

SAFETY DATA SHEET

SECTION 1 – IDENTIFICATION

Product Identifier : **FYFANON ULV MOSQUITO**
EPA Reg. No. : **67760-34**
Product Use : Insecticide

Supplier's name and address:
Cheminova, Inc.
One Park Drive, Suite 150
PO Box 110566
Research Triangle Park, NC, USA
27709
Phone #: (919) 474-6600 (8:00 AM to 5:00 PM EST, Monday to Friday)

Manufacturer's name and address:
Cheminova A/S
PO Box 9
DK-7620
Lemvig, Denmark

Emergency Telephone #: 1-866-303-6950 (Medical Emergencies)
1-800-424-9300 (24 Hr. Chemtrec Number)

SDS Prepared by: Cheminova Inc.
SDS Preparation date: August 19, 2003
Revision date: May 27, 2015
Revision reason: GHS Revision

SECTION 2 – HAZARDS IDENTIFICATION

GHS Signal Word:
Warning

Classification:

Health	Environmental	Physical
Skin Irritation – Category 2 Eye Irritation – Category 2B	Aquatic Toxicity – Acute 1 Aquatic Toxicity – Chronic 1	Not applicable

GHS Pictogram:



Hazard Statements:

Causes skin irritation.
Causes eye irritation.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary Statements:

Prevention:

Wash hands thoroughly after handling.
Wear protective gloves.
Avoid release to the environment.

Response:

If on skin: Wash with plenty of water.

For specific treatment, refer to product label.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
Collect spillage.

Storage:

Not applicable.

Disposal:

Dispose of contents/container according to label directions.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredients</u>	<u>CAS #</u>	<u>% (weight)</u>
Malathion (O,O-dimethyl phosphorodithioate of diethyl mercaptosuccinate)	121-75-5	60.00 – 100.00

This material is classified as hazardous under OSHA regulations (29 CFR 1910.1200).

SECTION 4 – FIRST AID MEASURES

- IF SWALLOWED:**
- Call a poison control center or doctor immediately for treatment advice.
 - Have a person sip a glass of water if able to swallow.
 - Do not induce vomiting unless told to do so by a poison control center or doctor.
 - Do not give anything by mouth to an unconscious person.
- IF INHALED:**
- Move person to fresh air.
 - If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.
 - Call poison control center or doctor for further treatment advice.
- 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.
- 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 center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-866-303-6950 for emergency medical treatment information.

Note to physician: This product is a cholinesterase inhibitor. Treat symptomatically. Atropine is antidotal.

Signs and symptoms of short-term (acute) exposure

Inhalation : Fyfanon (malathion) is a cholinesterase inhibitor of low mammalian toxicity. However storage at too high temperature may induce formation of the much more toxic and synergistic contaminant isomalathion (LD50 acute oral, rat = 89 mg/kg). Malathion and isomalathion can affect you when breathed in and can cause organophosphorous poisoning. Symptoms of poisoning may include headache, nausea, vomiting, blurred vision, tightness in chest, drooling, frothing of mouth and nose, convulsions, coma and death.

- Skin* : Direct skin contact may result in little or no irritation. Malathion and isomalathion can be rapidly absorbed through all skin surfaces. Causes symptoms similar to those listed for inhalation.
- Eyes* : Direct contact causes eye irritation. Malathion and isomalathion can be rapidly absorbed through all skin and eye surfaces. Causes symptoms similar to those listed for inhalation.
- Ingestion* : Malathion and isomalathion are poisons through ingestion. Causes symptoms similar to those listed for inhalation.

Effects of long-term (chronic) exposure

- : Repeated ingestion may cause severe weight loss.

Conditions aggravated by overexposure

- : Prolonged or repeated overexposures may cause behavioral changes.

