



**Australian Government**  
**Australian Pesticides and  
Veterinary Medicines Authority**



## PUBLIC RELEASE SUMMARY

on the evaluation of the new active polydimethylsiloxane  
in the product Aquatain AMF Liquid Mosquito Film

APVMA Product Number 62820

AUGUST 2010

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## PREFACE

The Australian Pesticides and Veterinary Medicines Authority (APVMA) is the Australian Government regulator with responsibility for assessing and approving agricultural and veterinary chemical products prior to their sale and use in Australia.

In undertaking this task, the APVMA works in close cooperation with advisory agencies, including the Department of Health and Ageing, Office of Chemical Safety and Environmental Health (OCSEH), Department of Environment, Water, Heritage and the Arts (DEWHA), and State Departments of Primary Industries.

The APVMA has a policy of encouraging openness and transparency in its activities and of seeking community involvement in decision making. Part of that process is the publication of public release summaries for products containing new active constituents.

The information and technical data required by the APVMA to assess the safety of new chemical products and the methods of assessment must be undertaken according to accepted scientific principles. Details are outlined in the APVMA's publications *Ag MORAG: Manual of Requirements and Guidelines* and *Vet MORAG: Manual of Requirements and Guidelines*.

This Public Release Summary is intended as a brief overview of the assessment that has been conducted by the APVMA and of the specialist advice received from its advisory agencies. It has been deliberately presented in a manner that is likely to be informative to the widest possible audience thereby encouraging public comment.

## About this document

This is a Public Release Summary.

It indicates that the Australian Pesticides and Veterinary Medicines Authority (APVMA) is considering an application for registration of an agricultural or veterinary chemical. It provides a summary of the APVMA's assessment, which may include details of:

- the toxicology of both the active constituent and product
- the residues and trade assessment
- occupational exposure aspects
- environmental fate, toxicity, potential exposure and hazard
- efficacy and target crop or animal safety.

Comment is sought from interested persons on the information contained within this document.

## Making a submission

In accordance with sections 12 and 13 of the Agvet Code, the APVMA invites any person to submit a relevant written submission as to whether the application for registration of **AQUATAIN AMF LIQUID MOSQUITO FILM** should be granted. Submissions should relate only to matters that the APVMA is required by legislation to take into account in deciding whether to grant the application. These grounds are **public health aspects, occupational health and safety, chemistry and manufacture, residues in food, environmental safety, trade and efficacy**. Submissions should state the grounds on which they are based. Comments received outside these grounds cannot be considered by the APVMA.

Submissions must be received by the APVMA by close of business on **Tuesday 28/09/2010** and be directed to the contact listed below. All submissions to the APVMA will be acknowledged in writing via email or by post.

Relevant comments will be taken into account by the APVMA in deciding whether the product should be registered and in determining appropriate conditions of registration and product labelling.

When making a submission please include:

- Contact name
- Company or Group name (if relevant)
- Postal Address
- Email Address (if available)
- The date you made the submission.

All personal and **confidential commercial information (CCI)**<sup>1</sup> material contained in submissions will be treated confidentially.

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<sup>1</sup> A full definition of "confidential commercial information" is contained in the Agvet Code.

Written submissions on the APVMA's proposal to grant the application for registration that relate to the **grounds for registration** should be addressed in writing to:

Ag Products Coordinator  
Pesticide Program  
Australian Pesticides and Veterinary Medicines Authority  
PO Box 6182  
Kingston ACT 2604

**Phone:** (02) 6210 4700

**Fax:** (02) 6210 4776

**Email:** [AgProductsCordinator@apvma.gov.au](mailto:AgProductsCordinator@apvma.gov.au)

## Further information

Further information can be obtained via the contact details provided above.

Copies of full technical evaluation reports covering toxicology, occupational health and safety aspects, residues in food and environmental aspects are available from the APVMA on request.

Further information on public release summaries can be found on the APVMA website:

<http://www.apvma.gov.au>

## 1 INTRODUCTION

The Australian Pesticides and Veterinary Medicines Authority (APVMA) has before it an application from Aquatain Products Pty Ltd for registration of a new product, Aquatain AMF Liquid Mosquito Film containing the new active constituent Polydimethylsiloxane.

