proprietary ingredients

4. First-Aid Measures

General advice:

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, and then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment.

If inhaled:

Remove the affected individual into fresh air and keep the person calm.

If on skin:

Rinse skin immediately with plenty of water for 15 - 20 minutes.

If in eyes:

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

If swallowed:

Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting. Have person sip a glass of water if able to swallow.

5. Fire-Fighting Measures

Flash point: A flash point determination is unnecessary due to the high water content.

Suitable extinguishing media: foam, dry extinguishing media, carbon dioxide, water spray

Hazards during fire-fighting: carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, Hydrogen chloride, hydrogen fluoride, halogenated hydrocarbons, hydrocarbons. If product is heated above decomposition temperature, toxic vapors will be released. The substances/groups of substances mentioned can be released in case of fire.

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

6. Accidental release measures

Personal precautions:

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

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Page 2

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Environmental precautions:

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water. A spill of or in excess of the reportable quantity requires notification to state, local and national emergency authorities.

Cleanup:

Dike spillage. Pick up with suitable absorbent material. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. Handling and Storage

Handling

General advice:

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect against heat. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Provide means for controlling leaks and spills. Follow label warnings even after container is emptied. The substance/ product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dust/mists/vapors. Wear suitable personal protective clothing and equipment.

Protection against fire and explosion:

The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, and open flame. Avoid extreme heat. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

Storage General advice:

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination. The authority permits and storage regulations must be observed.

Storage incompatibility:

General advice: Segregate from incompatible substances. Segregate from foods and animal feeds.

Segregate from textiles and similar materials.

Storage stability:

May be kept indefinitely if stored properly. If an expiry date is mentioned on the packaging/label this takes priority over the statements on storage duration in this safety data sheet.

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Page 3

8. Exposure Controls and Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements. Safety Data Sheet

CY-KICK CS

Advice on system design:

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING

WORKERS:

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic Vapour/particulate respirator. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS

Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment.

Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form: liquid

Odour: characteristic

Colour: beige to yellow

pH value: 7.5 - 8.5

Freezing point: approx. 0 °C information applies to the solvent.

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Page 4

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Boiling point: approx. 100 °C Information applies to the solvent.

Density: 0.96 g/cm³ (approx. 20 °C)

Solubility in water: dispersible

10. Stability and Reactivity

Conditions to avoid:

Avoid all sources of ignition: heat, sparks, and open flame. Avoid extreme temperatures. Avoid prolonged exposure to extreme heat. Avoid contamination. Avoid electro-static discharge.

Substances to avoid:

No substances known that should be avoided.

Hazardous reactions:

The product is chemically stable.

Decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated., Prolonged thermal loading can result in products of degradation being given off.

Thermal decomposition:

Possible thermal decomposition products: carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, Hydrogen chloride, hydrogen fluoride Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released. To avoid thermal decomposition, do not overheat.

Corrosion to metals:

Corrosive effects to metal are not anticipated.

11. Toxicological information

Acute toxicity

Oral:

Information on: cyfluthrin

Type of value: LD50

Species: rat

Value: 77 mg/kg

Inhalation:

Not inhalable due to the physico-chemical properties of the product.

Dermal:

Information on: cyfluthrin

Type of value: LD50

Species: rat

Value: > 5,000 mg/kg

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Page 5

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Irritation / corrosion

Information on: cyfluthrin

Assessment of irritating effects:

Not irritating to eyes and skin.

Sensitization

Information on: cyfluthrin

Assessment of sensitization:

Skin sensitizing effects were not observed in animal studies.

Genetic toxicity

Information on: cyfluthrin

No mutagenic effects reported.

Carcinogenicity

Information on: cyfluthrin

In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.

Reproductive toxicity

Information on: cyfluthrin

No reproductive toxic effects reported.

Development

Information on: cyfluthrin

No teratogenic effects reported.

12. Ecological Information

Fish information on: cyfluthrin

Acute:

Oncorhynchus mykiss/LC50 (96 h): 0.000068 mg/l

Aquatic invertebrates

Information on: cyfluthrin

Acute:

Daphnia magna/EC50 (48 h): 0.00029 mg/l

Aquatic plants

Information on: cyfluthrin

Toxicity to aquatic plants: green algae/EC50 (96 h): > 10 mg/l

13. Disposal considerations

Waste disposal of substance:

Pesticide wastes are regulated. If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

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Page 6



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Container disposal:

Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

14. Transport Information

Reference Bill of Lading
Safety Data Sheet
CY-KICK CS

15. Regulatory Information

Federal Regulations
Registration status:
Chemical TSCA, US blocked / not listed
Crop Protection TSCA, US released / exempt
EPCRA 311/312 (Hazard categories): Acute;
EPCRA 313:
CAS Number Chemical name
68359-37-5 beta-Cifluthrine

16. OTHER INFORMATION

MSDS Creation Date: 9/02/2010

Revision #7 Date: 19/04/2011.

Disclaimer:

SUNIVO provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

Cypermethrin

sc-24012



Material Safety Data Sheet

Hazard Alert Code Key:



Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Cypermethrin

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1201

NFPA



SUPPLIER

Santa Cruz Technology, Inc.
2148 Delaware Avenue
Santa Cruz, California 95060
800-457-5001 or 831-457-3800

EMERGENCY:

ChemWatch

Within the US & Canada: 877-715-8255

Outside the US & Canada: +800 3436 2285

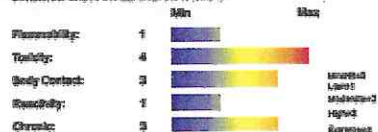
(+800-CHEMICAL) or cell +813 8873 3712

SYNONYMS

CG-419-CG-4-CA, "cypermethrinic acid, 3-(2, 2-dichlorovinyl)-2, 2-dimethyl-, 1-(cyano(2-phenoxyphenoxy)methyl ester), cyano(2-phenoxyphenoxy)methyl 3-(2, 2-dichlorovinyl)-2, 2-dimethyl-2-propionate carboxylate", "3-(2, 2-dichlorovinyl)-2, 2-dimethyl-2-propionate", "hexyle salt", "cyano(2-phenoxyphenoxy)methyl ester", "1RS, 3RS; 1RS, 3SR)-3-(2, 2-dichlorovinyl)-2, 2-dimethyl-2-propionate", or (1R)-3-cyano-2-phenoxyphenoxy, "(1R)-3-cyano-2-(2, 2-dichlorovinyl)-2, 2-dimethyl-2-propionate", "cypermethrinic acid", "cyano(2-phenoxyphenoxy)methyl 2-propionate", "Acrothrin", "Aprothrin", "Arothrin C", "Arothrin (acid)", "Arothrin 3787", "Arothrin", "Bacothrin", "CCH-35", "Chlorin", "Cylin", "Cylinath", "Cypethrin", "Cypermethrin Technical", "Cypermethrin-2550", "Cypermethrin, Cypar", "EAP 5268", "Eupar", "FMC-35820", "FMC-45497", "FMC-52000", "Fenoxin", "Fenoxin", "Hiloparin", "JP-5200F", "Kambin", "SRDC 14F", "SRDC 15F", "SRDC 16F", "Nasala", "Poltrin", "RU-27928", "Ropar", "SP 09987", "Starga", "Supercypermethrin", "Supercypermethrin Forte", "Supermethrin", "Synth 527", "YL-4287", "YL-5217", "YF-305", "zeta-cypermethrin", "zeta-cypermethrin, alpha-cypermethrin", "zeta-cypermethrin insecticide pesticide", "zeta-cypermethrin

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS



CANADIAN WHISKY SYMBOLS



EMERGENCY OVERVIEW

RISK

Hazard by inhalation.

Toxic if swallowed.

May cause SENSITIZATION by skin contact.

Hazardous danger of surface damage to health by prolonged exposure if swallowed.

Irritation to eyes, respiratory system and skin.

Toxic to bees.

May be toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

A toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.

A limited end-term study that the substance may cause irreversible but non-fatal reproductive effects following a single exposure.

An exposure to cypermethrin may produce convulsions, loss of consciousness and possible death. Short-term exposure to rats of alpha-cypermethrin at concentrations up to 200 mg/kg BW for 5 weeks or up to 100 mg/kg BW per day for 13 weeks did not cause toxic effects. At higher doses rats exhibited signs of irritation associated with pathology of the nervous system, decreased growth or increased fur and kidney weights. Alpha-cypermethrin induces neurotoxicity due to histopathological alterations of the spinal and optic nerves, neuronal degeneration and increased intracellular calcium.

Short-term toxicity studies indicate that alpha-cypermethrin is approximately 2 to 3 times as toxic than cypermethrin to rats and dogs. Following oral administration to rats 50% of the dose was eliminated from the body over a 4-day period, 70% in the first day, residues in tissues were low except in the liver. In human volunteers 40% of an oral dose (0.25-0.75 mg) was excreted within 24 hours in the urine as free or conjugated alpha-cypermethrin carboxylic acid.

