



AVIGEL PEST BIRD CONTROL AGENT

Chemwatch Independent Material Safety Data Sheet

Issue Date: 29-Jan-2010

NC317ECP

CHEMWATCH 7585-72

Version No:4

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

AVIGEL PEST BIRD CONTROL AGENT

PROPER SHIPPING NAME

ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC(contains fenthion)

PRODUCT USE

Used to control pigeons, starlings, Indian mynahs and sparrows.

SUPPLIER

Company: ANC Bird Control

Address:

10 Finnagin Dve

Bonogin

QLD 4213

AUS

Telephone: +61 7 5525 3371

Emergency phone: 13 11 26 State Poison Information Centre

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.

POISONS SCHEDULE

S6

RISK

Risk Codes

R20/21

R48/25

R51/53

R67

R68(3)

Risk Phrases

■ Harmful by inhalation and in contact with skin.

■ Toxic: danger of serious damage to health by prolonged exposure if swallowed.

■ Toxic to aquatic organisms may cause long- term adverse effects in the aquatic environment.

■ Vapours may cause drowsiness and dizziness.

■ Possible risk of irreversible effects.

SAFETY

Safety Codes

S01

S23

S38

Safety Phrases

■ Keep locked up.

■ Do not breathe gas/ fumes/ vapour/ spray.

■ In case of insufficient ventilation wear suitable

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Section 2 - HAZARDS IDENTIFICATION

S51	respiratory equipment.
S09	■ Use only in well ventilated areas.
S53	■ Keep container in a well ventilated place.
S401	■ Avoid exposure - obtain special instructions before use.
	■ To clean the floor and all objects contaminated by this material use water and detergent.
S07	■ Keep container tightly closed.
S35	■ This material and its container must be disposed of in a safe way.
S13	■ Keep away from food drink and animal feeding stuffs.
S27	■ Take off immediately all contaminated clothing.
S26	■ In case of contact with eyes rinse with plenty of water and contact Doctor or Poisons Information Centre.
S57	■ Use appropriate container to avoid environment contamination.
S61	■ Avoid release to the environment. Refer to special instructions/ safety data sheets.
S60	■ This material and its container must be disposed of as hazardous waste.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
mineral oil (highly refined)	Not avail.	>40
fenthion (110g/kg)	55-38-9	11
xylene	1330-20-7	<10

Section 4 - FIRST AID MEASURES

SWALLOWED

■ If swallowed:

- Contact a Poisons Information Centre or a doctor at once.
- If swallowed, activated charcoal may be advised.
- Give atropine if instructed.
- REFER FOR MEDICAL ATTENTION WITHOUT DELAY.
- In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided.
- Further action will be the responsibility of the medical specialist.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

EYE

■ 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.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

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Section 4 - FIRST AID MEASURES

SKIN

- If product comes in contact with skin:
 - Contact a Poisons Information Centre or a doctor.
 - DO NOT allow clothing wet with product to remain in contact with skin, strip all contaminated clothing including boots.
 - Quickly wash affected areas vigorously with soap and water.
 - DO NOT give anything by mouth to a patient showing signs of narcosis, i.e. losing consciousness.
 - Give atropine if instructed.
 - DO NOT delay, get to a doctor or hospital quickly.

INHALED

- - If spray mist, vapour are inhaled, remove from contaminated area.
 - Contact a Poisons Information Centre or a doctor at once.
 - Lay patient down in a clean area and strip any clothing wet with spray.
 - Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
 - Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
 - DO NOT give anything by mouth to a patient showing signs of narcosis, i.e. losing consciousness.
 - Give atropine if instructed.
 - Get to doctor or hospital quickly.