Mosquitoes are known vectors of human and animal diseases as well as being an urban pest. Many species can breed in standing water in urban / semi industrial areas such **gutters, ponds, drains, water tanks, septic tanks and old tyres.**

Aquatain AMF Liquid Mosquito Film intended use is to control mosquitoes in urban and semi-industrial areas by disrupting the mosquito's lifecycle by affecting the larvae (wigglers), emergence of pupae from the water surface and reducing egg laying by the female adult mosquitoes.

Aquatain AMF Liquid Mosquito Film forms an ultra thin film (a mono molecular layer) on the water surface. It lowers the water surface tension, preventing suspension of the mosquito larvae and pupae at the water surface, subsequently suffocating them. Polydimethylsiloxane is a synthetic polymer, silicone fluid. These types of silicone fluids have been used in a range of cosmetics and shampoos and are listed on the Australian Inventory of Chemical Substances (AICS).

Aquatain AMF Liquid Mosquito Film will be packaged in containers between 250mL and 1L.

Polydimethylsiloxane is not currently registered in any country overseas, but has received registration exemptions in Singapore, Malaysia and Mexico.

This publication provides a summary of the data reviewed and an outline of the regulatory considerations for the proposed registration of Aquatain AMF Liquid Mosquito Film, and approval of the new active constituent polydimethylsiloxane.

## 2 CHEMISTRY AND MANUFACTURE

### 2.1 ACTIVE CONSTITUENT

Polydimethylsiloxane belongs to a group of polymeric organosilicone compounds that are commonly referred to as silicones.

The chemical active constituent polydimethylsiloxane has the following properties:

COMMON NAME (ISO):	PDMS
CHEMICAL NAME:	Polydimethylsiloxane
PRODUCT NAME:	Aquatain AMF Liquid Mosquito Film
CAS REGISTRY NUMBER:	63148-62-9
EMPIRICAL FORMULA:	$(\text{CH}_3)_3\text{SiO}[\text{SiO}(\text{CH}_3)_2]_n\text{Si}(\text{CH}_3)_3$
MOLECULAR WEIGHT:	$6000 \text{ g mol}^{-1}$
PHYSICAL FORM:	liquid
COLOUR:	Clear, colourless
ODOUR	odourless
MELTING POINT:	-28 C
VISCOSITY:	100 cSt
STRUCTURAL FORMULA:	

The Chemistry Section of the APVMA has evaluated the chemistry aspects of Polydimethylsiloxane (physico-chemical properties, spectral data, stability, manufacturing process, quality control procedures, batch analysis results and analytical methods).

Polydimethylsiloxane is a new active constituent and approval is pending. On the basis of the data provided, it is proposed to establish the following Active Constituent Standard for polydimethylsiloxane:

Constituent	Specification	Level of Purity
Polydimethylsiloxane	Polydimethylsiloxane	Not less than 990 g/kg

Based on a review of the data provided by the applicant, the APVMA is satisfied that the chemistry and manufacturing details of polydimethylsiloxane are acceptable.

Other characteristics of polydimethylsiloxane (toxicology, environmental fate etc) are covered in subsequent sections of this Public Release Summary.

## 2.2 FORMULATED PRODUCT

The Chemistry Section has evaluated the chemistry aspects of the product, Aquatain AMF Liquid Mosquito Film (physico-chemical properties, formulation process, quality control procedures, batch analysis results, stability, analytical methods and packaging).

Aquatain AMF Liquid Mosquito Film has the following properties:

Appearance:	off white liquid with slight odour
Formulation type:	aqueous concentrate
Active constituent concentration:	754 g/L
Specific gravity	0.97
pH (1% dilution):	4.8 – 6.6
Safety properties:	may be corrosive or flammable at high temperatures

The manufacturing and quality control procedures, including compliance with the release specifications, are acceptable.

The applicant provided the results of accelerated stability testing conducted using samples stored in high-density polyethylene containers (the proposed commercial container type). Testing of all of the important parameters for aqueous concentrate formulations was conducted. The results indicate that the formulated

product is expected to be stable for at least two years when stored under normal conditions in the proposed commercial packaging.

### Recommendation

Based on a review of the data provided by the applicant, the APVMA is satisfied that the chemistry and manufacturing details of Aquatain AMF Liquid Mosquito Film are acceptable.