EYES

a This material can cause eye irritation and damage in some persons.
 a If applied to the eyes, this material causes severe eye damage.

SKIN

a This material can cause inflammation of the skin (eczema) in some persons.
 a The material may exacerbate any pre-existing dermatitis condition.

a Occupational dermal exposure to cypermethrin in operations, during mixing/loading, during spraying and washing of equipment, was found to be up to 3.94 mg, 0.51 mg and 0.73 mg respectively. Mild skin sensations were reported during formulation. Single dermal applications of alpha-cypermethrin to mice and rats at 100 and 300 mg/kg body weight did not cause mortality or signs of irritation.
 a Alpha-substituted synthetic pyrethroids can cause "pins and needles" of the skin with a stinging or burning sensation sometimes progressing to tingling and numbness. Tears, sensitivity to light and swelling of the eyes can occur on direct contact.
 a Open cuts, abraded or irritated skin should not be exposed to this material.

a Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

a Inhalation of dusts, generated by the material, during the course of normal handling, may be harmful.

a The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.

a Personal exposure levels during formulation of the technical concentrate of cypermethrin have been measured up to 24.1 mg/m³. A 4-hour inhalation exposure of rats to an atmospheric concentration of 400 mg/m³ did not result in mortality or clinical signs.

a Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
 a The material, like natural pyrethrin, may cause central stimulation with nausea, vomiting, stomach upset, diarrhea, hypersensitivity, inco-ordination, tremors, muscle paralysis, convulsion, coma and respiratory failure. Type II compounds cause a "Type II syndrome" characterized by irregular jerky movements, increased saliva production without foam, upper abdominal pain, nausea and vomiting, headache, dizziness, loss of appetite, weakness, chest tightness, blurred vision, "pins and needles", palpitations, cardiac muscle jerks in limbs and altered consciousness.
 a†p.

CHRONIC HEALTH EFFECTS

a Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

a Skin contact with the material is more likely to cause a sensitization reaction in some persons compared to the general population.

a There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.

a Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

a There is some evidence that inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population.

a There is some evidence that human exposure to the material may result in developmental toxicity. This evidence is based on animal studies where effects have been observed in the absence of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not secondary non-specific consequences of the other toxic effects.

a Exposure to the material may result in a possible risk of irreversible effects. The material may produce mutagenic effects in man. This concern is raised, generally, on the basis of appropriate studies with similar materials using mammalian somatic cells in vivo. Such findings are often supported by positive results from in vitro mutagenicity studies.

a Long-term testing does not indicate any carcinogenic potential for cypermethrin.

a Chronic poisoning by natural pyrethrin may result in convulsion, labic paralysis, rapid and irregular heart beat, liver and kidney damage, or death.

a The natural pyrethrins may produce hypersensitivity, especially following previous sensitizing exposures. In general, repeated exposures over 2 or 3 years are required to elicit a response and involve exposure to pyrethrins rather than its individual components (including cypermethrin). The acetylcholine esterase (pyrethroid) and the pyrethrins glycoproteins account for the immediate and delayed hypersensitivity seen in guinea pigs following a single injection of ground dry-matter from *Panicum polyanthemum* in Fieau's adjuvant. Mild cypermethrin vesicular dermatitis (with papules, pustules, localized oedema (particularly of the face, lips and eyelids), itching, erythema, oedema, pain and swelling) are the most common syndromes. An initial skin sensitization can progress to marked dermal oedema and skin cracking. Pyrethrum dermatitis appears to increase in hot weather or under conditions where heavy perspiration is produced. The active ingredients of pyrethrum (except pyrethrin I) are inactive in patch tests. Those patients allergic to ragweed pollen are particularly sensitive to pyrethrin.

a Rats fed on a diet of pyrethrin for 3000 ppm for 2 years showed some signs of tissue damage including liver lesions, bile duct proliferation and local necrosis of the liver cells. A no-effect level of 1000 ppm found in animal experiments corresponded to a daily dose of 3600 mg/gram.

a Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
cypermethrin	32315-07-8	>=0
being a mixture of 6 isomers including		
<u>cypermethrin, alpha-</u>	67375-30-8	>=0
<u>cypermethrin, beta-</u>	65731-04-2	
<u>cypermethrin, delta-</u>	71827-29-1	
<u>cypermethrin, epsilon-</u>	32315-07-8	

Section 4 - FIRST AID MEASURES

SWALLOWED

a Give a slurry of activated charcoal in water to drink. NEVER GIVE AN UNCONSCIOUS PATIENT WATER TO DRINK. At least 3 tablespoons in a glass of water should be given.

EYE

a If this product comes in contact with the eyes: Immediately hold eyelids apart and flush the eye continuously with running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

a If skin contact occurs: Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available).

INHALED

a If fumes or combustion products are inhaled remove from contaminated area. Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

a For chronic or short-term repeated exposures to pyrethrins and synthetic pyrethroids: Mortalities of pyrethrin and synthetic pyrethroids is low, in part because of poor bioavailability and a large first pass extraction by the liver. The most common adverse reaction results from the potent sensitizing effects of pyrethrin.
 a†p.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHg):	Negligible
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	1.20 @ 22 C.
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder

FIRE FIGHTING

a Alert Emergency Responders and tell them location and nature of hazard.

a Wear full body protective clothing with breathing apparatus.

a When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 300 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

a Combustible solid which burns but propagates flame with difficulty.

a Avoid generating dust, particularly dusts of dust in a confined or unventilated space as dusts may form an explosive mixture with air and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulation of fine dust may burn rapidly and fiercely if ignited.

a Combustion products include: carbon monoxide (CO), carbon dioxide (CO₂), hydrogen chloride, phosgene, nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material. May emit poisonous fumes.

FIRE INCOMPATIBILITY

a Avoid contamination with oxidizing agents (i.e. nitrites, nitrates, sulphuric acids, chlorine bleaches, pool chlorine etc.) as ignition may result.

PERSONAL PROTECTION

- Glasses: Chemical goggles.
- Gloves:
- Respirator:
- Particulate:

Section 8 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Environmental hazard - contain spillage.
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable, labelled container for waste disposal.

MAJOR SPILLS

- Environmental hazard - contain spillage.
- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.
- Do NOT cut, drill, grind or weld such containers.
- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorization or permit.

RECOMMENDED STORAGE METHODS

- Lined metal can, lined metal pail/drum
- Plastic pail

For low viscosity materials

- Drums and jerrycans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screened enclosure.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

Section 6 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA PDC	Notes
Canada - Alberta Occupational Exposure Limits	cypmethrin (Pyrethrum)		5						
Canada - British Columbia Occupational Exposure Limits	cypmethrin (Pyrethrum)		5						5
US NIOSH Recommended Exposure Limits (REL)	cypmethrin (Pyrethrum)		5						
US OSHA Permissible Exposure Levels (PEL) - Table Z1	cypmethrin (Pyrethrum)		5						
US ACGIH Threshold Limit Values (TLV)	cypmethrin (Pyrethrum)		5						TLV Basis: Over damage; lower respiratory tract irritation
US - Minnesota Permissible Exposure Limits (PEL)	cypmethrin (Pyrethrum)		5						
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	cypmethrin (Pyrethrum)		5						
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	cypmethrin (Pyrethrum)		5						
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	cypmethrin (Pyrethrum)		5						
US - California Permissible Exposure Limits for Chemical Contaminants	cypmethrin (Pyrethrum)		5						
US - Idaho - Limits for Air Contaminants	cypmethrin (Pyrethrum)		5						
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	cypmethrin (Pyrethrum)		5						
US - Hazard Air Contaminant Limits	cypmethrin (Pyrethrum)		5		50				
US - Alaska Limits for Air Contaminants	cypmethrin (Pyrethrum)		5						
Canada - Saskatchewan Occupational Health and Safety Regulations - Construction Limits	cypmethrin (Pyrethrum)		5		50				

Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	cypmethrin (Pyrethrum)	5	50	
US - Washington Permissible exposure limits of air contaminants	cypmethrin (Pyrethrum)	5	50	
US - Michigan Exposure Limits for Air Contaminants	cypmethrin (Pyrethrum)	5		
Canada - Prince Edward Island Occupational Exposure Limits	cypmethrin (Pyrethrum)	5		TLV Basis: liver damage; lower respiratory tract irritation
US - Wyoming Toxic and Hazardous Substances Table 25 Limits for Air Contaminants	cypmethrin (Pyrethrum)	5		
Canada - Nova Scotia Occupational Exposure Limits	cypmethrin (Pyrethrum)	5		TLV Basis: liver damage; lower respiratory tract irritation
US - Oregon Permissible Exposure Limits (2-1)	cypmethrin (Pyrethrum)	5		
Canada - Northwest Territories Occupational Exposure Limits (English)	cypmethrin (Pyrethrum)	5	50	

INDICATOR

PERSONAL PROTECTION



RESPIRATOR

Particulate
Consult your EHS staff for recommendations

EYE

- Safety glasses with side shields.
- Chemical goggles.