SECTION 5 – FIRE FIGHTING MEASURES

Fire hazards/conditions of flammability

- : This product is considered non-flammable. Material will decompose rapidly when exposed to heat (>212° F/100° C) and flame, increasing the risk of explosion. Heat of decomposition may cause closed containers to build up pressure and explode.

Flammability classification (OSHA 29 CFR 1910.1200)

- : Non-flammable.

Oxidizing properties

- : None known

Explosion data: Sensitivity to mechanical impact / static discharge

- : Not expected to be sensitive to mechanical impact or static discharge.

Suitable extinguishing media

- : Carbon dioxide or dry chemical for small fires. For large fires, use water spray or foam.

Special fire-fighting procedures/equipment

- : Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame. Avoid spreading burning liquid with water spray used for cooling purposes.

Hazardous combustion products

- : Carbon oxides; Oxides of phosphorus; oxides of sulfur; dimethyl sulfide; irritating fumes and smoke.

NFPA Rating : 0 – Minimal 1 – Slight 2 – Moderate 3 – Serious 4 – Severe
Health: 1 Flammability: 1 Instability: 1 Special Hazards: None

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions

- : Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

Environmental precautions

- : Ensure spilled product does not enter drains, sewers, waterways or confined spaces. If necessary, dike well ahead of the spill to prevent

runoff into drains, sewers, or any natural waterway or drinking supply. Do not flush into surface water or sanitary sewer system. Uncontrolled discharge into water courses may be alerted to the appropriate regulatory body.

Spill response/cleanup : Remove all sources of ignition. Ventilate area of release. Stop the spill at source if it is safe to do so. Contain and absorb spilled material with inert, non-combustible absorbent material, such as sand. Sweep up and shovel into suitable containers for disposal. For a water spill, confine the spill immediately with booms. Notify the appropriate authorities as required. Carefully cover spilled material with soda ash or quicklime to neutralize. Do not flush into surface water or sanitary sewer system. For large spills on surfaces other than pavement (e.g. soil or sand), spills may be handled by digging up and removing the affected surface and placing it in approved containers.

Prohibited materials : None known.

Special spill response procedures

: In case of spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8002)
 US CERCLA Reportable quantity (RQ): Malathion (100 lbs/45.4 kg)

SECTION 7 – HANDLING AND STORAGE

Safe handling procedures : This material is a toxic liquid. Wear chemically resistant protective equipment during handling. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not use near welding operations, flames or hot surfaces. Malathion should never be heated above 131° F (55° C) and also local heating above this temperature should be avoided. Keep away from acids and other incompatibles. Keep containers tightly closed when not in use. Wash thoroughly after handling. Use caution when opening cap.

Storage requirements : Store in a cool, dry, well ventilated area. Keep way from incompatibles. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Product should be stored at temperatures not exceeding 68 to 77° F (20 to 25° C). protect against physical damage.

Incompatible materials : Strong alkalis, amines and strong oxidizing compounds. The product can corrode iron, steel, tin plate and copper. Fyfanon is rapidly hydrolyzed at pH > 7.0.

Special packaging materials: Always keep in containers made of the same materials as the supply container.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits

<u>Ingredients</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Malathion	1 mg/m ³ (inhalable)	N/Av	15 mg/m ³ (total dust)	N/Av

Ventilation and engineering measures

: Provide sufficient ventilation to keep vapor concentration below the given TLV and/or PEL.

Respiratory protection

: Respiratory protection is required if the concentrations exceed the TLV. Wear a pesticide respirator jointly approved by the MSHA and NIOSH. Seek advice from respiratory protection specialists.

Skin protection

: Wear impervious gloves, such as barrier laminate, butyl rubber, nitrile rubber or viton. Advice should be sought from glove suppliers.

Eye / face protection

: Safety glasses with side-shields or chemical splash goggles.

Other protective equipment

: Wear appropriate protective clothing to prevent skin contact, such as coveralls or long sleeved shirt, long pants, and shoes and socks. Other protective equipment, such as an eyewash station and safety shower, may be required depending on exposure and on workplace standards.

