

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier: ZOLONE FLO®

Product use: Insecticide

Supplier's name and address:

Cheminova Canada Inc.

22499 Jefferies Road, Unit C2,

Kilworth, ON, Canada N0L 1R0

Phone #: 1-(519) 472-0600 (8 AM to 4:00 PM EST, Monday to Friday)

Emergency Telephone #: 1-866-303-6950 (Medical Emergencies)

1-(613) 996-6666 (CANUTECH)

MSDS Prepared by: Cheminova Inc.

MSDS Preparation date: July, 2006

Revision date: January 15, 2010

Revision reasons: Update company address

2. COMPOSITION/INFORMATION ON INGREDIENTS

2.1. **ACTIVE INGREDIENT:** Phosalone

Common Name Phosalone

Chemical Family Phosphorodithioic acid,S-((6-chloro-2-oxo-3(2H)-benzoxazolyl)methyl)O,O-diethylester

CAS No. 2310-17-0

2.2. **TYPICAL CONTENT:**

Active Ingredient Phosalone: 30 – 60% by weight

2.3. Material Use Insecticide

3. HAZARDS IDENTIFICATION

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

Emergency Overview May be fatal if swallowed. Harmful if inhaled. May be harmful if absorbed through skin.

Physical State liquid

Odor Characteristic slight garlic odour.

Routes of Exposure Oral. Inhalation. Dermal - skin.

Immediate Effects

Eye May cause mild eye irritation.

Skin May be harmful if absorbed through skin. May lead to rapid onset of nausea, vomiting, abdominal pain, diarrhea, pinpoint pupils, blurred vision, profuse sweating, salivation, tremor, muscle twitching, and temporary paralysis. In severe poisoning respiratory depression and convulsions may occur. May cause mild skin irritation. May cause an

Material Safety Data Sheet meeting the requirements of the Hazardous Products Act and Controlled Products Regulation. The information presented herein is believed to be accurate and reliable, but is presented without guarantee or responsibility on the part of Cheminova A/S.

	allergic skin reaction.
Ingestion	May be fatal if swallowed. May lead to rapid onset of nausea, vomiting, abdominal pain, diarrhea, pinpoint pupils, blurred vision, profuse sweating, salivation, tremor, muscle twitching, and temporary paralysis. In severe poisoning respiratory depression and convulsions may occur.
Inhalation	May be harmful if inhaled. May cause dizziness, headaches, nausea, and vomiting.
Chronic or Delayed Long-Term	Dermatitis. CARCINOGENIC: This product or one of its ingredients present 0.1% or more is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.
Medical Conditions Aggravated by Exposure	Dermal ailments.
Signs and Symptoms	This product causes chronic cholinesterase inhibition. Repeated overexposure may cause more severe cholinesterase inhibition with the signs and symptoms described for single overexposures being more pronounced.

4. FIRST AID MEASURES

Eye	For eye contact, immediately flush eyes for at least 15 minutes with running water. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water. Get immediate medical attention.
Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention.
Ingestion	If swallowed, induce vomiting immediately by giving two glasses of water and sticking fingers down throat; never give anything to an unconscious person. Get medical attention.
Inhalation	If inhaled, move victim to fresh air and seek medical attention.
Note to Physician	Treat symptomatically. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. The pharmacologically active ingredient is an organophosphate ester, active as an acetylcholinesterase inhibitor. Overexposure to this agent may cause toxic cholinergic signs and symptoms such as: pinpoint, non-reactive pupils, respiratory distress, pulmonary edema, salivation, lacrimation, convulsions and coma. Mild responses may be flu-like in appearance. The onset of signs and symptoms is generally rapid following overexposure. In occupational cases, illness may be for a number of hours following exposure. However, if symptoms begin more than 12 hours after the last known exposure, illness is probably due to some other cause. Specific Treatment: Support respiration as needed. Establish a clear airway and administer oxygen to minimize the risk of ventricular fibrillation from atropine therapy. Gastric lavage should be used if this product has been swallowed. Signs and symptoms of poisoning may occur rapidly after ingestion and prompt removal of stomach contents is indicated. Specific treatment consists of parenteral atropine sulfate and 2-PAM. If cyanosis is absent, administer 1 to 2 mg atropine (2-4 mg in cases of extreme overexposure) intramuscularly every 10 minutes until full atropinization has been achieved (dry skin, flushed appearance, tachycardia, pupillary dilatation). Dosages for children should be appropriately reduced. Repeated as needed whenever symptoms reappear. Caution should be exercised to prevent overatropinization. Maintain atropine therapy as needed

for 24-48 hours.
Start 2-PAM (PROTOPAM Ayerst) at the same time. Give 1-2 grams 2-PAM intravenously (20-40 mg/kg for children) in 100 cc saline or 5% glucose over 15-30 minutes. A second dose may be given after one hour, then at 10-12 hour intervals if needed because muscle weakness persists. 2-PAM may be given by subcutaneous administration if intravenous is not feasible.