HANDS/FEET

A nitrile chemical protective gloves, eg. PVC.

NOTE: The material may produce skin sensitization in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

Stability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- elasticity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

When prolonged or frequently repeated contact may occur, a glove with a protection class of 3 or higher (breakthrough time greater than 340 minutes according to EN 374) is recommended.

When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.

Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

OTHER

- Overalls.
- Eyewash unit.

ENGINEERING CONTROLS

- Local exhaust ventilation is required where acids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

Section 8 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.

Does not mix with water.

Sinks in water.

State

Divided solid

Molecular Weight

410.3

Melting Range (°F)

175.9

Viscosity

Not Applicable

Boiling Range (°F)

323-326

Solubility in water (g/L)

Insoluble

Flash Point (°F)

Not available

pH (1% solution)

Not applicable

Decomposition Temp (°F)

Not Available

pH (as supplied)

Not applicable

Autoignition Temp (°F)

Not available

Vapor Pressure (mmHg)

Negligible

Upper Explosive Limit (%)

Not available

Specific Gravity (water=1)

1.35 @ 22 C.

Lower Explosive Limit (%)

Not available

Relative Vapor Density (air=1)

Not applicable

Volatiles Component (%)

NE @ 20 C.

Evaporation Rate

Not applicable

APPEARANCE

Colorless, odorless crystalline solid; tractable in water. Soluble in methanol, acetone, cyclohexanone and xylene. A racemic mixture of eight isomers; alpha-cypermethrin is a mixture of two of the four cis isomers present to approximately 28% in cypermethrin is (1R,2c)S and (1R,2c)R which produce 80% of the insecticidal activity. Stable in acidic conditions but hydrolyses at pH 12-13.

log Kow 4.47-4.3

Value

Material

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

- Pyrethrin and permethrin:
- are unstable in the presence of light, heat, moisture and air
- are hydrolysed by oxygen and/or sunlight
- may react with strong oxidizers to produce fire and explosions
- are incompatible with alcohols
- Acid reaction with oxidizing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

CYPERMETHRIN

TOXICITY AND IRRITATION

a Unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

a For cypermethrin:

Toxicological Effects:

Acute toxicity: Cypermethrin is a moderately toxic material by dermal absorption or ingestion. Symptoms of high dermal exposure include numbness, tingling, itching, burning sensation, loss of bladder control, incoordination, seizures, and possible death. Pyrethroid like cypermethrin may adversely affect the central nervous system. Symptoms of high-dose ingestion include nausea, prolonged vomiting, stomach pain, and diarrhea which progresses to convulsions, unresponsiveness, and coma. Cypermethrin is a slight skin or eye irritant, and may cause allergic skin reactions. The oral LD50 for cypermethrin in rats is 250 mg/kg (in rats 48) or 4125 mg/kg (in water). EPA reports an oral LD50 of 117 to 320 mg/kg in male rats and 120 to 300 mg/kg in female rats. The oral LD50 varies from 367 to 2000 mg/kg in female rats, and from 62 to 779 mg/kg in mice, depending on the site of cypermethrin exposure. This wide variation in toxicity may reflect different routes of exposure in the available tests. The dermal LD50 in rats is 1600 mg/kg and in rabbits is greater than 2000 mg/kg.

Reproductive effects: No adverse effects on reproduction were observed in a three-generation study with rats given doses of 37.5 mg/kg/day, the highest dose tested.

Teratogenic effects: Cypermethrin is not teratogenic. No birth defects were observed in the offspring of rats given doses as high as 70 mg/kg/day nor in the offspring of rabbits given doses as high as 30 mg/kg/day.

Mutagenic effects: Cypermethrin is not mutagenic, but tests with very high doses on mice caused a temporary increase in the number of bone marrow cells with micronuclei. Other tests for mutagenic effects in human, bacterial, and hamster cell cultures and in live mice have been negative.

Carcinogenic effects: EPA has classified cypermethrin as a possible human carcinogen because available information is inconclusive. It caused benign lung tumors in female mice at the highest dose tested (250 mg/kg/day); however, no tumors occurred in rats given high doses of up to 75 mg/kg/day.

Organ toxicity: Pyrethroid like cypermethrin may cause adverse effects on the central nervous system. Rats fed high doses (37.5 mg/kg) of the di-ester of cypermethrin for five weeks exhibited severe motor incoordination, while 20 to 30% of rats fed 65 mg/kg died 4 to 17 days after treatment began. Long-term feeding studies have shown increased liver and kidney weights and adverse changes in liver tissue in test animals. Psychological changes in the cortex of the brain, liver, adrenal glands, lungs, and skin were observed in rabbits repeatedly fed high doses of cypermethrin.

RAIDS (or asthma) following an irritating inhalation is an infrequent disorder with onset related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as a result of exposure to high concentrations of irritating substances (often particulates in nature) and is completely reversible after exposure ceases. The disorder is characterized by dyspnea, cough and mucus production.

A contact allergic quickly manifests themselves as contact eczema, more rarely as urticaria or Quincke's edema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type.

*Irr.

CYPERMETHRIN, ZETA-

CYPERMETHRIN, BETA-

a No significant acute toxicological data identified in literature search.

CYPERMETHRIN:

TOXICITY	IRRITATION
Oral (Rat) LD50: 57 mg/kg	Skin (rabbit): non irritating*
Inhalation (Rat) LC50: 7685 mg/m ³ /4h	Eye (rabbit): mild*
Dermal (Rat) LC50: >1800 mg/kg (EPA Record)	
Intraperitoneal (Rat) LD50: 404 mg/kg	
Oral (Mouse) LD50: 345.7 mg/kg	
Intraperitoneal (Mouse) LD50: 25 mg/kg	
Oral (Rabbit) LD50: 1500 mg/kg	
Dermal (Rabbit) LD50: >2400 mg/kg	
Oral (Guinea pig) LD50: 500 mg/kg	
Intraperitoneal (Rat) LD50: 43 mg/kg	
Dermal (Rabbit) LD50: 2460 mg/kg	
Oral (Rat) LD50: 65 mg/kg	

a Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change in cellular DNA.

ADI: 0.02 mg/kg/day

NOEL: 4.7 mg/kg/day

Soreness, convulsions, tremor, spasticity, muscle weakness, respiratory obstruction, tachycardia, neurocytic anemia, leukopenia, edema, monocytosis without anemia, changes in erythrocytes/leucocytes (WBC), allergic diseases in cellular and humoral immune responses, prothrombin, hypoglycaemia, substance sensitization, delayed hypersensitivity, tumours, effects on newborn, effects on embryo/fetus, paternal effects, specific developmental abnormalities (reproductive system, blood and lymphatic systems, immune and reticuloendothelial system) recorded.

Teratogenic/ neoplastic by RTECS criteria (facilitates the action of a known carcinogen)

TOXICITY

IRRITATION

CYPERMETHRIN, ALPHA-

Oral (Rat) LD50: 79 mg/kg		Nil Reported
Inhalation (Rat) LC50: 1500 mg/m ³ /4h		
Dermal (Rat) LD50: 500 mg/kg		
Dermal (Rabbit) LD50: 3000 mg/kg		

ADI: 0.02 mg/kg/day

NOEL: 2 mg/kg/day

CARCINOGEN

CYPERMETHRIN	US Environmental Defense Board Suspected Carcinogens	Reference(s)	OPR-CAN
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Section 12 - ECOLOGICAL INFORMATION

Toxic to bees

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This material and its container must be disposed of as hazardous waste.

Acid release to the environment.

Refer to special instructions/safety data sheets.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
cypermethrin	HIGH		MED	LOW
cypermethrin, alpha-	HIGH		MED	LOW
cypermethrin, zeta-	HIGH		MED	LOW

Section 13 - DISPOSAL CONSIDERATIONS

Disposal instructions

All waste must be handled in accordance with local, state and federal regulations.

Use puncture containers to prevent re-use and bury at an authorized landfill.

Legislation addressing waste disposal requirements may differ by county, state and/or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be incinerated.

A Hierarchy of Controls seems to be common - the user should investigate:

• Reduction

• Reuse

• Recycling

• Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. The life considerations should also be applied in making decisions of this type.

Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

• Recycle wherever possible.

• Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION



DOT:

Symbol: None Hazard class or Division: 2.1

Identification Number: UN0049 PG: 1

Label Codes: 2.1 Special provisions: 017, 018,

05, 09, 10

Packaging: Exceptions: None Packaging: Non-bulk 211

Packaging: Exceptions: None Quantity limitations: 5 kg

Passenger aircraft only:

Quantity limitations: Cargo 55 kg Vessel stowage: Location: A

aircraft only:

Vessel stowage: Other: 40 S.M.P. - Sevens

Hazardous materials descriptions and proper shipping names:

Pyrethroid pesticides, solid, toxic

Air Transport IATA:

ICAO/IATA Class: 2.1 ICAO/IATA Subclass: None

UN/ID Number: 3349 Packing Group: I

Special provisions: A3

Cargo Only

Packing Instructions: 607 Maximum Qty/Pack: 50 kg

Passenger and Cargo Passenger and Cargo

Packing Instructions: 603 Maximum Qty/Pack: 5 kg

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: - Maximum Qty/Pack: -

Shipping Name: PYRETHROID PESTICIDES, SOLID, TOXIC

*CONTAINS CYPERMETHRIN

Maritime Transport IMDG:

IMDG Class: 2.1 IMDG Subclass: None

UN Number: 3349 Packing Group: I

EMS Number: FA, 5-A Special provisions: 01, 274

Limited Quantity: 0 Marine Pollutant: Yes

Shipping Name: PYRETHROID PESTICIDES, SOLID, TOXIC

Section 15 - REGULATORY INFORMATION

cypermethrin

(CAS:

52315-07-0,86685-47-0,86752-00-0,86753-02-6,86161-75-5,97955-44-7,137407-01-1,139203-31-9,142443-05-8,146800-55-9,186854-45-0,67375-30-8,65731-84-2,71697-50-1)

is found on the following regulatory lists;

"Canada - Saskatchewan Environmental Persistent or Chronic Hazardous Substances", "OSPAR Substances removed from the List of Substances of Possible Concern", "WHO Guidelines for Drinking-water Quality

- Chemicals excluded from guideline value derivation"

Regulations for ingredients

cypermethrin, alpha- (CAS: 67375-30-8) is found on the following regulatory lists;

"OSPAR Substances removed from the List of Substances of Possible Concern"

cypermethrin, beta- (CAS: 65731-84-2) is found on the following regulatory lists;

"Canada - Saskatchewan Environmental Persistent or Chronic Hazardous Substances", "US - California Occupational Safety and Health Regulations (CALOSH) - Hazardous Substances List", "US -

Massachusetts Oil & Hazardous Material List", "US - Pennsylvania - Hazardous Substances List", "US CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances", "US Department of

Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radioisotopes", "US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA

and Section 112(a) of the Clean Air Act"

cypermethrin, theta- (CAS: 71697-50-1) is found on the following regulatory lists;

"Canada - Saskatchewan Environmental Persistent or Chronic Hazardous Substances", "US - California Occupational Safety and Health Regulations (CALOSH) - Hazardous Substances List", "US -

Massachusetts Oil & Hazardous Material List", "US - Pennsylvania - Hazardous Substances List", "US CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances", "US Department of

Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radioisotopes", "US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA

and Section 112(a) of the Clean Air Act"

cypermethrin, zeta- (CAS: 52315-07-8) is found on the following regulatory lists;

"Canada - Saskatchewan Environmental Persistent or Chronic Hazardous Substances", "OSPAR Substances removed from the List of Substances of Possible Concern", "WHO Guidelines for Drinking-water Quality

- Chemicals excluded from guideline value derivation"

Section 16 - OTHER INFORMATION

ND

Substance CAS Suggested code: cypmethrin 65731-84-2 cypmethrin, base- 65731-84-2

Ingredients with multiple CAS Nos

Ingredient Name CAS cypmethrin 52185-07-8, 89022-47-0, 86723-09-0, 88793-00-6, 88181-75-8, 87825-44-7, 137467-81-1, 138223-31-8, 142443-82-6, 148909-85-1, 198254-85-0, 67375-00-0, 65731-84-2, 71957-62-1

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a Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at www.chemwatch.net/references.

a The GHS/GS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposure Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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Issue Date: Nov-25-2008

Print Date: Dec-19-2010



MATERIAL SAFETY DATA SHEET

Syngenta Crop Protection, Inc.
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
1-800-888-8372

1. PRODUCT IDENTIFICATION

Product Name:	DEMON WP	Product No.:	AI2839A
EPA Signal Word:	Warning		
Active Ingredient(s):	Cypermethrin Technical (40.0%)	CAS No.:	52315-07-8
Chemical Name:	a-cyano-(3-phenoxyphenyl)methyl-cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate		
Chemical Class:	A pyrethroid insecticide		
EPA Registration Number(s):	100-990; 100-1000	Section(s) Revised:	2, 5, 7, 12, 15, 16

2. HAZARDS IDENTIFICATION

Health and Environmental

Irritating to eyes. Harmful in contact with skin and if swallowed. May cause sensitization by skin contact. May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia. May form flammable dust-air mixture.

Hazardous Decomposition Products

Hydrogen cyanide gas may develop in the headspace of containers at normal storage temperatures. May decompose at high temperatures forming toxic gases, including hydrogen cyanide.

Physical Properties

Appearance: Off-white powder
Odor: Slightly aromatic

Unusual Fire, Explosion and Reactivity Hazards

This product is a combustible powder and like all combustible powders can ignite, burn and form explosive mixtures with air if not handled correctly. Mixtures of powder in air with flammable solvent vapors should be avoided.

This product has a minimum ignition energy between 10 and 30 millijoules. Static electricity, mechanical sparks, open flames, and certain hot surfaces (greater than 527°F [275°C]) can serve as ignition sources for this material.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Amorphous Silica	80 mg/m ³ /%SiO ₂ TWA (total dust)	10 mg/m ³ TWA (inhalable dust)	Not Established	IARC Group 3
Calcium Silicate	15 mg/m ³ TWA (total); 5 mg/m ³ TWA (respirable)	10 mg/m ³ TWA (irritation)	10 mg/m ³ TWA (total); 5 mg/m ³ TWA (respirable) **	No
Cypermethrin Technical (40.0%)	Not Established	Not Established	0.5 mg/m ³ TWA ***	No

** recommended by NIOSH

*** Syngenta Occupational Exposure Limit (OEL)

Product Name: DEMON WP

Page: 1

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
Syngenta Hazard Category: C, S

4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

- Ingestion:** If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
- Eye Contact:** If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Skin Contact:** If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Inhalation:** If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Notes to Physician

There is no specific antidote if this product is ingested.

Treat symptomatically.

Persons suffering a temporary allergic reaction may respond to treatment with antihistamines or steroid creams and/or systemic steroids.

Skin contact paresthesia effects (itching, tingling, burning or numbness) are transient, lasting up to 24 hours. Treat symptomatically.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	Not Applicable	
Flammable Limits (% in Air):	Lower: Not Applicable	Upper: Not Applicable
Autoignition Temperature:	Not Available	
Flammability:	Not Applicable	

Unusual Fire, Explosion and Reactivity Hazards

This product is a combustible powder and like all combustible powders can ignite, burn and form explosive mixtures with air if not handled correctly. Mixtures of powder in air with flammable solvent vapors should be avoided.

This product has a minimum ignition energy between 10 and 30 millijoules. Static electricity, mechanical sparks, open flames, and certain hot surfaces (greater than 527°F [275°C]) can serve as ignition sources for this material.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use appropriate extinguishing media for combustibles in the area. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. ACCIDENTAL RELEASE MEASURES

Product Name: DEMON WP

Page: 2

In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Sweep up material and place in a compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

This product is not considered electrically conductive at low relative humidity.

Handle this material only in electrically conductive equipment. Electrically ground and bond this equipment as well as any worker who could contact a dust cloud formed of this material. Eliminate the presence of mechanical sparks and other ignition sources where dust clouds of this material could form. Bulk bags (FIBC) used to contain this material should be either type B or type C. If type C bags are used make sure they are electrically grounded before powder is discharged from the bag.

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Ingestion:	Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.
Eye Contact:	Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Skin Contact:	Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear. Stringent housekeeping measures are necessary to prevent translocation of the material from contaminated work surfaces to uncontaminated surfaces (railings, doors, etc.). Unprotected contact with such translocated material can result in paresthesia effects (see Section 11).
Inhalation:	A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use a NIOSH approved respirator with any HE filter.

Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

Avoid breathing air from drum headspace. Hydrogen cyanide gas may be released during opening and dispensing, and in case of spills. Use local exhaust ventilation or air-supplied respiratory protection to keep exposures below the TLV Ceiling Limit.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Off-white powder
Odor:	Slightly aromatic
Melting Point:	Not Available
Boiling Point:	Not Applicable
Specific Gravity/Density:	Not Available
pH:	8.6
<u>Solubility in H₂O</u>	
Cypermethrin Technical:	0.004 mg/l (pH 7)

Vapor Pressure

Cypermethrin Technical: ca 7.5 x 10⁽⁻¹⁰⁾ mmHg @ 68°F (20°C) (by extrapolation)

10. STABILITY AND REACTIVITY

Stability:	Stable under normal use and storage conditions.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	None known.
Materials to Avoid:	Oxidizing agents.
Hazardous Decomposition Products:	Hydrogen cyanide gas may develop in the headspace of containers at normal storage temperatures. May decompose at high temperatures forming toxic gases, including hydrogen cyanide.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:	<u>Slightly Toxic</u> Oral (LD50 Rat) : = 1,800 mg/kg body weight
Dermal:	<u>Slightly Toxic</u> Dermal (LD50 Rabbit) : = 2,000 mg/kg body weight
Inhalation:	<u>Not Available</u> Inhalation (Not available at this time.) :
Eye Contact:	Moderately Irritating (Rabbit)
Skin Contact:	Not Available
Skin Sensitization:	A skin sensitizer in animal tests.