## 3 TOXICOLOGICAL ASSESSMENT

### 3.1 Summary

Polydimethylsiloxane (PDMS) is the active ingredient in the product Aquatain AMF Liquid Mosquito Film. It is a home/ garden product in a liquid formulation containing 754 g/L PDMS. The product is intended to control urban populations of mosquitoes through interrupting the mosquito's lifecycle. It acts by forming a silicone monolayer film on the surface of water, which lowers the surface tension. Low surface tension discourages female mosquitoes from laying eggs, drowns the larvae by flooding their breathing tube when they attempt to pierce the water surface to breathe and prevents pupae from clinging to the underside of the water surface. Aquatain AMF Liquid Mosquito Film is to be added to small bodies of water in an urban setting, where mosquitoes breed, such as buckets, ponds, puddles and drains, water tanks, septic tanks and old tyres.

No toxicokinetic or toxicology studies were submitted for evaluation. The assessment report has been based on published data sourced by the OCSEH and the applicant. Some of this data relates to surfactants in general rather than to the specific chemical PDMS. Considering the widespread use of surfactants, and their generally low toxicity profile as a class, this is acceptable.

A risk assessment indicates low risks for users of the product as hazard and exposure were estimated to be low. Based on an assessment of the toxicology, it was considered that there should be no adverse effects on human health from the use of AQUATAIN AMF when used in accordance with the label directions.

### 3.2 EVALUATION OF TOXICOLOGY

No toxicology studies for PDMS were submitted for evaluation. The toxicology of PDMS has been assessed by the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) in 2001.

PDMS is a high molecular weight unreactive and stable silicone polymer, which has low water solubility. Because of these features, it is not expected that PDMS can cross biological membranes. In the 2001 report, NICNAS concluded that silicones of this type are of very low oral toxicity in rats, low dermal toxicity in rats or rabbits, non-irritant to rabbit skin and at most slightly irritating to rabbit eyes (possibly due to the hydrophobic nature of the material).

The published longer-term studies indicated low toxicity, including human sensitisation, carcinogenicity and reproductive and developmental effects.

Based on its estimated toxicity profile, the product Aquatain AMF Liquid Mosquito Film is likely to have low acute oral, dermal and inhalation toxicity. It is expected to be a slight eye irritant, but is not a skin irritant or sensitiser.

### 3.3 PUBLIC HEALTH STANDARDS

#### Poisons Scheduling

The National Drugs and Poisons Schedule Committee (NDPSC) considered the toxicity of the product and its active ingredients and assessed the necessary controls to be implemented under states' poisons regulations to prevent the occurrence of poisoning.

PDMS is currently not included in the SUSDP. Based on the available toxicity information, PDMS would be exempt from poison schedule requirements.

#### NOEL/ADI /ARfD

The Acceptable Daily Intake (ADI) is that quantity of an agricultural compound, which can safely be consumed on a daily basis for a lifetime and is based on the lowest NOEL obtained in the most sensitive species. This NOEL is then divided by a safety factor, which reflects the quality of the toxicological database and takes into account the variability in responses between species and individuals.

The acute reference dose (ARfD) is the maximum quantity of an agricultural or veterinary chemical that can safely be consumed as a single, isolated event. The ARfD is derived from the lowest NOAEL (NOEL) as a single or short-term dose, which causes no effect in the most sensitive species of experimental animal tested, together with a safety factor, which reflects the quality of the toxicological database and takes into account the variability in responses between species and individuals.

PDMS does not currently have an ADI or an ARfD. Since the product is not intended for use on food producing situations, an ADI or ARfD will not be required to be established for PDMS.

## 4 RESIDUES ASSESSMENT

As Aquatain AMF Liquid Mosquito Film is not intended for use on food producing situations, a residue assessment is not required.

## 5 ASSESSMENT OF OVERSEAS TRADE ASPECTS OF RESIDUES IN FOOD

As Aquatain AMF Liquid Mosquito Film is not intended for use in food producing situations, an assessment of overseas trade aspects of residues in food is not required.

## 6 OCCUPATIONAL HEALTH AND SAFETY ASSESSMENT

### 6.1 Health hazards

PDMS has low acute oral, dermal and inhalational toxicity in rats. The compound is a slight eye but not a skin irritant in rabbits. PDMS is not listed on the Safe Work Australia's (SWA) Hazardous Substances Information System (HSIS) Database (SWA, 2010). Based on the available toxicology information, OCSEH cannot classify PDMS.

