1. PRODUCT IDENTIFICATION

Product Name: **WARDEN CZ**
EPA Signal Word: Caution

Active Ingredient(%): Fludioxonil (1.1%)  
Chemical Name: 4-(2,2-difluoro-1,3-benzodioxol-4-yl)-1H-pyrrole-3-carbonitrile  
Chemical Class: Substituted Benzodioxalcarbonitrile Fungicide

Active Ingredient(%): Mefenoxam (3.2%)  
Chemical Name: (R,S)-2-[(2,6-dimethylphenyl)-methoxyacetylamino]-propionic acid methyl ester  
Chemical Class: Phenylamide Fungicide

Active Ingredient(%): Thiamethoxam (21.5%)  
Chemical Name: 4H-1,3,5-Oxadiazin-4-imine,3-[(2-chloro-5-thiazolyl) methyl]tetrahydro-5-methyl-N-nitro-

CAS No.: 131341-86-1
CAS No.: 70630-17-0
CAS No.: 153719-23-4

EPA Registration Number(s):  100-1283-1381

2. HAZARDS IDENTIFICATION

Health and Environmental

Irritating to eyes, respiratory tract and skin. Harmful if inhaled.

Hazardous Decomposition Products

May decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Red opaque liquid
Odor: Paint

Unusual Fire, Explosion and Reactivity Hazards

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

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<th>Material</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>Other</th>
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</tbody>
</table>
Coating Agent | Not Established | Not Established | Not Established | No
Mefenoxam (3.2%) | Not Established | Not Established | 10 mg/m³ TWA *** | No
Fludioxonil (1.1%) | Not Established | Not Established | 10 mg/m³ TWA *** | No
Thiamethoxam (21.5%) | Not Established | Not Established | 3 mg/m³ TWA *** | No

*** Occupational Exposure Limit (OEL)
**** Recommended by AIHA (American Industrial Hygiene Association)
Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
Hazard Category: B

4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling a poison control center or doctor, or going for treatment.

Ingestion: If swallowed: Call 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 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 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 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 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.

Medical Condition Likely to be Aggravated by Exposure
None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion
Flash Point (Test Method): > 212°F (Pensky-Martens CC)
Flammable Limits (% in Air): Lower: Not Applicable Upper: Not Applicable
Autoignition Temperature: 797°F
Flammability: Not Applicable

Unusual Fire, Explosion and Reactivity Hazards
During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire
Use dry chemical, foam or CO2 extinguishing media. 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
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 gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. A NIOSH-certified combination air-purifying respirator with an N, P or R 95 or HE class filter and an organic vapor cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a pressure demand atmosphere-supplying respirator if there is any potential for uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Red opaque liquid
Odor: Paint
Melting Point: Not Applicable
Boiling Point: Not Available

Specific Gravity/Density: 1.15 g/cm³ @ 68°F (20°C)  
pH: 6.5 (1% in deionized H2O @ 77°F (25°C))

Solubility in H2O
Fludioxonil: 1.8mg/l @ 77°F (25°C)
Mefenoxam: 26g/l @ 77°F (25°C)
Thiamethoxam: 4.1g/l @ 77°F (25°C)

Vapor Pressure
Fludioxonil: 2.9 x 10(-9) mmHg @ 77°F (25°C)
Mefenoxam: 2.5 x 10(-5) mmHg @ 77°F (25°C)
Thiamethoxam: 2 x 10(-11) mmHg @ 68°F (20°C)

10. STABILITY AND REACTIVITY

Stability: Stable under normal use and storage conditions.
11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:
- Oral (LD50 Female Rat): > 5000 mg/kg body weight

Dermal:
- Dermal (LD50 Rat): > 5050 mg/kg body weight

Inhalation:
- Inhalation (LC50 Rat): > 2.65 mg/l air - 4 hours

Eye Contact:
- Minimally Irritating (Rabbit)

Skin Contact:
- Practically Non-Irritating (Rabbit)

Skin Sensitization:
- Not a Sensitizer (Guinea Pig)

Reproductive/Developmental Effects
- Fludioxonil: Delayed development at doses causing maternal toxicity.
- Mefenoxam: None observed.
  Reproductive: No biologically important reproductive effects. Minor testis effects at high doses with no effect on reproduction.

Chronic/Subchronic Toxicity Studies
- Fludioxonil: Liver and kidney toxicity at high dose levels.
- Mefenoxam: Liver effects at high dose animal tests.
  Chronic: Predominantly liver and kidney effects at high doses.
- Acute: Transient clinical signs at high doses. No changes to nervous tissue.

Carcinogenicity
- Fludioxonil: Marginal increase (7%) of liver tumors (female, rats: 3,000 ppm); Within historical control range (1 to 10%).
- Mefenoxam: None observed.
- Thiamethoxam: Liver tumors at high doses noted in mice that are not relevant to humans. No treatment-related tumors in rats.

Other Toxicity Information
- None

Toxicity of Other Components
- Coating Agent
  Low hazard during normal handling and applications.

- Glycerin
  Repeated or prolonged exposure to concentrated solutions may result in dermatitis.