Reproductive/Developmental Effects

Cypermethrin Technical: There were no cypermethrin-induced effects in fertility in two separate two-litter three (filial) generation studies in the rat.

Chronic/Subchronic Toxicity Studies

Cypermethrin Technical: NOEL (2-yr) for dogs 5 mg/kg, rats 7.5 mg/kg.
Nervous system effects typical of pyrethroids (motor incoordination, gait abnormalities) in a range of repeated dose studies (dog and rat). Possible nerve fiber degeneration in 14-day study in rats.

Carcinogenicity

Cypermethrin Technical: Two separate 2-year feeding studies in the rat revealed no evidence of carcinogenicity that could be attributable to cypermethrin.

Other Toxicity Information

In humans, contact with exposed skin may result in temporary itching, tingling, burning or numbness, called paresthesia. The effect may result from splash, aerosol, or hot vapor contact, or transfer to the face from contaminated gloves and hands. The symptoms normally disappear within 24 hours. Face and genital areas are especially susceptible to this effect. Paresthesia involving the face is also known as "subjective facial sensation" or SFS.

Toxicity of Other Components

Amorphous Silica

Amorphous Silica is listed as an IARC (Group 3) carcinogen not classifiable as a human carcinogen (No Data Available) with limited animal evidence. Prolonged exposure to amorphous silica may cause damage to respiratory system and irritation to skin and eyes.

Calcium Silicate

May cause skin or eye irritation upon prolonged or repeated contact.

Target Organs

Product Name: DEMON WP

Page: 4

Active Ingredients

Cypermethrin Technical: CNS, eye, liver, skin

Inert Ingredients

Amorphous Silica: Respiratory tract, skin, eye

Calcium Silicate: Skin, eye

12. ECOLOGICAL INFORMATION

Summary of Effects

Cypermethrin Technical:

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Eco-Acute Toxicity

Cypermethrin Technical:

Invertebrate (Water Flea) 48-hour EC50 0.48 ppb

Fish (Rainbow Trout) 96-hour LC50 0.92 ppb

Fish (Bluegill Sunfish) 96-hour LC50 1.78 ppb

Bird (Bobwhite Quail) 8-day dietary LC50 > 3951 ppm

Bird (Mallard Duck) 8-day dietary LC50 > 2634 ppm

Bee 48-hour LD50 0.023 ug/bee

Eco-Chronic Toxicity

Cypermethrin Technical:

Invertebrate (Water Flea) 21-day LOEC 0.0020 ppb

Bird (Mallard Duck) Reproduction 12-week LOEL > 50 ppm

Fish (Fathead Minnow) 30-day LOEC 0.33 ppb

Environmental Fate

Cypermethrin Technical:

The information presented here is for the active ingredient, cypermethrin.
Not persistent in soil or water. Immobile in soil. Sinks in water (after 24 h).

13. DISPOSAL CONSIDERATIONS

Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA

Not regulated by US DOT.

Note: Packages prepared for export are classified in compliance with the IMDG code (water).

Air Transport - NAFTA

Not regulated by US DOT.

B/L Freight Classification

Insecticides, NOIBN, O/T Poison

Comments

Water Transport - International

Product Name: DEMON WP

Page: 5

Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (Cypermethrin), Marine Pollutant
Hazard Class or Division: Class 9
Identification Number: UN 3077
Packing Group: PG III

Air Transport - International
Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (Cypermethrin)
Hazard Class or Division: Class 9
Identification Number: UN 3077
Packing Group: PG III
Note: Max. inner packages 10 kg
Max. single packages 400 kg

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard
Chronic Health Hazard
Fire Hazard

Section 313 Toxic Chemicals: Not Applicable

California Proposition 65

Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)

None

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 2
Flammability: 3
Instability: 0

HMIS Hazard Ratings

Health: 2
Flammability: 3
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 8/6/1998

Revision Date: 2/28/2007

Replaces: 4/11/2005

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

End of MSDS

Product Name: DEMON WP

Page: 6



Interprovincial Cooperative Limited

DIAZINON 50

MATERIAL SAFETY DATA SHEET

1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Diazinon 50[®]
Product Use: Organophosphate Insecticide
Product Number: 27538

Manufacturer/Supplier: INTERPROVINCIAL COOPERATIVE LTD.
945 Marion St.
Winnipeg, Manitoba
R2J 0K7 www.ipco.ca

Effective Date: January 01/2012

This product is regulated under authority of the Pest Control Products Act

2: HAZARD IDENTIFICATION

Target organs: Eyes, skin, respiratory system, digestive system, nervous system.
Signs and symptoms of short-term (acute) exposure:
Inhalation: This material can cause rapid organophosphorous poisoning. Symptoms of poisoning may include headache, nausea, vomiting, blurred vision, tightness in chest, drooling and frothing of mouth and nose, convulsions, coma and death.
Skin contact: Direct skin contact causes moderate irritation.
Eye contact: Direct eye contact may cause moderate irritation.
Ingestion: Causes symptoms similar to those listed for inhalation. This product presents an aspiration hazard. Aspiration into the lungs during ingestion could cause life-threatening lung injury.
Effects of long-term (chronic) exposure: Prolonged or repeated overexposure may cause behavioral changes. Prolonged or repeated skin contact may cause drying and cracking of the skin (dermatitis). Prolonged or repeated overexposure may cause liver effects.

3: COMPOSITION AND INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	% (W/W)
Diazinon	333-41-5	55.76 – 59.20
Solvent Naphtha (Petroleum) Heavy Aromatic	64742-94-5	34.45 – 36.59
Other ingredients:		6.65 – 7.35
Naphthalene	91-20-3	
1, 2, 4-Trimethylbenzene	95-63-6	

Ingredients not listed are proprietary or non-hazardous

4: FIRST AID MEASURES

In case of poisoning, call a physician or poison control centre IMMEDIATELY.

Inhalation: Immediately remove victim to fresh air. If breathing has stopped, begin artificial respiration immediately. Transport to a clinic or hospital immediately.

In case of emergency call CANUTEC at 613-885-6666
Interprovincial Cooperative Ltd.; Information Phone: 204-233-3461

Effective Date: MSDS # 029
PCP# 27538

01-Jan-2012
Page 1 of 5

DIAZINON 50

MATERIAL SAFETY DATA SHEET

Skin:	Immediately flush skin with running water for at least 15 minutes, while removing contaminated clothing and shoes. Obtain medical attention immediately. Thoroughly clean contaminated clothing before re-use.
Eyes:	Immediately flush eyes with running water for at least 30 minutes. Get medical attention immediately.
Ingestion:	If ingested, induce vomiting immediately, only as directed by medical personnel. Never give anything by mouth if victim is unconscious or convulsing. Transport to a clinic or hospital immediately.
Note to physician:	Diazinon is a cholinesterase inhibitor affecting the central and peripheral nervous systems and producing respiratory and cardiac depression. Decontamination procedures such as whole body washing, gastric lavage and administration of activated charcoal are often required. Administer atropine sulphate in large doses. Two to four mg intravenously or intramuscularly as soon as cyanosis is overcome. Repeat at 5 to 10 minute intervals until signs of atropinization appear. Obidoxime chloride (Toxogonin), alternatively pralidoxime chloride (2-PAM), is a pharmacological antidote and may be administered as an adjunct to, but not a substitute for atropine, which is a symptomatic and often life-saving antidote. DO NOT GIVE MORPHINE OR TRANQUILIZERS. At first sign of pulmonary edema, the patient should be given supplemental oxygen and treated symptomatically. Continued absorption of Diazinon may occur and relapse may occur after initial improvement. VERY CLOSE SUPERVISION OF THE PATIENT IS INDICATED FOR AT LEAST 48 HOURS.

5: FIRE-FIGHTING MEASURES

Unusual Fire & Explosion Hazards:	Toxic fumes under high temperature conditions. Contain water from fire fighting to prevent entry into water supplies...
Extinguishing Media:	Carbon Dioxide, Foam, Water Fog, and Dry Chemical
Special Oxidizing Material Hazards:	Not Established
Hazardous Combustion Products:	Hydrogen chloride, ethyl mercaptan, diethyl sulfide, carbon oxides, nitrogen oxides, sulfur oxides, various chlorinated solvents.
Special Fire Fighting Procedures:	Use water spray to cool fires exposed containers or structures. Use water spray to disperse vapours; re-ignition is possible. Use self-contained breathing apparatus and protective clothing.

6: ACCIDENTAL RELEASE MEASURES

In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations.

7: HANDLING AND STORAGE

Store in a cool, well-ventilated area. Keep away from heat, sparks and filling of containers. Keep away from children; prevent contact with eyes, skin, and clothing. Do not store near fertilizers, foodstuffs, seed, insecticides or fungicides.