5. FIRE-FIGHTING MEASURES

Auto Ignition Temperature	NA
Upper Flammable Limit	NA
Suitable Extinguishing Media	Water fog, carbon dioxide, foam, dry chemical.
Fire Fighting Instructions	Fire-fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires.
Dust Explosion Class	SENSITIVITY TO MECHANICAL IMPACT (Y/N): NO SENSITIVITY TO STATIC DISCHARGE: Sensitivity to static discharge is not expected.

6. ACCIDENTAL RELEASE MEASURES

Land Spill or Leaks	Absorb spills on inert material such as perlite, vermiculite, sand or dirt, then wet with water. Place in double polyethylene bags. Isolate from other waste materials. Avoid runoff to natural waters.
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7. HANDLING AND STORAGE

Handling Procedures	Danger: Poison. Avoid contact with eyes, skin and clothing. Do not inhale vapors. Keep away from food and feed products. Wash thoroughly after handling. Do not reuse this container.
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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use in a well ventilated area.
Eye/Face Protection	Monogoggles.
Body Protection	All cleanable impervious glove types are acceptable. Wear shirt with long sleeves.
Respiratory Protection	Use an approved pesticide respirator if ventilation is not adequate or exposure to sprays, mists vapours, or dusts is likely.
Exposure Limits	ACGIH TLV Phosalone TWA: N/E STEL: N/E

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	liquid
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Odor	Charactoristic slight garlic odour.
Odor Threshold	(PPM): NA
pH	at NA
Vapor Pressure	17.5 mmHg
Vapor Density (air = 1)	= H2O
Specific Gravity	1.18
Density	1.18
	at 25 °C
Boiling Point	1 °C
Melting/Freezing Point	FREEZING POINT: <0 °C MELTING POINT: NAp
Solubility (in water)	at 20 °C dispersible
Other Information	COLOUR: Off-white aqueous suspension. EVAP. RATE(BUTYL ACETATE=1): NA
Flash point	Not Applicable

10. STABILITY AND REACTIVITY

Chemical Stability	STABLE
Conditions to Avoid	Avoid contamination with reactive substances.
Incompatibility	Avoid contact with acidic, basic or oxidizing agents.
Hazardous Products of Decomposition	Oxides of nitrogen. Oxides of phosphorus. Oxides of sulfur. Cyanides. Hydrogen chloride. Mercaptans.
Hazardous Polymerization (Conditions to avoid)	WILL NOT OCCUR

11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity	LD50(mg/kg): 285 (RAT)
Acute Dermal Toxicity	LD50(mg/kg): >2000 (RABBIT)
Acute Inhalation Toxicity	LC50(mg/l): 2.3 mg/l/4h (FEMALE RATS)

Non-irritating to skin (rbt), minimally irritating to eye (rbt).

Assessment Carcinogenicity

ACGIH
None

NTP
None

IARC
None

OSHA
None

12. ECOLOGICAL INFORMATION

Ecological Information	LC50(Daphnia magna)=1.2 ug/l (48h)
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Environmental Fate No data at this time.

13. DISPOSAL CONSIDERATIONS

General Disposal Guidance Disposal should be made in accordance with federal, provincial and local regulations.

RCRA Classification

14. TRANSPORT INFORMATION

CANADIAN TDG DESCRIPTION (ROAD & RAIL)

ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC (Phosalone), Class 6.1, UN3018, P.G. III, MARINE POLLUTANT

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations*.

This product is registered under the Pest Control Act.
PCP # 17983.

WHMIS HAZARD CLASS:

D1B TOXIC MATERIALS

D2B TOXIC MATERIALS

WHMIS TRADE SECRET:

Exempt

CANADIAN INVENTORY:

This product is currently exempt from CEPA.

HAZARD RATING SYSTEMS

HMIS: FLAMMABILITY 1 , REACTIVITY 1 , HEALTH 3

NFPA: FLAMMABILITY 1 , REACTIVITY 1 , HEALTH 3

US Federal Regulations

EPA Registration No.

TSCA list

None

TSCA 12b export notification

None

SARA Title III - section 302 - notification and information

None

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

None

Canadian Regulations

Canadian Registrat. No.

17983

Canadian Domestic Substance List

None

Environmental

CERCLA

None

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Clean Water Section 307 Priority Pollutants

None

Safe Drinking Water Act Maximum Contaminant Levels

None

International Regulations

European Inventory of Existing Commercial Substances (EINECS)

Phosalone

2310-17-0

16. OTHER INFORMATION

This MSDS is intended for worker and transport safety. It is not intended for users of the product who should refer to the product label for safety precautions applicable to them. Some safety equipment and procedure recommendations in this MSDS differ from the product label because they are intended for a different audience.

This material should only be handled by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.

Prepared by: Cheminova Inc.
Telephone #: 1-(519) 472-0600 (8 AM to 4:00 PM EST, Monday to Friday)
Preparation date: July , 2006 - KEM

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Revision Reason: Update company address and reformat - GR