General hygiene considerations

: Avoid contact with skin, eyes and clothing. Remove soiled clothing and wash it thoroughly before reuse. Separate contaminated work clothes from street clothes. Always wash hands, face and arms with soap and water before smoking, eating or drinking. After work, take off all protective equipment, work clothes and shoes, and wash with soap and water. Respirator should be cleaned and filter replaced according to manufacturer's instructions. Wear only clean, uncontaminated clothes when leaving place of work. Persons working with this product for a longer period should have frequent blood tests for cholinesterase levels. If the cholinesterase levels fall below a critical point, no further exposure should be allowed until it has been determined, by means of blood tests, that cholinesterase levels have returned to normal.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless to light yellow liquid

Odor: Slightly aromatic

Odor threshold: ND

pH: 3.7 – 3.8 (equal amounts Fyfanon and distilled water)

Melting point/Freezing point: 37.1° F (2.85° C)

Initial boiling point and boiling range: 313 – 315° F (156 – 157° C)

Flash point: 325° F (163° C)

Evaporation rate: ND

Flammability: Non-flammable

Upper/lower flammability and explosive limits: NA

Vapor pressure: 3.4×10^{-06} mmHg @ 25° C; 1.4×10^{-04} mmHg @ 45° C

Vapor density: ND

Bulk density: ND

Specific gravity: 1.23 g/mL @ 20° C

Solubility(ies): in water 148.2 mg/L @ 25° C

Partition coefficient (n-octanol/water): Kow = 560

Auto-ignition temperature: 532° F (278° C)

Decomposition temperature: ND

Viscosity: ND

ND=Not determined

NA=Not applicable

SECTION 10 – STABILITY AND REACTIVITY

- Stability and reactivity** : Stable if handled below 131 F (55 C). At higher temperatures decomposition may take place, and the released heat from decomposition can raise the temperature further and accelerate decomposition. Malathion can corrode iron, steel, tin plate and copper. It can be rapidly hydrolyzed at pH > 7.
- Hazardous polymerization** : Above 284 F (140 C) Fyfanon will decompose rapidly, significantly increasing the risk of inducing explosions. Direct local heating such as electric heating or by steam must be avoided. The decomposition is to a considerable extent dependant on time as well as temperature due to self-accelerating exothermic and autocatalytic reactions. The reactions involve rearrangements and polymerization releasing volatile, malodorous and inflammable compounds such as dimethyl sulfide.
- Conditions to avoid** : Open flames, sparks, high heat, direct sunlight, and close proximity to incompatible substances.
- Materials to avoid and incompatibility**
: Incompatible materials (see Section 7).
- Hazardous decomposition products**
: Storage at too high temperatures may induce formation of the more toxic and synergistic contaminant isomalathion. Refer to hazardous combustion products in Section 5.

SECTION 11 – TOXICOLOGICAL INFORMATION

- Target organs** : Eyes, skin, respiratory system, digestive system, central nervous system.
- Routes of exposure** : *Inhalation*: YES *Skin absorption*: YES *Skin & Eyes*: YES *Ingestion*: YES
- Toxicological data** : Fyfanon:
LC50 Inhalation (rat): >5.2 mg/L / 4 Hrs
LD50 Oral (rat): 5500 mg/kg
LD50 Dermal (rat): >2000 mg/kg
Eye irritation: Slight
Skin irritation: Slight
Skin sensitizer: Not a skin sensitizer
- Carcinogenic status** : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.
- Reproductive effects** : Not expected to have other reproductive effects.
- Teratogenicity** : Not expected to be a teratogen.
- Mutagenicity** : Not expected to be mutagenic in humans.
- Epidemiology** : Not available.
- Sensitization to material** : None known.
- Synergistic materials** : Not available.
- Irritancy** : May cause eye and skin irritation. May cause irritation to upper respiratory system.
- Other important hazards** : Cholinesterase inhibitor may cause central nervous system depression. Contains a material which can cause peripheral nervous system damage.
- Conditions aggravated by exposure**
: None known.