NOTES TO PHYSICIAN

- Treat symptomatically.
 - Most organophosphate compounds are rapidly well absorbed from the skin, conjunctiva, gastro-intestinal tract and lungs.
 - They are detoxified by Cytochrome P450-mediated monooxygenases in the liver but some metabolites are more toxic than parent compounds.
 - Metabolites are usually detected 12-48 hours postexposure.
 - Organophosphates phosphorylate acetylcholinesterase with resultant accumulation of large amounts of acetylcholine causing initial stimulation, then exhaustion of cholinergic synapse.
 - gamma-aminobutyric acid (GABA)-ergic and dopaminergic pathways provide compensatory inhibition.
 - The clinical manifestation of organophosphate toxicity results from muscarinic, nicotinic and CNS symptoms.
 - A garlic-like odour emanating from the patient or involved container may aid the diagnosis.
 - Immediate life-threatening symptoms usually are respiratory problems.
 - Frequent suction and, if necessary, endotracheal intubation and assisted ventilation may be necessary to maintain adequate oxygenation.
 - Theophylline compounds, to treat bronchospasm, should be used cautiously as they may lower the seizure threshold.
 - Excessive secretions and bronchospasm should respond to adequate doses of atropine.
 - Diazepam is the drug of choice for convulsions.
 - Usual methods of decontamination, (activated charcoal and cathartics) should be used when patients present within 4-6 hours postexposure.
 - The administration of atropine, as an antidote, does not require confirmation by acetylcholinesterase levels. Severely poisoned patients develop marked resistance to the usual doses of atropine. [Atropine should not be given to a cyanosed patient - ICI] NOTE: Hypoxia must be corrected before atropine is given. For adult: 2 mg repeatedly SC or IV until atropinization is achieved and maintained (atropinization is characterised by decreased bronchial secretions, heart rate >100 bpm, dry mouth, dilated pupils).
 - Pralidoxime (2-PAM, Protopam) is a specific antidote when given within 24 hours and perhaps up to 36-48 hours postexposure. Although it ameliorates muscle weakness, fasciculations and alterations of consciousness, it does not relieve bronchospasm or bronchorrhea and must be given concurrently with atropine. NOTE: Pralidoxime should be given as an adjunct to, NOT a replacement for atropine and should be given in every case where atropine therapy is deemed necessary. Traditional dose: 1 g (or 2 g in severe cases) by slow IV injection over 5-10 minutes. 1-2 g, 4 hourly (maximum dose 12 g in 24 hours) until clinical and analytical recovery is achieved and maintained.
 - Avoid parasympathomimetic agents. Phenothiazines and antihistamines may potentiate organophosphate activity. [Ellenhorn and Barceloux: Medical Toxicology]

NOTE: Acute pancreatitis in organophosphate intoxication may be more common than reported. The possible

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Section 4 - FIRST AID MEASURES

pathogenesis of pancreatic insult are excessive cholinergic stimulation of the pancreas and ductular hypertension. Early recognition and appropriate therapy for acute pancreatitis may lead to an improved prognosis.

Cheng-Tin Hsiao, et al; Clinical Toxicology 34(3), 343-347 (1996)
BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Cholinesterase activity in red cells	70% of individual' s baseline	Discretionary	NS

B: Background levels occur in specimens collected from subjects NOT exposed

NS:Non-specific determinant; Also observed after exposure to other materials

SQ:Semi-quantitative determinant; Interpretation may be ambiguous. Should be used as a screening test or confirmatory test.

Some jurisdictions require that health surveillance be conducted on occupationally exposed workers. Such surveillance should emphasise

- demography, occupational and medical history and health advice
- physical examination
- baseline estimation of red cell and plasma cholinesterase activity levels by the Ellman method. Estimation of red cell and plasma cholinesterase activity towards the end of the working day.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- - Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

FIRE FIGHTING

- - Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

FIRE/EXPLOSION HAZARD

- - Combustible.
- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

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Section 5 - FIRE FIGHTING MEASURES

- May emit acrid smoke.
 - Mists containing combustible materials may be explosive.
- Combustion products include: carbon dioxide (CO₂), phosphorus oxides (PO_x), sulfur oxides (SO_x), metal oxides, other pyrolysis products typical of burning organic material.
- May emit poisonous fumes.

FIRE INCOMPATIBILITY

- - Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

HAZCHEM

2X

Personal Protective Equipment

Gas tight chemical resistant suit.

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Slippery when spilt.
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable, labelled container for waste disposal.

MAJOR SPILLS

- Slippery when spilt.
- Remove all ignition sources.
- Clear area of personnel and move upwind.
 - Alert Fire Brigade and tell them location and nature of hazard.
 - Wear full body protective clothing with breathing apparatus.
 - Prevent, by any means available, spillage from entering drains or water course.
 - Stop leak if safe to do so.
 - Contain spill with sand, earth or vermiculite.
 - Collect recoverable product into labelled containers for recycling.
 - Neutralise/decontaminate residue.
 - Collect solid residues and seal in labelled drums for disposal.
 - Wash area and prevent runoff into drains.
 - After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
 - If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Remove all ignition sources.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.

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Section 7 - HANDLING AND STORAGE

- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- For low viscosity materials

- Drums and jerricans must be of the non-removable head type.

- Where a can is to be used as an inner package, the can must have a screwed enclosure.

For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):

- Removable head packaging;

- Cans with friction closures and

- low pressure tubes and cartridges

may be used.

- Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages *.

- In addition, where inner packagings are glass and contain liquids of packing group I and II there must be sufficient inert absorbent to absorb any spillage *.

- * unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.

STORAGE INCOMPATIBILITY

- Avoid storage with oxidisers.

STORAGE REQUIREMENTS

- - Store in original containers.

- Keep containers securely sealed.

- No smoking, naked lights or ignition sources.

- Store in a cool, dry, well-ventilated area.

- Store away from incompatible materials and foodstuff containers.

- Protect containers against physical damage and check regularly for leaks.

- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA mg/m ³	Notes
Australia Exposure Standards	mineral oil (Oil mist, refined mineral)	5	
Australia Exposure Standards	fenthion (Fenthion)	0.2	Sk

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Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	TWA mg/m ³
	xylene	80	350	150	655

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m ³)	Revised IDLH Value (ppm)
xylene		900

MATERIAL DATA

AVIGEL PEST BIRD CONTROL AGENT:

None assigned.

MINERAL OIL:

Human exposure to oil mist alone has not been demonstrated to cause health effects except at levels above 5 mg/m³ (this applies to particulates sampled by a method that does not collect vapour). It is not advisable to apply this standard to oils containing unknown concentrations and types of additive.

FENTHION:

- For fenthion:

Fenthion and its biologically active metabolites are compounds with typical anticholinesterase effects. The toxic syndrome consists of central and peripheral cholinergic effects. Based on available data and in comparison with ethyl parathion (TLV-TWA of 0.1 mg/m³) a TLV-TWA has been established. OSHA concluded this limit would protect workers against significant risks of cholinesterase inhibition. NIOSH does not concur with limit because of a significant increased incidence of tumours (sarcomas, fibrosarcomas and especially rhabdosarcomas of the integumentary system) which occurred in male mice receiving fenthion in the diet. The National Cancer Institute concluded that this finding is equivocal.

XYLENE:

- for xylenes:

IDLH Level: 900 ppm

Odour Threshold Value: 20 ppm (detection), 40 ppm (recognition)

NOTE: Detector tubes for o-xylene, measuring in excess of 10 ppm, are available commercially. (m-xylene and p-xylene give almost the same response).

Xylene vapour is an irritant to the eyes, mucous membranes and skin and causes narcosis at high concentrations. Exposure to doses sufficiently high to produce intoxication and unconsciousness also produces transient liver and kidney toxicity. Neurologic impairment is NOT evident amongst volunteers inhaling up to 400 ppm though complaints of ocular and upper respiratory tract irritation occur at 200 ppm for 3 to 5 minutes.

Exposure to xylene at or below the recommended TLV-TWA and STEL is thought to minimise the risk of irritant effects and to produce neither significant narcosis or chronic injury. An earlier skin notation was deleted because percutaneous absorption is gradual and protracted and does not substantially contribute to the dose received by inhalation.

Odour Safety Factor(OSF)

OSF=4 (XYLENE).

Exposure limits with "skin" notation indicate that vapour and liquid may be absorbed through intact skin. Absorption by skin may readily exceed vapour inhalation exposure. Symptoms for skin absorption are the same as for inhalation. Contact with eyes and mucous membranes may also contribute to overall exposure and may also invalidate the exposure standard.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTION

EYE

- - Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

- Suitability 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
 - dexterity,

When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.

When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.

- Wear chemical protective gloves, eg. PVC.
- Wear safety footwear or safety gumboots, eg. Rubber.

OTHER

- - Overalls.
- Eyewash unit.
- Barrier cream.
- Skin cleansing cream.
- Ensure that there is a supply of atropine tablets on hand
- Ensure all employees have been informed of symptoms of carbamate poisoning and that the use of atropine in first aid is understood .

RESPIRATOR

- Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half- face Respirator	Full- Face Respirator
1000	10	A- AUS P	-
1000	50	-	A- AUS P
5000	50	Airline *	-
5000	100	-	A- 2 P
10000	100	-	A- 3 P
	100+		Airline**

* - Continuous Flow

** - Continuous-flow or positive pressure demand.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

■ General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Brown viscous liquid; does not mix with water.

PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

State	Liquid	Molecular Weight	Not Applicable
Melting Range (°C)	Not Available	Viscosity	Not Available
Boiling Range (°C)	Not Available	Solubility in water (g/L)	Immiscible
Flash Point (°C)	>150 (CC)	pH (1% solution)	Not Available
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not Available
Autoignition Temp (°C)	Not Available	Vapour Pressure (kPa)	Not Available
Upper Explosive Limit (%)	Not Available	Specific Gravity (water=1)	Not Available
Lower Explosive Limit (%)	Not Available	Relative Vapour Density (air=1)	Not Available
Volatile Component (%vol)	Not Available	Evaporation Rate	Not Available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

■ - Presence of incompatible materials.