Do not contaminate irrigation ditches or domestic water supplies. If this happens notify police and local authorities.

In case of emergency call CANUTEC at 613-885-6666
Interprovincial Cooperative Ltd Information Phone: 204-233-3461
Effective Date:
MSDS # 029 PCP# 27538

01-Jan-2012
Page 2 of 5

DIAZINON 50 **MATERIAL SAFETY DATA SHEET** **8: EXPOSURE CONTROLS AND PERSONAL PROTECTION** **Exposure Limits:**

Diazinon	
LD50-ORAL:	575 mg/kg Rat
LD50-DERMAL:	> 2000 mg/kg Rabbit
T.L.V. (ACGIH):	Not Established
LC50:	> 4.36 mg/L (4 hrs) Rat
Solvent Naphtha (Petroleum), Heavy Aromatic	
LD50-ORAL:	> 3, 000 mg/kg Rat
LD50-DERMAL:	> 3160 mg/kg Rabbit
T.L.V. (ACGIH):	Total Hydrocarbons: 100 mg/m ³
LC50:	Not Established
Special Engineering Controls:	Local exhaust ventilation required.
Eye Protection:	CSA approved safety glasses with side shields or goggles.
Respiratory Protection:	A NIOSH/MSHA approved air-purifying respirator equipped with organic vapor cartridges near or below TLV. Air supplied respirator above TLV or unknown concentrations.
Hand and Arm:	PVC or rubber gloves.
Feet:	Rubber boots.
Body:	Coveralls.
Other Personal Protection:	Recommendations listed above indicate the type of equipment which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance & Odour:	Brown, Colour "Solvent" odour
Specific Gravity:	(@ 20°C): 1.0140
Vapour density:	Solvent Naphtha (Petroleum), Heavy Aromatic: > 4.6 (Air = 1)
Solubility in water:	Emulsifies
Solubility in liquids:	Not established
Freezing point:	< 5°C
% volatile by volume:	Not applicable
Boiling point:	Solvent Naphtha (Petroleum), Heavy Aromatic: 184 - 205°C
Odour threshold (ppm):	Not established
Coefficient of water/oil distribution:	Not applicable
Vapour pressure:	Solvent Naphtha (Petroleum), Heavy Aromatic: 0.40 Kpa @ 20°C
Evaporation rate:	Solvent Naphtha (Petroleum), Heavy Aromatic: < 0.06 (n-butyl acetate = 1)
pH: (1% Sol'n):	8.1
Viscosity:	3.6 cps at 20°C
Flash Point & Method:	(°C): 64 (Tag Closed Cup)
Flammable Limits (% in air):	Lower: 1.8 Solvent Naphtha (Petroleum), Heavy Aromatic Upper: 11.4 Solvent Naphtha (Petroleum), Heavy Aromatic
Autoignition Temperature	Solvent Naphtha (Petroleum), Heavy Aromatic: 433°C

 10: STABILITY AND REACTIVITY

Decomposition Temp:	Above 120°C for the Diazinon component of the formulation
Stability:	Stable under normal conditions.
Materials to Avoid:	Strong alkalis, amines and strong oxidizing compounds.

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Interprovincial Cooperative Ltd Information Phone: 204-233-3461
Effective Date:
MSDS # 029 PCP# 27538

01-Jan-2012
Page 3 of 5

DIAZINON 50

MATERIAL SAFETY DATA SHEET

Hazardous Decomposition Products:

Oxides of sulfur, phosphorus containing compounds and other unknown materials may be formed in a fire situation. When Diazinon is reacted with trace amount of water, O, S-TEPP and other hazardous products may be formed. Incomplete combustion may lead to formation of carbon monoxide and/or other asphyxiants.

Hazardous Polymerization or Condensation: Conditions to Avoid:

Will not occur.
Avoid heating above 75°C. Product undergoes exothermic decomposition at approximately 120°C, which can lead to higher temperatures and violent decomposition if heat generated is not removed.

11: TOXICOLOGICAL INFORMATION

Skin Absorption:	Acute dermal LD50 (Rat)	> 4000 mg/kg.
Ingestion:	Acute oral LD50 (rat)	910 mg/kg.
Inhalation:	LC50	5.00 mg/L (4 hr, nose-only exposure) Rat
T.W.A. (ACGIH):	Total Hydrocarbons:	100 mg/m ³
Chronic Health Hazards:	Prolonged or repeated exposure may lead to kidney or central nervous system symptoms.	
Mutagenicity Data:	None observed in test animals. This product does not contain any materials above reportable levels.	
Carcinogenicity Data:	This product does not contain any materials above reportable levels which are classified as carcinogenic by IARC, ACGIH, OSHA or NTP.	
Teratogenicity Data:	None observed in test animals. This product does not contain any materials above reportable levels.	
Reproductive Effects:	None observed in test animals. This product does not contain any materials above reportable levels.	

12: ECOLOGICAL INFORMATION

Data on Diazinon:
96-Hour LC50 (mg/L): 1.80 (Rainbow Trout)
48-Hour EC50 (mg/L): 0.00032 (Daphnia)
Oral LD50 (mg/kg): 5.2 (Bobwhite Quail)
Dietary LC50 (ppm): 33.0 (Mallard Duck)
Oral LD50 (mg/mg): 0.36 (Bee)

Chemical Fate Information: The product should not be allowed to enter drains or water courses or be deposited where it can affect ground or surface waters. Do not discharge product unmonitored into the environment. This material is highly toxic to fish, aquatic invertebrates and insects. It is toxic to aquatic plants. Diazinon is not mobile in soil, but is strongly absorbed to soil. Diazinon has the potential to bioaccumulate, but it is rapidly excreted (with a half life 2-4 weeks).

13: DISPOSAL CONSIDERATIONS

Dispose of waste materials in an approved incinerator or waste treatment/disposal facility in accordance with applicable regulations. Do not dispose of wastes in local sewer or with normal waste

In case of emergency call CANUTEC at 613-885-6666
Interprovincial Cooperative Ltd Information Phone: 204-233-3461
Effective Date:
MSDS # 029 PCP# 27538

01-Jan-2012
Page 4 of 5

DIAZINON 50

MATERIAL SAFETY DATA SHEET

14: TRANSPORT INFORMATION

This product is Not Regulated under regulations of the Transport of Dangerous Goods Act.

15: REGULATORY INFORMATION

Pest Control Products Act
Registration Number: 27538
For information Phone: 204-233-3461
MSDS Status/
Revised Sections:
Replaces MSDS Dated: September 01, 2009

16: OTHER INFORMATION

WHMIS Ratings: B3, DB1, D2B
Notice: The enclosed information is supplied as a customer service and is provided in good faith. Although it has been based on data drawn from sources deemed to be reliable, IFCO cannot guarantee its accuracy and assumes no responsibility for conditions resulting from its use.

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Interprovincial Cooperative Ltd Information Phone: 204-233-3461
Effective Date:
MSDS # 029 PCP# 27538

01-Jan-2012
Page 5 of 5

Dichlorvos: sc-207557



The Power of Quality

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Dichlorvos
Product Number: sc-207557
Supplier: Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, CA 95060
800.457.3801 or 831.457.3800
Emergency: ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2438 2255 (1-800-CHEMCALL) or call +613 9573 3112

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Carcinogen, Target Organ Effect, Toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption, Skin sensitizer

Target Organs

Central nervous system, Blood, Heart, Eyes, Liver

GHS Classification

Acute toxicity, Oral (Category 2)

Acute toxicity, Inhalation (Category 2)

Acute toxicity, Dermal (Category 2)

Skin sensitization (Category 1)

Acute aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H300 + H310 + H330

H317

H400

Fatal if swallowed, in contact with skin or if inhaled.

May cause an allergic skin reaction.

Very toxic to aquatic life.

Precautionary statement(s)

P280

P264

P273

P280

P284

P302 + P350

P310

Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.

Wash hands thoroughly after handling.

Avoid release to the environment.

Wear protective gloves/ protective clothing.

Wear respiratory protection.

IF ON SKIN: Gently wash with plenty of soap and water.

Immediately call a POISON CENTER or doctor/ physician.