The formulated product Aquatain AMF Liquid Mosquito Film, containing 754 g/L PDMS is likely to have low acute oral, dermal and inhalational toxicity. It is expected to be a slight eye but not a skin irritant or sensitiser. Based on the product toxicology information and/or concentrations of active and other ingredients in the product, Aquatain AMF Liquid Mosquito Film is not classified as a hazardous substance in accordance with NOHSC Approved Criteria for Classifying Hazardous Substances (NOHSC, 2004).

### 6.2 Formulation, packaging, transport, storage and retailing

Aquatain AMF Liquid Mosquito Film will be formulated and packaged in Australia in 250 ml to 1 L HDPE squeeze packs. Transport workers and store persons will handle the packaged products and could only become contaminated if packaging is breached.

### 6.3 Use pattern

Aquatain AMF Liquid Mosquito Film is proposed to be added to small bodies of water where mosquitoes breed, such as buckets, ponds, puddles, drains, water tanks, septic tanks and old tyres.

### 6.4 Exposure during use

Aquatain AMF Liquid Mosquito Film is intended for home/garden use. The most likely route of human exposure to Aquatain AMF Liquid Mosquito Film is dermal, ocular and inhalational. However, as the product will most likely to be used for small scale applications, exposure is expected to be low.

### 6.5 Exposure during re-entry

There is no risk associated with re-handling this product.

### 6.6 Recommendations for safe use

Users should follow the First Aid Instructions and Safety Directions on the product label.

SAFETY DIRECTIONS: May irritate the eyes. Avoid contact with eyes and skin. Wash hands after use.

FIRST AID: If poisoning occurs, contact a doctor or Poisons Information Centre (ph: 13 11 26).

## 6.7 Conclusion

The registration of Aquatain AMF Liquid Mosquito Film, containing 754 g/L of PDMS is supported.

Aquatain AMF Liquid Mosquito Film can be used safely if handled in accordance with the instructions on the product label. Additional information is available on the product MSDS.

## 7 ENVIRONMENTAL ASSESSMENT

### 7.1 Introduction

Polydimethylsiloxane (PDMS) is an AICS listed chemical and is approved for use in the registered products *Sprinta Superwetter* and *Growth Broadspred*, as a non-ionic wetter, spreader or penetrant for use with agricultural pesticides. The new product is proposed for mosquito control by forming a very low surface tension film, which affects the mosquito lifecycle on the water surface.

Literature articles on the environmental fate and chemistry and effects were submitted to support the registration of the proposed product. These were acceptable to assess the environmental risk from the proposed restricted use.

### 7.2 Environmental fate summary

As a consequence of its low water solubility, PDMS is likely to be immobilised through adsorption onto or association with soil particles and sediments. In soils, PDMS degrades extensively to low-molecular weight, water soluble products. PDMS is unstable in landfill and on dry sediments because under dry conditions, clay minerals catalyse their hydrolytic decomposition to smaller molecules, some of which may be volatile and enter the atmosphere. Clay surfaces also catalyse the rearrangement of PDMS to oligomeric forms with the rearrangement being much more rapid in dry soils (Hamelink, 1992; Lehmann *et al*, 1994a and 1994b; Lehmann *et al*, 1995). When released to the atmosphere, low molecular weight organosilanes are apparently rapidly degraded through photolysis (Hamelink 1992).

PDMS is reported to hydrolyse in soil to dimethylsilanediol (DMSD) which can bind to soil, volatilize or biodegrade. Volatilised DMSD will either photo-degrade or be re-deposited in the soil during rain. The ultimate degradation product of DMSD is inorganic silicate and carbon dioxide. In the sediments PDMS will hydrolyse to DMSD as it does in soil; however, the rate is slower, with an initial estimated half-life of several years. Once formed, DMSD is released to the water because of its high water solubility. There is evidence for rapid degradation of DMSD in the water phase by sunlight (Buch *et al*, 1984) or it can be microbially oxidised in the soil (Lehmann *et al*, 1994b). Downward movement through soil profile is not expected because it was not observed in agricultural microcosms during PDMS degradation (Lehmann *et al*, 1996). A further study of degradation of PDMS in a field soil under natural conditions indicates that PDMS will degrade as predicted from laboratory experiments (Lehmann *et al*, 2000). Therefore in landfill, PDMS would eventually degrade.

PDMS is a family of large linear polymers with viscosity of  $\geq 10$  cSt and molecular weights  $\geq 1000$ . As the molecular weights are larger than 600, PDMS is considered too large to cross biological membranes and thus it is unlikely to bioaccumulate in living organisms (Stevens, 1999). Studies in earthworms (*Eisenia foetida*), midge (*Chironomous tentans*) and various fish species confirm that PDMS does not bioaccumulate (Fendinger *et al*, 1997).