- Product is considered stable.

- Hazardous polymerisation will not occur.

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

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Ingestion may produce nausea, vomiting, depressed appetite, abdominal cramps, and diarrhoea.

Symptoms may include nausea, headache, giddiness, blurred vision, contraction of pupils, vomiting.

EYE

■ The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Direct eye contact can produce tears, eyelid twitches, pupil contraction, loss of focus, and blurred or dimmed vision. Dilation of the pupils occasionally occurs.

SKIN

■ The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Skin contact with the material may be harmful; systemic effects may result following absorption.

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Section 11 - TOXICOLOGICAL INFORMATION

There may be sweating and muscle twitches at site of contact. Reaction may be delayed by hours. 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

■ Inhalation hazard is increased at higher temperatures.

Inhalation of vapour is more likely at higher than normal temperatures.

Poisoning due to cholinesterase inhibitors causes symptoms such as increased blood flow to the nose, watery discharge, chest discomfort, shortness of breath and wheezing. Other symptoms include increased production of tears, nausea and vomiting, diarrhoea, stomach pain, involuntary passing of urine and stools, chest pain, breathing difficulty, low blood pressure, irregular heartbeat, loss of reflexes, twitching, visual disturbances, altered pupil size, convulsions, lung congestion, coma and heart failure. Nervous system effects include inco-ordination, slurred speech, tremors of the tongue and eyelids, and paralysis of the limbs and muscles of breathing, which can cause death, although death is also seen due to cardiac arrest. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.

CHRONIC HEALTH EFFECTS

■ Repeated or prolonged exposures to cholinesterase inhibitors produce symptoms similar to acute effects. In addition workers exposed repeatedly to these substances may exhibit impaired memory and loss of concentration, severe depression and acute psychosis, irritability, confusion, apathy, emotional liability, speech difficulties, headache, spatial disorientation, delayed reaction times, sleepwalking, drowsiness or insomnia.

An influenza-like condition with nausea, weakness, anorexia and malaise has been described. There is a growing body of evidence from epidemiological studies and from experimental laboratory studies that short-term exposure to some cholinesterase-inhibiting insecticides may produce behavioural or neuro-chemical changes lasting for days or months, presumably outlasting the cholinesterase inhibition. Although the number of adverse effects following humans poisonings subside, there are still effects in some workers months after cholinesterase activity returns to normal. These long-lasting effects include blurred vision, headache, weakness, and anorexia. The neurochemistry of animals exposed to chlorpyrifos or fenthion is reported to be altered permanently after a single exposure. These effects may be more severe in developing animals where both acetyl- and butyrylcholinesterase may play an integral part in the development of the nervous system. Padilla S., The Neurotoxicity of Cholinesterase-Inhibiting Insecticides: Past and Present Evidence Demonstrating Persistent Effects. *Inhalation Toxicology* 7:903-907, 1995.

This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. This has been demonstrated via both short- and long-term experimentation.

Laboratory (in vitro) and animal studies show, exposure to the material may result in a possible risk of irreversible effects, with the possibility of producing mutation.

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

TOXICITY AND IRRITATION

■ Not available. Refer to individual constituents.

MINERAL OIL:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

■ Toxicity and Irritation data for petroleum-based mineral oils are related to chemical components and vary as does the composition and source of the original crude.

A small but definite risk of occupational skin cancer occurs in workers exposed to persistent skin contamination by oils over a period of years. This risk has been attributed to the presence of certain polycyclic aromatic hydrocarbons (PAH) (typified by benz[a]pyrene).

Petroleum oils which are solvent refined/extracted or severely hydrotreated, contain very low concentrations of both.

FENTHION:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

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Section 11 - TOXICOLOGICAL INFORMATION

TOXICITY

Oral (rat) LD50: 180 mg/kg

Oral (man) TDL_o: 257 mg/kg

Inhalation (rabbit) LCL_o: 1 g/m³/2h

Dermal (rat) LD50: 330 mg/kg

■ For fenthion:

Acute toxicity: Acute effects of fenthion are similar to those caused by other organophosphates, but may take somewhat longer to develop. Fenthion is of sufficiently low toxicity it has been investigated as an agent against insect parasites in animals (e.g., dogs).