HMS Classification

Health hazard: 3

Chronic Health Hazard: *

Flammability: 1

Physical hazards: 0

NFPA Rating

Health hazard: 3
Fire: 1
Reactivity Hazard: 0

Potential Health Effects

Inhalation Toxic if inhaled. May cause respiratory tract irritation.
Skin May be fatal if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.
Ingestion May be fatal if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C4H7Cl2O4P
Molecular Weight : 220.98 g/mol

<u>CAS-No.</u>	<u>EC-No.</u>	<u>Index-No.</u>	<u>Concentration</u>
Dichlorvos 62-73-7	200-547-7	015-019-00-X	-

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability

Not flammable or combustible.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions - Carbon oxides, Oxides of phosphorus,

Hydrogen chloride gas

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Recommended storage temperature: -20 °C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Dichlorvos	62-73-7	TWA	1 mg/m ³	USA, OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Remarks	Skin irritation			
		TWA	1 mg/m ³	USA, Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Skin designation			
		TWA	1 mg/m ³	USA, NIOSH Recommended Exposure Limits
	Potential for dermal absorption			
		TWA	0.1 mg/m ³	USA, ACGIH Threshold Limit Values (TLV)
	Skin contact does contribute to exposure. Not classifiable as a human carcinogen Sensitizer			
		TWA	0.1 mg/m ³	USA, ACGIH Threshold Limit Values (TLV)
	Cholinesterase inhibition Substances for which there is a Biological Exposure Index or Indices (see BEI® section), see BEI® for Acetylcholinesterase Inhibiting Pesticide Not classifiable as a human carcinogen Danger of cutaneous absorption Sensitizer			

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or GEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	liquid	pH	no data available
Melting point/freezing point	no data available	Boiling point	74°C at 760mmHg
Flash point	100°C - closed cup	Ignition temperature	no data available
Auto-ignition temperature	no data available	Lower explosion limit	no data available
Upper explosion limit	no data available	Water solubility	soluble
Vapor pressure	0.012mmHg at 20°C	Relative vapor density	no data available
Density	1.420g/cm ³ at 20°C	Odor	no data available
Odor Threshold	no data available	Partition coefficient: n-octanol/water	no data available
Evaporation rate	no data available		

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

no data available

Materials to avoid

no data available

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions - Carbon oxides, Oxides of phosphorus,

Hydrogen chloride gas

Other decomposition products

no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50 LD50 Oral - rat - 25 mg/kg

Inhalation LC50 LC50 Inhalation - rat - 4 h - 15 mg/l

Dermal LD50 LD50 Dermal - rabbit - 107 mg/kg

Other information on acute toxicity no data available

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitization

May cause allergic skin reaction.

Germ cell mutagenicity

no data available

Carcinogenicity

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Dichlorvos).

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation Toxic if inhaled. May cause respiratory tract irritation.
Ingestion May be fatal if swallowed.
Skin May be fatal if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.

Signs and Symptoms of Exposure

Cholinesterase inhibitors can cause heavy salivation and secretion in the lungs, lachrymation, blurred vision, involuntary defecation, diarrhea, tremor, ataxia, sweating, hypothermia, lowered heart rate, and/or a fall in blood pressure as a result of their action at cholinergic nerve sites. Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer. Salivation, coma, tremors, incoordination, blurred vision, lowered blood pressure, diarrhea, headache, weakness, unconsciousness, palpitation, anorexia, convulsions, sweating, muscle cramps/spasms, change in pupil size, nausea, vomiting, dizziness, drowsiness, confusion.

Synergiatic effects

no data available

Additional Information

RTECS: TC0350000

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Bioaccumulative potential

no data available

PBT and vPvB assessment

no data available

Persistence and degradability

no data available

Mobility in soil

no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2810 Class: 6.1 Packing group: II

Proper shipping name: Toxic, liquids, organic, n.o.s. (Dichlorvos)

Reportable Quantity (RQ): 10 lbs

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG

UN number: 2810 Class: 6.1 Packing group: II EMS-No: F-A, S-A

Proper shipping name: TOXIC LIQUID, ORGANIC, N.O.S. (Dichlorvos)

Marine pollutant: Marine pollutant

IATA

UN number: 2810 Class: 6.1 Packing group: II

Proper shipping name: Toxic liquid, organic, n.o.s. (Dichlorvos)

15. REGULATORY INFORMATION

OSHA Hazards

Carcinogen, Target Organ Effect, Toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption, Skin sensitizer

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

Dichlorvos

CAS-No. 62-73-7

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Dichlorvos

CAS-No. 62-73-7

Pennsylvania Right To Know Components

Dichlorvos

CAS-No. 62-73-7

New Jersey Right To Know Components

Dichlorvos

CAS-No. 62-73-7

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.

Dichlorvos

CAS-No. 62-73-7

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.

5/13/2014

MATERIAL SAFETY DATA SHEET**DDVP 20% EC PCP 23915**

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL DAY OR NIGHT 1-800-561-8273 or
 CHEMTREC - DAY OR NIGHT 1-800-424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**FORMULATED FOR:**

UNITED AGRI PRODUCTS CANADA, INC.
 789 Donnybrook Drive • Dorchester, Ontario N0L 1G5

24-Hour Emergency Phone: 1-800-561-8273
 Medical Emergencies (Prosear): 1-800-301-7976
 Additional Emergency Phone (Canotec): 1-513-996-6566 (Collect)

PRODUCT NAME: DDVP; DICHLORVOS; (2,2-Dichlorovinyl)dimethyl phosphate)
PRODUCT USE: Insecticide - Group 1B
PCP REG. NO.: 23915
MSDS Number: 23915-030-UAP **MSDS Revisions:** Section 14 revised **Date of Issue:** 03/10/08 **Supersedes:** 01/07/08

2. HAZARDS IDENTIFICATION SUMMARY

KEEP OUT OF REACH OF CHILDREN - DANGER - POISON - Poisonous if swallowed, inhaled, or absorbed through skin. Rapidly absorbed through skin. Avoid breathing of spray mist. Avoid contamination of feed and foodstuff. Keep out of reach of children. Do not get in eyes or on clothing. Avoid contact with skin. Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Do not contaminate water used for irrigation, domestic or spray purposes.

This product is colorless to amber liquid with aromatic solvent odor.

Warning Statements:

NOTE TO PHYSICIAN: This product is an organophosphate (cholinesterase-inhibiting) insecticide. Atropine is antidotal and should be given in multiple doses as necessary until the patient is atropinized. In severe cases 2-PAM may be given provided therapy begins within 24 hours of exposure. Monitor serum and RBC cholinesterase. Administer intravenous fluids cautiously, if needed, to correct dehydration. Symptoms of cholinesterase inhibition include salivation, gastrointestinal hypermotility, abdominal cramping, nausea, diarrhea, sweating, miosis, tearing, blurred vision, headache, dizziness, ataxia, bradycardia, dyspnea, cyanosis, and muscle twitching or tremors. In extreme cases, tetany, mental confusion, incontinence, weakness, collapse, paralysis, convulsive seizures, and even death, can occur. Contains petroleum distillates.

3. COMPOSITION, INFORMATION ON INGREDIENTS

Chemical Ingredients:	Percentage by Weight:	CAS No.	TLV (Units)
Dichlorvos	20.00	62-73-7	0.1 mg/m ³ IPV*
Aromatic Solvent	70.00	64742-95-6	Not listed

4. FIRST AID MEASURES

if in eyes: 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 centre or doctor for treatment advice.

if inhaled: 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 centre or doctor for treatment advice. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

if swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

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

FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-800-301-7976. Have the product label or container with you when calling a poison control center or doctor, or going for treatment.

5. FIRE FIGHTING MEASURES

FLASH POINT (FFTest Method): 116.6°F / 47°C (TCC)

FLAMMABLE LIMITS (LFL & UFL): LFL: 1%; UFL: 7%.

EXTINGUISHING MEDIA: Combustible liquid. Use medium appropriate to surrounding fire. Dry chemical, carbon dioxide, foam, water spray or fog.

HAZARDOUS COMBUSTION PRODUCTS: Oxides of carbon and other toxic fumes will be emitted in a fire situation.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus with full protective clothing. Fight fire from upwind and keep all non-essential personnel out of area of intense smoke.

UNUSUAL FIRE AND EXPLOSION HAZARDS: If water is used to fight fire and/or cool containers, contain runoff, using dikes to prevent contamination of water supplies. Vapors in the air may flash and ignite.

MATERIAL SAFETY DATA SHEET

DDVP 20% EC PCP 23915

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Contain spill and absorb with suitable absorbent, sweep up material and transfer to containers for possible land application according to label use or for proper disposal. Wash spill area with water containing strong detergent, absorb and sweep up as above. Check local, state and federal regulations for proper disposal.

CAUTION: Keep spills and clearing runoff out of municipal sewers and open bodies of water.

7. HANDLING AND STORAGE

HANDLING: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

STORAGE: Store in original container only. Store away from children, domestic animals, food, feed, and water supplies. Keep container tightly closed when not in use. Do not contaminate water, food or feed by storage or disposal.

Personal Protective Equipment: Applicators and other handlers must wear: long sleeved shirt and long pants, chemical-resistant gloves, such as barrier laminate, butyl rubber, Nitrile rubber, or Viton®, chemical-resistant footwear and socks, protective eyewear, chemical-resistant apron when mixing, loading, or cleaning equipment. In case of possible overhead exposure, chemical-resistant head covering should be worn. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. After each day of use, clothing or PPE must not be reused until it has been cleaned. For containers over 1 gallon and less than 5 gallons in capacity: Mixers and loaders who do not use a mechanical system (probe and pump) to transfer the product must wear coveralls or a chemical-resistant apron in addition to other required PPE.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: When handlers use enclosed cabs, or aircraft in a manner that meets the requirements listed in the worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

RESPIRATORY PROTECTION: If vapors or mists become excessive or exceed TLV, wear a NIOSH/MSHA approved pesticide respirator with cartridges for organic vapors.

