FYFANON® ULV
ULTRA LOW VOLUME CONCENTRATE INSECTICIDE

Product No.: 301
Product Name: FYFANON® ULV
ISO Name: Malathion

EPA Reg. No.: 67760-34
KCL/February 2002

Supercodes issue marked RRS/April 2000

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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name: FYFANON® ULV
ULTRA LOW VOLUME CONCENTRATE INSECTICIDE
Emergency Telephone No. - see 16: Other information (last page)
Manufacturer: CHEMINOVA A/S
P.O.Box 9
DK-7620 Lernvig
Denmark
Supplier in the US: CHEMINOVA INC.
1700 Route 23
Wayne, NJ 07470

2. COMPOSITION/INFORMATION ON INGREDIENTS

2.1. ACTIVE INGREDIENT:
CAS Name: Butanedioic acid, [(dimethoxyphosphoryl)oxy]-diethyl ester
Other Name(s): S-[1,2-Bis(ethoxy carbonyl)ethyl]phosphinothioyl)thio]-, diethyl ester
ISO Name: Malathion
CAS No.: 1217-75-8

2.2. CONSTANT: 96-97%  
2.3. MATERIAL USE: Insecticide
2.4. EU CLASSIFICATION: Xn,R22
2.5. WHO CLASSIFICATION: Class III: Slightly Hazardous
2.6. USA CLASSIFICATION: Toxicity Category III, Signal Word: Caution

2.7. CANADA - HMIS RATINGS:
Health: 1
Flammability: 1
Reactivity: 1
Personal Protection: See 8.1.

3. HAZARDS IDENTIFICATION
3.1. Health Hazards (Acute and Chronic):
FYFANON® is a cholinesterase inhibitor of low mammalian toxicity. However, inedible substance may in-duce formation of the more toxic and synergistic con-taminant isomaltalathion (LD₅₀ oral, rat, 89 mg/kg).
FYFANON® rapidly enters the body on contact with all skin surfaces and eyes. Clothing contaminated with material must be removed immediately and all skin washed thoroughly.
Repeated exposures to cholinesterase inhibitors such as FYFANON® may, without warning, cause increased susceptibility to doses of any cholinesterase inhibitor.
3.2. Signs and Symptoms of Exposure:
Headache, nausea, vomiting, cramps, weakness, blurred vision, pinpoint pupils, tightness in chest, laboured breathing, nervousness, sweating, watering of eyes, drooling or frothing of mouth and nose, muscle spasms and coma.
3.3. Environmental Hazards: See 12.

4. FIRST AID MEASURES
4.1. Emergency and First Aid Procedures:
Call a doctor (physician), clinic or hospital immediately. Explain that the victim has been exposed to malathion, an organophosphorus insecticide, and describe his/her condition. Immediately move the victim from the area where FYFANON® is present.
If breathing has stopped, immediately start artificial respiration and maintain until a physician takes charge of the exposed person.
If swallowed and the exposed person is conscious, make him/her vomit quickly. Make the exposed person drink 1 or 2 glasses of water and induce vomiting by touching the back of the throat with a finger. Never give anything by mouth to an unconscious person. Get medical attention immediately.
In case of contact, immediately flush eyes or skin with plenty of water while removing contaminated clothing and shoes. See physician immediately.
4.2. Note to Physician:
FYFANON® (malathion) is a cholinesterase inhibitor affecting the central and peripheral nervous systems producing respiratory depression. Decontamination procedures such as whole body washing, gastric lavage and administration of activated charcoal are often required.

5. FIRE-FIGHTING MEASURES
5.1. Extinguishing Media and Procedure:
Dry chemical or carbon dioxide for large fires.
Spray or foam for large fires.
Dry chemical or carbon dioxide for small fires, water being used to smother the fire, but not for direct application on the flames.
Firemen should wear self-contained breathing apparatus and protective clothing.
5.2. Hazardous Decomposition or Byproducts in a Fire:
The essential breakdown products are dimethyl sulphone, carbon dioxide, carbon monoxide, phosphorus pentoxide. 
5.3. Unusual Fire and Explosion Hazards: See 10.1.

6. ACCIDENTAL RELEASE MEASURES
6.1. Personal Protection: Observe all protection and safety precautions when cleaning up spills, see 8.
6.2. Steps to Be Taken in Case of Spill:
Small liquid spills on the floor or other impervious surface should be swept up by means of an inert absorbent material such as hydrated lime, sawdust, Fuller's earth or other absorbent clays. Scoop into proper containers and dispose of in accordance with the instructions provided under Disposal (see 13).
FYFANON® can be hydrolysed in water by heating and adjusting the pH (alkaline). FYFANON® may also be disposed of through proper incineration.