Chronic toxicity: In rats, 12.5 mg/kg/day caused weight loss and 85% inhibition of normal brain cholinesterase activity within 4 weeks. Much less severe, but still detectable decreases were noticeable at doses of 2.5 mg/kg/day. There was no evidence of weight loss or decreased food consumption in dogs that were given dietary doses of 1.25 mg/kg/day for 1 year. In Nigerian sprayers, those not wearing protective clothing while spraying showed decreased whole-blood cholinesterase activity. Veterinary clinic workers who did not use skin protection when applying a 20% topical application to dogs experienced symptoms ranging from tingling and numbness of the hands and feet to generalized weakness and shooting pains. Other possible effects are similar to those caused by the other organophosphates.

Reproductive effects: Single injections of 40 or 80 mg/kg of fenthion into the abdominal cavities of pregnant female mice caused poisoning in the developing fetuses, particularly when administered on days 10 to 12 of gestation. Foetuses were injured primarily by dosages that caused toxicity in the maternal mouse. No influence was seen on reproduction in other three-generation studies of mice. These data indicate that reproductive effects are unlikely in humans.

Teratogenic effects: Some reduction in foetal weight occurred, but no defects were found in mice that were given intraperitoneal doses of up to 80 mg/kg of fenthion in single-day or 3-day periods during the period of gestation in which organs are formed. No teratogenic effects were seen in five generations of mice that drank water containing 60 mg/L fenthion. Other tests on mice and rats did not show teratogenic effects from fenthion. These data indicate that fenthion is not teratogenic.

Mutagenic effects: Tests on mice did not show mutagenic effects from fenthion. However, available data are insufficient to draw a conclusion regarding the mutagenicity of the compound.

Carcinogenic effects: One carcinogenicity test on fenthion indicated that this insecticide may be a carcinogen in male mice. However, no carcinogenic effects were observed in other 2-year feeding studies of rats and mice. Available data are insufficient to draw conclusions regarding the carcinogenicity of fenthion.

Organ toxicity: As identified through animal tests and human use experience, target organs affected by fenthion exposure include the central and peripheral nervous systems, as well as the heart.

Fate in humans and animals: In animals, fenthion is quickly absorbed into the bloodstream through the digestive tract, lungs, and skin, and is systemically distributed. It is eliminated through the urine and the faeces. A single dose of the insecticide has prolonged action, suggesting that much of it is stored in body fat and later released for metabolism. Fenthion and its metabolites were found in the fat of steers slaughtered 3 days after dermal application of fenthion. When cows were given a dermal application of 9 mg of fenthion per kilogram, 45 to 55% of the dose was excreted in the urine, 2.0 to 2.5% in the feces, and 1.5 to 2.0% was recovered in the milk.

Equivocal tumourigen by RTECS criteria

ADI: 0.0003 mg/kg/day

NOEL: 0.03 mg/kg/day

XYLENE:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Oral (human) LDLo: 50 mg/kg

Oral (rat) LD50: 4300 mg/kg

Inhalation (human) TCLo: 200 ppm

Inhalation (man) LCLo: 10000 ppm/6h

Inhalation (rat) LC50: 5000 ppm/4h

Oral (Human) LD: 50 mg/kg

Inhalation (Human) TCLo: 200 ppm/4h

Intraperitoneal (Rat) LD50: 2459 mg/kg

Subcutaneous (Rat) LD50: 1700 mg/kg

Oral (Mouse) LD50: 2119 mg/kg

IRRITATION

Nil Reported

IRRITATION

Skin (rabbit):500 mg/24h Moderate

Eye (human): 200 ppm Irritant

Eye (rabbit): 87 mg Mild

Eye (rabbit): 5 mg/24h SEVERE

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Section 11 - TOXICOLOGICAL INFORMATION

Intraperitoneal (Mouse) LD50: 1548 mg/kg

Intravenous (Rabbit) LD: 129 mg/kg

Inhalation (Guinea) pig: LC 450 ppm/4h

■ The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

Reproductive effector in rats

CARCINOGEN

Xylenes	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3
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REPROTOXIN

xylene	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility
--------	--	-----------------------------------

SKIN

fenthion	Australia Exposure Standards - Skin	Notes	Sk
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Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:

MINERAL OIL:

FENTHION:

XYLENE:

AVIGEL PEST BIRD CONTROL AGENT:

■ DO NOT discharge into sewer or waterways.

FENTHION:

AVIGEL PEST BIRD CONTROL AGENT:

■ For organophosphorus compounds:

Environmental fate:

Organophosphorus compounds and pesticides are relatively non-persistent in the environment with half-lives ranging from hours to several weeks or months. Only rarely are pesticides found in crops beyond the growing season during which they are applied. Chemical or photochemical mechanisms may produce a leaving group which is easily degraded. As a rule these compounds do not represent a serious problem as contaminants of soil and water. Breakdown products are usually non-toxic being composed of low-molecular weight, volatile molecules that are easily degraded and utilised by micro-organisms.