### 7.3 Environmental toxicity summary

The following summary has been derived from Fendinger *et al* (1997).

Numerous fish species were tested with PDMS at concentrations well above the limit of water solubility. No mortality, growth effects or abnormalities were noted.

No mortality was found in a variety of mollusks at high PDMS concentrations. In experiments with PDMS in sediments of 600 mg/kg dry weight, no adverse effects were observed on survival, reproduction or growth of *Daphnia magna*.

Chronic, sub-chronic and partial life cycle tests were performed on *Chironomus tentans* (midge), *Hyallela azteca*, *Ampelisca abdita*, *Nereis diversicolor* (polychaete worms) indicating that PDMS has a low order of toxicity to sediment-dwelling organisms.

PDMS has been shown to have no effect at high concentrations on the growth and reproduction of several bacterial, fungi and phytoplankton species. It has also been shown to have no effect on the activity of aerobic and anaerobic sludge micro-organisms from waste-water treatment plants and on selected pure strains of fungal and bacterial colonies.

There was no observed effect of PDMS on earthworms (*Eisenia foetida*) up to the test limit of 1000 mg/kg in a chronic reproduction study. Springtail (*Folsomia candida*) exposed to PDMS had a NOEC of 250 mg/kg in a chronic exposure study. There was no effect on spring wheat (*Triticum aestivum*) and soybeans (*Glycine max*) in a microcosm study with 9.5 mg/kg dry weight in soil. No effect on soil microflora respiration and nitrogen transformations were observed up to the test limit of 1000 mg/kg dry weight.

## 7.4 Risk Assessment

It is well accepted that polydimethylsiloxane fluids become permanently adsorbed to sediment and should not exert adverse environmental effects. Physical effects such as surface entrapment have been observed when testing aquatic invertebrates in clean laboratory water. Similar effects are not expected in natural environments where a large variety of other surfaces provide opportunities for deposition (Hamelink, 1992).

A review article on the use of MMFs (mono molecular films) as control agents of mosquitoes covers the general safety and use of MMFs, their mode of action, laboratory and field studies and effects on non-target organisms (Nayar and Ali, 2003). It was concluded that MMFs can be safely used for mosquito control in a wide variety of habitats, including freshwater and saltwater marshes, pastures, ditches, sewage treatment plants, vats, storm sewers, dairy waste ponds and tree holes. However, the authors caution that MMFs should only be used in areas where these products can remain undisturbed, particularly by high winds. MMFs are not very effective in windy conditions or where emergent and floating vegetation, algae and debris are present. Sustained winds >16 km/h can blow these products into one corner of a body of water while debris and vegetation can act as untreated shelter where mosquitoes are not exposed to the MMFs. MMFs are most effective when applied to standing water in containers or small stagnant, sheltered bodies of water such as ditches, puddles and temporary pools.

A report for the New Zealand Ministry of Health (Stark, 2005) has indicated that minimal non-target impacts have been reported in laboratory and field trials but there is concern regarding the potential impact on aquatic insects that breathe at or live on the water surface. There is little information available on the long term ecological impact of repeated applications on MMFs on natural wetland ecosystems and the organisms that inhabit aquatic ecosystems such as waterfowl, reptiles, rotifers, spiders, algae, annelids, nematodes,

etc. It is conceivable that bird species that live in aquatic habitats may be susceptible to MMFs if the products contact birds' feathers. This could result in wetting of feathers leading to a reduction in the ability to float on water surfaces, to fly and negatively affecting thermoregulation. As this has happened in at least one case of MMF use under permit in Adelaide, these issues should be addressed prior to any long term, widespread use of the proposed product where organisms, in particular bird species, reside in the aquatic ecosystems.

Given that the proposed use is intended for standing water such as gutters, ponds, drains, water tanks, septic tanks and old tyres by applying a few drops of the proposed product to the water, there is unlikely to be an unacceptable environmental risk under the proposed use pattern provided these can be limited in size and properly contained.

However, DEWHA is concerned with the potentially broad definition of ponds and drains as it can encompass a sufficiently wide area to allow birds species to utilize them. If not contained there is also an opportunity for treated water in ponds and drains to overflow and contaminate the wider aquatic environment. Therefore, the applicant would need to address the size of the ponds and drains to be treated and to treat only where there is restricted opportunity for water to move off-site.