- Pigment Red
  Slightly irritating to eyes.

- Propylene Glycol
  Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.
Solvent
Overexposure will result in severe irritation of the eyes, possibly causing eye damage and moderate irritation to the skin.

Surfactant
Inhalation may result in irritation to respiratory tract. Contact with skin and eyes can cause irritation and may be corrosive.

Surfactant
Repeated or prolonged skin contact causes irritation. This product is also reported to be a moderate eye irritant. Aspiration may cause lung damage.

Surfactant
Exposure causes severe skin and eye irritation with possible tissue destruction. Inhalation can result in respiratory tract irritation. Ingestion may cause nausea, diarrhea and/or abdominal cramps.

Target Organs
Active Ingredients
Fludioxonil: Liver, kidney
Mefenoxam: Liver
Thiamethoxam: Liver, kidney

Inert Ingredients
Coating Agent: Not Applicable
Glycerin: Skin
Pigment Red: Eye
Propylene Glycol: CNS, skin, eye, kidney, liver
Solvent: Eye
Surfactant: Skin, eye, respiratory system
Surfactant: Eye, skin, lung
Surfactant: Respiratory tract, skin, eye

12. ECOLOGICAL INFORMATION

Summary of Effects
Fludioxonil:
Practically nontoxic to birds and bees, but highly toxic to aquatic invertebrates and fish.

Mefenoxam:
Practically non-toxic to aquatic organisms and wildlife.

Thiamethoxam:
Harmful to aquatic life.

Eco-Acute Toxicity
Mefenoxam:
Fish (Rainbow Trout) 96-hour LC50 > 121 ppm
Fish (Bluegill Sunfish) 96-hour LC50 0.31 ppm
Bird (Bobwhite Quail) LD50 Oral 981 mg/kg
Bee (Contact) LD50 > 25 ug/bee
Invertebrate (Water Flea) 48-hour EC50 > 113 ppm
Bird (Bobwhite Quail) 8-day dietary LC50 > 4830 ppm
Fludioxonil:
- Bees LC50/EC50 > 25 ug/bee
- Invertebrate (Water Flea) LC50/EC50 0.90 ppm
- Fish (Trout) LC50/EC50 0.47 ppm
- Fish (Bluegill) LC50/EC50 0.74 ppm
- Bird (Bobwhite Quail) 8-day dietary LC50/EC50 > 5,200 ppm
- Bird (Mallard Duck) 8-day dietary LC50/EC50 > 5,200 ppm

Thiamethoxam:
- Fish (Rainbow Trout) 96-hour LC50 > 100 ppm
- Fish (Bluegill Sunfish) 96-hour LC50 > 114 ppm
- Bird (Mallard Duck) LD50 Oral 576 mg/kg
- Invertebrate (Daphnia Magna) 48-hour EC50 > 106 ppm
- Bird (Bobwhite Quail) 8-day dietary LC50 > 5200 ppm
- Bee (Contact) LD50 0.024 ug/bee
- Bird (Mallard Duck) 8-day dietary LC50 > 5200 ppm
- Green Algae 4-day EC50 > 97 ppm

Eco-Chronic Toxicity
Mefenoxam:
- Not Available

Fludioxonil:
- Fish (Fathead minnow) Early Life Stage MATC 0.028 mg/l
- Invertebrate (Daphnia Magna) Life Cycle MATC 0.025 mg/l
- Bird (Mallard Duck) Reproduction NOEC 700 ppm
- Bird (Bobwhite Quail) Reproduction NOEC 125 ppm

Thiamethoxam:
- Invertebrate (Water Flea) 21-day LOEC 101 ppm
- Fish (Fathead Minnow) LOEC 900 ppm

Environmental Fate
Fludioxonil:
- The information presented here is for the active ingredient, fludioxonil.

Mefenoxam:
- The information presented here is for the active ingredient, mefenoxam.
- Does not bioaccumulate. Not persistent in soil or water. Moderate mobility in soil. Mixes/sinks (after 24 h).

Thiamethoxam:
- The information presented here is for the active ingredient, thiamethoxam.

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**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

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14. TRANSPORT INFORMATION

DOT Classification
- Ground Transport - NAFTA
  Not regulated by US DOT.
- Air Transport – NAFTA
  Not regulated by US DOT.

B/L Freight Classification
- Insecticide/Fungicide N.O.I.

Comments
- Water Transport - International
  Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Thiamethoxam/Fludioxonil),
  Marine Pollutant
  Hazard Class or Division: Class 9
  Identification Number: UN 3082
  Packing Group: PG III
  IMDG EMS #: F-A, S-F

- Air Transport - International
  Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Thiamethoxam/Fludioxonil)
  Hazard Class or Division: Class 9
  Identification Number: UN 3082
  Packing Group: PG III
  Packing Auth.: 914
  Note: Max. inner packages 5 liters; Max. single packages 450 liters

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification
- Section 311/312 Hazard Classes: Acute Health 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 Available

TSCA Status
- Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

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<th>NFPA Hazard Ratings</th>
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Original Issued Date: 10/19/2007
Revision Date:
Replaces:

This 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.