Being esters they are also susceptible to hydrolysis. Most organophosphorus pesticides are stable to acid pHs but under alkaline conditions hydrolysis is rapid with the breakdown rate increasing 10-fold for each pH unit above 7. An increase of 10 deg. C of temperature will increase the hydrolysis rate approximately 4-fold. When these compounds are present in the soil their disappearance is affected by their interaction with the physical characteristics and water content of the soil, and the microflora present.

In certain types of soil strong binding may make them unavailable for biological decomposition. In such soils even running water produces little movement and thus minimal contamination of water supplies. Less tightly bound substances are similarly unlikely to produce substantial contamination because of rapid breakdown. Metallic ions in the soil interact with organophosphorus esters through hydrogen linkage whilst increased organic matter facilitates further binding.

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In general only minute amounts of residue and their breakdown products are found in natural water systems. In soil however there is a greater likelihood of the presence and buildup of toxic residues.

■ Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters. Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

AVIGEL PEST BIRD CONTROL AGENT:

Marine Pollutant: Not Determined

■ Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

FENTHION:

■ Fish LC50 (96hr.) (mg/l): 0.93- 2.44

■ Daphnia magna EC50 (48hr.) (mg/l): 0.0008

■ log Kow (Sangster 1997): 4.09

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

■ For fenthion:

log Kow : 3.1753

BCF : 26-481

Environmental fate:

Breakdown in soil and groundwater: Fenthion is of moderate persistence in soil, with an average field half-life of 34 days under most conditions. In soil, residues of fenthion may persist for approximately 4 to 6 weeks. It adsorbs fairly strongly to soil particles, and so is not likely to move (or leach) through the soil.

Breakdown in water: In one study of its persistence in water, 50% of applied fenthion remained in river water 2 weeks later, while 10% remained after 4 weeks. It is more rapidly degraded under alkaline conditions.

Breakdown in vegetation: Fenthion is phytotoxic (or harmful to plants) to American linden, Hawthorn and sugar maple trees, and to certain rose varieties. It is not considered phytotoxic when used at recommended rates, although injury has occurred in certain varieties of apples and cotton. Plant foliage should not be sprayed when temperatures exceed 35 C. Only about 10% of applied fenthion remained on rice plants after 6 hours. Almost half of the activity was found in the rice bran, 6.5% was in the husk, and 14.7% was in polished rice.

Water soluble metabolites were found 14 days after fenthion application to rice plants

Ecotoxicity:

Bird acute LD50: bobwhite quail < 4 mg/kg; duck 26 mg/kg

Bird dietary LC50: Japanese quail 130 ppm, pheasant 200 ppm, bobwhite quail 30 ppm, mallard duck 230 ppm

Fenthion is very highly to highly toxic to birds. Acute symptoms of fenthion poisoning in birds include tearing of the eyes, foamy salivation, lack of movement, tremors, congestion of the windpipe, lack of coordination in walking, and an abnormally rapid rate of breathing or difficult breathing. Chickens developed leg weakness when they were fed 25 mg/kg doses of fenthion. After administration of 0.5 mg/kg/day for 30 days, the eggs laid by surviving mallards had markedly reduced fertility

Fish LC50 (96 h): rainbow trout 9.3 mg/l, brown trout 1.33 mg/l, coho salmon 1.32 mg/l, carp 1.16 mg/l, largemouth bass 1.54 mg/l, bluegill 1.38 mg/l, yellow perch 1.65 mg/l, fathead minnow 2.4 mg/l, goldfish 3.4 mg/l

Fenthion is moderately toxic to fish. It may be very highly toxic to some freshwater aquatic invertebrates

Oysters LD50: 0.6 ppm

Blue crab LD50: 0.006 ppm

Fenthion is a toxic hazard to honeybee.

■ Studies on various thiophosphates indicated complete mineralization within three weeks by acclimation. A water stability study demonstrated the nature of hydrolysis involves the attack of water molecule on the phosphorus ester involving P-O bond fission.

■ The material is classified as an ecotoxin* because the Daphnia EC50 (48 hours) is less than or equal to 0.1 mg/l

* Classification of Substances as Ecotoxic (Dangerous to the Environment)

Appendix 8, Table 1

Compiler's Guide for the Preparation of International Chemical Safety Cards: 1993 Commission of the European

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Section 12 - ECOLOGICAL INFORMATION

Communities.