SECTION 12 – ECOLOGICAL INFORMATION

- Ecotoxicity** : The toxicity of the active ingredients to wildlife species is measured to be:
Fish – 96-Hr LC50, Rainbow Trout (*Salmo gairdneri*) = 0.18 mg/L
37-day NOEC, Rainbow Trout (*Salmo gairdneri*) = 21 µg/L
Invertebrates – 48-hr EC50, Daphnids (*Daphnia magna*) = 0.72 mg/L
21-day NOEC, Daphnids (*Daphnia magna*) = 0.06 µg/L
Algae – 72-Hr LC50, Green Algae (*Selenastrum capricornutum*) = 4.06 mg/L
Birds – LD50, Bobwhite quail (*Colinus virginianus*) = 359 mg/kg
5-day dietary LC50, Bobwhite quail (*Colinus virginianus*) = 3497 mg/kg
Earthworms – 14-day LC50, *Eisenia foetida foetida* = 613 mg/kg soil
Bees –LD50, worker honey-bees, acute oral = 0.38 µg/bee
LD50, worker honey-bees, topical = 0.27 µg/bee
- Mobility** : Under normal conditions, the active ingredient is of medium mobility in soil, but is degraded rapidly.
- Persistence** : The active ingredient, Malathion, is readily biodegradable. It undergoes rapid degradation in the environment and, without problems, in sewage 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, and biologically as well as abiologically. Under normal conditions, Malathion is of medium mobility in soil, but is degraded rapidly. 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.
- Bioaccumulation potential** : The bioconcentration factor (BCF) of Malathion is 95 (average for several fish species).
- Other adverse environmental effects** : This product is an insecticide. Malathion is toxic to birds, fish, aquatic invertebrates, aquatic life stages of amphibians and highly toxic to bees. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.

SECTION 13 – DISPOSAL CONSIDERATIONS

- Handling for disposal** : Handle wastes according to recommendations in Section 7.
- Methods for disposal** : Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Triple rinse (or equivalent) containers, then offer for recycling or recondition, or puncture and dispose of in a sanitary landfill. Dispose in accordance with all applicable federal, state, provincial and local regulations. Contact your local, state, provincial or federal environmental agency for specific rules.
- RCRA** : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method.

SECTION 14 – TRANSPORT INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
49CFR/DOT	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (malathion)	9	III	
49CFR/DOT Additional information	None.				
TDG	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (malathion)	9	III	
TDG Additional information	Only regulated for marine transport.				

SECTION 15 – REGULATORY INFORMATION

US Federal Information:

FIFRA: This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required on safety data sheets, and for workplace labels on non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION

- Harmful by swallowing, inhalation or skin contact.
- Avoid contact with skin.
- Avoid breathing spray mist.

OSHA: This material is classified as hazardous under OSHA regulations (29CFR 1910.1200).

CERCLA Reportable Quantity (RQ) (40 CFR 117.302): Malathion (100 lbs/45.4 kg)

SARA TITLE III: Sec. 302, Extremely Hazardous Substances, 40 CFR 355: No Extremely Hazardous Substances are present in this material.

SARA TITLE III: Sec. 311 and 312, MSDS Requirements, 40 CFR 370 Hazard Classes: Immediate (Acute) Health Hazard; Chronic Health Hazard. Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SARA TITLE III: Sec. 313, Toxic Chemicals Notification, 40 CFR 372: This material may be subject to SARA notification requirements, since it contains Toxic Chemical constituents above their de minimus concentrations. This product contains: Malathion

US State Right to Know Laws:

California Proposition 65: To the best of our knowledge, this product does not contain any chemicals known to the State of California to cause cancer or reproductive harm.