7. HANDLING AND STORAGE
7.1. Precautions To Be Taken in Handling: See Personal Protection, Section 8.
7.2. Precautions To Be Taken in Storing: FYFANON® should be stored at temperatures not exceeding 25°C (77°F). It should never be heated above 55°C (131°F) and also local heating above this temperature should be avoided. Do not contaminate water, food or feed by storage or disposal.
7.3. Fire and Explosion Precautions: -

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
8.1. Respiratory Protection:
Protective Gloves: Wear chemical resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber or viton.
Eye Protection: Wear safety glasses.
Other Protection: Wear coveralls or long sleeved shirt and long pants. Wear shoes plus socks.
8.2. Work/Hygienic Practices:
If handled indoors, provide mechanical exhaust ventilation. Persons working with this product for a longer period should have frequent blood tests of their cholinesterase levels. If the cholinesterase level falls below a critical point, further exposure should be allowed until it has been determined by means of blood tests that the cholinesterase level has returned to normal. Keep all unprotected persons and children away from working area.
Before removing gloves wash them with soap and water. Always wash hands, face and arms with soap and water before smoking, eating or drinking. After work, take off all work clothes and shoes. Shower, using soap and water. Wear only clean clothes when leaving job. Do not wear contami-

9. PHYSICAL AND CHEMICAL PROPERTIES
9.1. Physical State: Liquid
9.2. Colour: Colorless to pale yellow
9.3. Odour: Slightly aromatic odour
9.4. Melting Point: 2.85°C
9.5. Boiling Point: 156-157°C at 0.7 mm Hg (however, see 10.1. Thermal Decomposition)
9.6. Specific Gravity: 1.23 g/ml at 20°C
9.7. Vapor Pressure: 3.4 x 10⁻⁶ mm Hg at 25°C
1.4 x 10⁻³ mm Hg at 45°C
9.8. Viscosity: 16.4 cP at 40°C
30.0 cP at 25°C
9.9. Solubility in Water: 148.2 mg/l at 25°C
9.10. Solubility in Organic Solvents: FYFANON® is soluble in solvents such as aromatic hydrocarbons, esters and alcohols. It is moderately soluble in aliphatic hydrocarbons.
11. TOXICOLOGICAL INFORMATION


11.2. Route(s) of Entry: - Ingestion: LD50, oral, rat: 5500 mg/kg* - Skin: LD50, dermal, rat: > 2000 mg/kg - Inhalation: LC50, inhalation, rat: > 5.2 mg/l/4 h * ) Values from 1000 to 2830 mg/kg are stated in literature as well as in WHO Data Sheet No. 29, VBC/DS/7/29.

11.3. Irritancy: Slightly irritating to skin and eyes.


11.5. Carcinogenicity: IARC evaluation: The available data provide no evidence that malathion is likely to present a carcinogenic risk to humans.

11.6. Reproductive Effects: No effects on reproductive activity are found for malathion in rats and rabbits at maternal non-toxic doses.

11.7. Teratogenicity: No indications of teratogenic effects of malathion are found.

11.8. Mutagenicity: Malathion is not mutagenic.

12. ECOLOGICAL INFORMATION

Malathion is biodegradable. It undergoes rapid degradation in the environment and in waste water treatment plants. No adverse effects are observed at concentrations up to 100 mg/l in waste water treatment plants. Degradation occurs both aerobically and anaerobically, biologically as well as abiotically. Under normal conditions Malathion is of medium mobility in soil, but is degraded rapidly. Malathion is toxic to fish, aquatic invertebrates, and aquatic life stages of amphibians. Malathion is highly toxic to bees. The acute toxicity is:

- Fish: 96 h LD50, Rainbow trout (Salmo gairdneri) 0.200 mg/l
- Invertebrates: 48 h LD50, Daphnids (Daphnia magna) 1.0 µg/l
- Birds: LD50, Japanese quail (bobwhite quail) 400 mg/kg
- Bees: 24-h LD50, bees, topical 0.27 µg/bee
  24-h LD50, bees, oral 0.38 µg/bee

13. DISPOSAL CONSIDERATIONS

13.1. Waste Disposal Method: Spill and waste disposal procedures in conformity with state and local regulations must be followed. Do not contaminate water, food or feed by storage or disposal.

13.2. Container Disposal: Return to manufacturer for re-filling. Disposable: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke. However, procedures in conformity with state and local regulations must be followed.