XYLENE:

■ Fish LC50 (96hr.) (mg/l):	13.5
■ BCF<100:	2.14- 2.20
■ log Kow (Prager 1995):	3.12- 3.20
■ Half- life Soil - High (hours):	672
■ Half- life Soil - Low (hours):	168
■ Half- life Air - High (hours):	44
■ Half- life Air - Low (hours):	2.6
■ Half- life Surface water - High (hours):	672
■ Half- life Surface water - Low (hours):	168
■ Half- life Ground water - High (hours):	8640
■ Half- life Ground water - Low (hours):	336
■ Aqueous biodegradation - Aerobic - High (hours):	672
■ Aqueous biodegradation - Aerobic - Low (hours):	168
■ Aqueous biodegradation - Anaerobic - High (hours):	8640
■ Aqueous biodegradation - Anaerobic - Low (hours):	4320
■ Photolysis maximum light absorption - High (nano- m):	269.5
■ Photolysis maximum light absorption - Low (nano- m):	265
■ Photooxidation half- life water - High (hours):	2.70E+08
■ Photooxidation half- life water - Low (hours):	3.90E+05
■ Photooxidation half- life air - High (hours):	44
■ Photooxidation half- life air - Low (hours):	2.6

■ Harmful to aquatic organisms.

■ For xylenes :

log Koc : 2.05-3.08

Koc : 25.4-204

Half-life (hr) air : 0.24-42

Half-life (hr) H2O surface water : 24-672

Half-life (hr) H2O ground : 336-8640

Half-life (hr) soil : 52-672

Henry's Pa m³ /mol: 637-879

Henry's atm m³ /mol: 7.68E-03

BOD 5 if unstated: 1.4,1%

COD : 2.56,13%

ThOD : 3.125

BCF : 23

log BCF : 1.17-2.41

Environmental Fate

Terrestrial fate:: Measured Koc values of 166 and 182, indicate that 3-xylene is expected to have moderate mobility in soil. Volatilisation of p-xylene is expected to be important from moist soil surfaces given a measured Henry's Law constant of 7.18×10^{-3} atm-cu m/mole. The potential for volatilisation of 3-xylene from dry soil surfaces may exist based on a measured vapor pressure of 8.29 mm Hg. p-Xylene may be degraded during its passage through soil). The extent of the degradation is expected to depend on its concentration, residence time in the soil, the nature of the soil, and whether resident microbial populations have been acclimated. p-Xylene, present in soil samples contaminated with jet fuel, was completely degraded aerobically within 5 days. In aquifer studies under anaerobic conditions, p-xylene was degraded, usually within several weeks, with the production of 3-methylbenzylfumaric acid, 3-methylbenzylsuccinic acid, 3-methylbenzoate, and 3-methylbenzaldehyde as metabolites.

Aquatic fate: Koc values indicate that p-xylene may adsorb to suspended solids and sediment in water. p-Xylene is expected to volatilise from water surfaces based on the measured Henry's Law constant. Estimated volatilisation half-lives for a model river and model lake are 3 hours and 4 days, respectively. BCF values of 14.8, 23.4, and 6, measured in goldfish, eels, and clams, respectively, indicate that bioconcentration in aquatic organisms is low. p-Xylene in water with added humic substances was 50% degraded following 3 hours irradiation suggesting that indirect photooxidation in the presence of humic acids may play an important role in the abiotic degradation of p-xylene. Although p-xylene is biodegradable and has been observed to degrade in pond water, there are insufficient data to assess the rate of this process in surface waters. p-Xylene has

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Section 12 - ECOLOGICAL INFORMATION

been observed to degrade in anaerobic and aerobic groundwater in several studies; however, it is known to persist for many years in groundwater, at least at sites where the concentration might have been quite high.

Atmospheric fate:

Most xylenes released to the environment will occur in the atmosphere and volatilisation is the dominant environmental fate process. In the ambient atmosphere, xylenes are expected to exist solely in the vapour phase. Xylenes are degraded in the atmosphere primarily by reaction with photochemically-produced hydroxyl radicals, with an estimated atmospheric lifetime of about 0.5 to 2 days. Xylenes' susceptibility to photochemical oxidation in the troposphere is to the extent that they may contribute to photochemical smog formation.

According to a model of gas/particle partitioning of semivolatile organic compounds in the atmosphere and from its vapour pressure, p-xylene, is expected to exist solely as a vapour in the ambient atmosphere. Vapour-phase p-xylene is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be about 16 hours. A half-life of 1.0 hr in summer and 10 hr in winter was measured for the reaction of p-xylene with photochemically-produced hydroxyl radicals. p-Xylene has a moderately high photochemical reactivity under smog conditions, higher than the other xylene isomers, with loss rates varying from 9-42% per hr. The photooxidation of p-xylene results in the production of carbon monoxide, formaldehyde, glyoxal, methylglyoxal, 3-methylbenzyl nitrate, m-tolualdehyde, 4-nitro-3-xylene, 5-nitro-3-xylene, 2,6-dimethyl-p-benzoquinone, 2,4-dimethylphenol, 6-nitro-2,4-dimethylphenol, 2,6-dimethylphenol, and 4-nitro-2,6-dimethylphenol.