EYE PROTECTION: Chemical goggles or shielded safety glasses.

SKIN PROTECTION: Wear protective clothing: long-sleeved shirts and pants, chemical-resistant footwear and socks. Wear rubber or chemical-resistant gloves.

	OSHA PEL 8 hr TWA	ACGIH TLV-TWA
DDVP	1 mg/m ³ (skin)	0.1 mg/m ³ IPV*

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Colorless to amber liquid with aromatic solvent odor

SPECIFIC GRAVITY (Water = 1): 0.98 g/ml @ 20°C

VAPOR PRESSURE: Not established

PERCENT VOLATILE (by volume): Not established

Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

BULK DENSITY: 0.98 kg/L

BOILING POINT: 363 - 401°F / 184 - 205°C

EVAPORATION RATE (Butyl Acetate = 1): 0.1

SOLUBILITY: Emulsifies

pH: ± 3.9 (1% emulsion)

10. STABILITY AND REACTIVITY

STABILITY: Stable

INCOMPATIBILITY: Strong bases, acids, and oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen chloride (HCl), phosphorous oxides, oxides of carbon, and other unknown hazardous materials may be formed in a fire situation.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Extreme heat. Sources of ignition.

11. TOXICOLOGICAL INFORMATION

Acute Oral LD₅₀ (female rat): 56 mg/kg

Eye irritation (rabbit): Irritant

Inhalation LC₅₀ (rat): >198 mg/m³ (4H)

Carcinogenic Potential: EPA lists Dichlorvos as EPA-B2: Probable Human Carcinogen with sufficient evidence from animal studies; inadequate evidence or no data from epidemiologic studies. ACGIH lists Dichlorvos as: TLV-A4: Not Classifiable as a Human Carcinogen. IARC lists Dichlorvos as 2B: Possibly Carcinogenic to Humans. Not listed in OSHA or NTP.

Acute Dermal LD₅₀ (rabbit): 205 mg/kg

Skin irritation (rabbit): Irritant

Skin sensitization (guinea pig): Possible sensitizer

MATERIAL SAFETY DATA SHEET

DDVP 20% EC PCP 23915

12. ECOLOGICAL INFORMATION

This product is toxic to fish, birds, and other wildlife. Do not apply directly to water. Do not contaminate water when disposing of equipment wash water. Do not apply when weather conditions favor drift from target area.

13. DISPOSAL CONSIDERATIONS

Do not reuse containers for any purpose. Refillable Container: For disposal, the container may be returned to the point of purchase (dealer/distributor). It must be refilled by the dealer/distributor with the same product. Container is recyclable, and is to be disposed of at a container collection site. Contact your local dealer/distributor for the location of the nearest collection site. Before taking container to the collection site: Triple or pressure-rinse the empty container, adding the rinsate to the spray tank. Make the empty container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Do not contaminate water, food, or feed by storage or disposal.

14. TRANSPORT INFORMATION

DOT/IDG Shipping Description: RQ ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE (DICHLORVOS, AROMATIC HYDROCARBON), 6.1 (3), UN3017, III MARINE POLLUTANT ERG GUIDE 131

U.S. Surface Freight Classification: INSECTICIDES OR FUNGICIDES, INSECT OR ANIMAL REPELLENTS, NOI, OR VERMIN EXTERMINATORS, ANIMAL OR POULTRY, NOI; POISON (NMFC 102100; CLASS: 77.5)

IMDG Shipping Description: RQ ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE (DICHLORVOS, AROMATIC HYDROCARBON), 6.1 (3), UN3017, III MARINE POLLUTANT ERG GUIDE 131

Consult appropriate ICAO/IATA regulations for shipment requirements in the Air shipping modes.

15. REGULATORY INFORMATION

NFPA & HMIS Hazard Ratings:	NFPA		HMIS
	2 Health	0 Least	2 Health
	2 Flammability	1 Slight	2 Flammability
	0 Instability	2 Moderate	0 Reactivity
		3 High	H PPE
		4 Severe	

SARA Hazard Notification/Reporting	Immediate	<u>Y</u>	Fire	<u>N</u>	Sudden Release of Pressure	<u>N</u>
SARA Title III Hazard Category:	Delayed	<u>N</u>	Reactive	<u>N</u>		

Reportable Quantity (RQ) under U.S. CERCLA: DDVP (Dichlorvos) (CAS: 62-73-7): 10 pounds; Naphthalene (CAS: 91-20-3): 100 pounds (calculated in product: 15 pounds)

SARA Title III, Section 313: DDVP (Dichlorvos) (CAS: 62-73-7); Naphthalene (CAS: 91-20-3)

RCRA Waste Code: Not listed

CA Proposition 65: WARNING: This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

16. OTHER INFORMATION

MSDS STATUS: Section 14 revised

PREPARED BY: Registrations and Regulatory Affairs

REVIEWED BY: Environmental/Regulatory Services

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IPY*: Measured as inhalable fraction and vapor.

Disclaimer and Limitation of Liability: This data sheet was developed from information on the constituent materials identified herein and does not relate to the use of such materials in combination with any other material or process. No warranty is expressed or implied with respect to the completeness or ongoing accuracy of the information contained in this data sheet, and UNITED AGR PRODUCTS CANADA, INC. disclaims all liability for reliance on such information. This data sheet is not a guarantee of safety. Users are responsible for ensuring that they have all current information necessary to safely use the product described by this data sheet for their specific purpose.



MATERIAL SAFETY DATA SHEET

SUBJECT: MERCAPTO THION 250 WP
DOCUMENT NO: PS 057
EFFECTIVE DATE: JANUARY 1998
REVISION DATE: APRIL 2000
REVISION NO: 1
PAGE : 1 of 6

SUPPLIER: DOW AGROSCIENCES (PTY) LTD.
 Private Bag X160,
 Bryanston.
 2021

EMERGENCY TELEPHONE NUMBERS

SPILLAGES:
Emergency telephone (+27) 032 5330716 or
 082 887 8079
Fax (+27) 032 5336134

POISONINGS:

National Poison Centre 021-9386084 (office hours).
 021-9316129 (after hours).
UOFS Pharmacology/Toxicology information centre:
 0824910160

1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY

Trade Name: MERCAPTO THION 250 WP
INSECTICIDE
Active ingredient: Malathion (BSI, E-ISO,
 ESA, F-ISO, JMAF)
Chemical Name: Mercaptothion (South Africa
 diethyl
 (dimethoxythiophosphorylthio)succinate; S-1,2-bis(ethoxycarbonyl)ethyl
 O,O-dimethyl phosphorodithioate
 (IUPAC)
CAS No. 121-75-5
Chemical Family: Organophosphate
Chemical Formula: C₁₀H₁₄O₆PS₂ (Mol. wt: 330.3)
EEC No.: 204-497-7
Use: An wettable powder insecticide for the
 control of pests as listed on the label.
UN No. 3077

2. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components: Malathion (Mercaptothion) 250g/kg
EEC classification: Xn, Harmful
R Phases: R 22 , R50/53,

3. HAZARD IDENTIFICATION

Toxicity class:
WHO(a.i.) III; EPA(Formulation) III
ADI (JMFR) 0.02 mg/kg
NOEL 100 mg/kg (rats) – 21 months
Main Hazard:
 This compound inhibits cholinesterase enzyme activity in the nervous tissue. Contact with skin, inhalation of spray, or swallowing may be harmful.
Fire and explosion hazard:
 Product is not flammable and not explosive.
Chemical Hazard:
 None known.
Biological Hazard:
 Environmentally hazardous.
Ingestion:
 Harmful by ingestion. See point 4 symptoms.
Inhalation:
 Harmful by inhalation. See point 4 for symptoms.
Skin contact:
 May be irritating to skin.
Eye contact:
 May be irritating to eyes.
Carcinogenicity:
 See section 11
Mutagenicity:
 See section 11
Neurotoxicity:
 See section 11
Reproductive /Teragenicity:
 See section 11

2. FIRST AID MEASURES AND PRECAUTIONS

Effects of mercaptothion poisoning are similar to those observed with other organophosphates, except that larger doses are required to produce them.
 Symptoms of exposure to the product include: nausea, headache, tiredness, giddiness, blurred vision and pupillary constriction. Depending on severity of poisoning these symptoms become worse with the onset of vomiting, abdominal pain, diarrhea, sweating and salivation. Confusion, ataxia, slurred speech, loss of reflexes are some of the central nervous system effects that may lead to misdiagnosis of acute alcoholism.
OVEREXPOSURE EFFECTS:
 After inhalation of mercaptothion dust or spray, breathing and eye effects are the first to appear. These include tightness of the chest, wheezing, a bluish discoloration of the skin, small

UNRESTRICTED - May be shared