Ecotoxicity:

for xylenes

Fish LC50 (96 h) Pimephales promelas 13.4 mg/l; Oncorhynchus mykiss 8.05 mg/l; Lepomis macrochirus 16.1 mg/l (all flow through values); Pimephales promelas 26.7 (static)

Daphnia EC50 948 h): 3.83 mg/l

Photobacterium phosphoreum EC50 (24 h): 0.0084 mg/l

Gammarus lacustris LC50 (48 h): 0.6 mg/l.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
fenthion	HIGH		MED	MED
xylene	LOW	LOW	LOW	

Section 13 - DISPOSAL CONSIDERATIONS

- - Recycle wherever possible. Special hazard may exist - specialist advice may be required.
- Consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury or incinerate residue at an approved site.
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
- Puncture containers to prevent re-use and bury at an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION



Labels Required: TOXIC

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Section 14 - TRANSPORTATION INFORMATION

HAZCHEM:

☐ 2X (ADG7)

ADG7:

Class or division:	6.1	Subsidiary risk:	None
UN No.:	3018	UN packing group:	II
Special provisions:	61; 274	Packing Instructions:	None
Notes:	None	Limited quantities:	100 ml
Portable tanks and bulk containers - Instructions:	T11	Portable tanks and bulk containers - Special provisions:	TP2; TP13; TP27
Packagings and IBCs - Packing instruction:	P001; IBC02	Packagings and IBCs - Special packing provisions:	None

Shipping Name: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC (contains fenthion)

Land Transport UNGD:

Class or division:	6.1	Subsidiary risk:	None
UN No.:	3018	UN packing group:	II

Shipping Name: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC (contains fenthion)

Air Transport IATA:

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	None
UN/ID Number:	3018	Packing Group:	II

Special provisions: A3
Shipping Name: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC
*(CONTAINS FENTHION)

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	None
UN Number:	3018	Packing Group:	II
EMS Number:	F- A, S- A	Special provisions:	61 274
Limited Quantities:	100 ml	Marine Pollutant:	Not Determined

Shipping Name: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC (contains fenthion)

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE

S6

REGULATIONS

Regulations for ingredients

fenthion (CAS: 55-38-9) is found on the following regulatory lists;

"Australia ADI list - Acceptable daily intakes for agricultural and veterinary chemicals", "Australia Exposure Standards", "Australia Hazardous Substances", "Australia Inventory of Chemical Substances (AICS)", "Australia New Zealand Food Standards Code - Maximum Residue Limits (Australia only) - Schedule 1", "Australia New Zealand Food Standards Code - Maximum Residue Limits (Australia only) - Schedule 3 - Chemical Groups", "OECD Representative List of High Production Volume (HPV) Chemicals"

xylene (CAS: 1330-20-7) is found on the following regulatory lists;

"Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals"

No data for Avigel Pest Bird Control Agent (CW: 7585-72)

No data for mineral oil (CAS: , Not avail)

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Section 16 - OTHER INFORMATION

REPRODUCTIVE HEALTH GUIDELINES

■ Established occupational exposure limits frequently do not take into consideration reproductive end points that are clearly below the thresholds for other toxic effects. Occupational reproductive guidelines (ORGs) have been suggested as an additional standard. These have been established after a literature search for reproductive no-observed-adverse effect-level (NOAEL) and the lowest-observed-adverse-effect-level (LOAEL). In addition the US EPA's procedures for risk assessment for hazard identification and dose-response assessment as applied by NIOSH were used in the creation of such limits. Uncertainty factors (UFs) have also been incorporated.

Ingredient	ORG	UF	Endpoint	CR	Adeq TLV
xylene	1.5 mg/m ³	10	D	NA	-

■ These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time-weighted average unless specified otherwise.

CR = Cancer Risk/10000; UF = Uncertainty factor:

TLV believed to be adequate to protect reproductive health:

LOD: Limit of detection

Toxic endpoints have also been identified as:

D = Developmental; R = Reproductive; TC = Transplacental carcinogen

Jankovic J., Drake F.: A Screening Method for Occupational Reproductive

American Industrial Hygiene Association Journal 57: 641-649 (1996).

■ 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.

■ The (M)SDS 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 Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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This is the end of the MSDS.