DEWHA recommends that the proposed use must be limited to contained situations in an urban or industrial setting and where limited aquatic life exists. This will restrict the size of ponds and drains where the small volume of treated water is unlikely to pose environmental concerns. Consequently, the treatment area will need to be limited to a size of, for example, <100 m<sup>2</sup> and/or contained and not possible to flow into the wider aquatic environment.

As the active constituent and the formulated product will be manufactured in Australia, exposure of the chemical will occur in Australian environment. In the event of accidental spillage, it is necessary to take all precautions to avoid the product entering waterways. Statements to this effect have appeared on the Material Safety Data Sheet provided.

There is unlikely to be an environmental risk under the proposed use pattern where the proposed product will be used in standing waters such as gutters, ponds, drains, water tanks, septic tanks and old tyres in an urban environment provided these can be limited in size and properly contained.

## 8 EFFICACY AND SAFETY ASSESSMENT

### 8.1 Proposed use pattern

The intended use of Aquatain AMF Liquid Mosquito Film is to control mosquitoes in standing water such as gutters, ponds, drains, water tanks, septic tanks and old tyres through disrupting the mosquito life cycle

### 8.2 Summary of Evaluation of Efficacy and Crop safety

Data from two laboratory trials, two Australian field trials and two reports from field and laboratory observations in Sri Lanka and Uganda are presented to support the claims for Aquatain AMF that it will act to control mosquitoes by disrupting the mosquito lifecycle.

The data show that Aquatain achieves this control by suffocating immature stages of mosquitoes when applied to the surface of small, standing waterbodies, with or without emergent vegetation present.

All the trials use scientifically sound methodology, appropriate data analysis and are conducted by suitably qualified personnel in situations equivalent to the home and garden situations claimed on the label. The Aquatain formulations used in the trials are the same as that proposed for registration. The methods of application and rates used in the trials equate to the proposed label instruction to “simply squeeze a few drops on the water (1mL/m<sup>2</sup>)”. All trials are randomised with complete block or pairwise design, 3-5 replicates and untreated controls.

Hence, in terms of the evidence for the efficacy of the product’ the application by Aquatain Pty Ltd for the registration of Aquatain AMF Liquid Mosquito Film is supported.

#### Assessment of study/trial data

The results from the 2 laboratory trials against *Aedes aegypti*, *Culex quinquefasciatus*, *Anopheles stephensii* and *An. gambiae* mosquitoes demonstrate >90% control of larvae and 100% control of pupae within 48 hours of treatment with Aquatain AMF Liquid Mosquito Film at label rates.

The results from the two field trials, conducted in a tropical and a temperate area of Australia, against *Aedes aegypti*, *Ae. palmarum*, *Ae. notoscriptus* and *Culex quinquefasciatus* mosquitoes demonstrate significant reductions in larvae numbers and 100% control of pupae within 48 hours when Aquatain AMF Liquid Mosquito Film is applied at label rates to small bodies of water, with or without emergent vegetation, in exposed situations in suburban backyards. Continued monitoring of the sites demonstrates that control is maintained for at least 4 weeks post treatment. The sites tested contain small bodies of water, with or without emergent vegetation, in exposed situations in suburban backyards.

The field (canal and swamp sites) and laboratory observations in Sri Lanka and Uganda report 100% control of larvae of *Culex* spp and *Anopheles* spp mosquitoes within 24 hours of application of Aquatain at the proposed label rate. Sufficient information is presented to substantiate the scientific rigor of the reports. They are accepted as adding to the weight of evidence to support the proposed claims for Aquatain.

## 9 CONCLUSION

The claims on the proposed product label that the product is capable of mosquito control by disrupting the mosquito lifecycle are supported by the results from the Australian and overseas efficacy experiments. The draft Directions for Use are clear. The directions and recommendations are supported by the experimental results. Warnings in regard to restricting in restricting application area too less than 100m<sup>2</sup>, not to applying to drinking water, no to store under less than 5 °C and must be contained or not allowed to enter the wider aquatic environment are appropriate.

Therefore, in terms of the evidence for the efficacy of the product, the application by Aquatain Products Pty Ltd for the registration of Aquatain AMF Liquid Mosquito Film is supported when used in accordance with the proposed label instructions.

## 10 LABELLING REQUIREMENTS

READ SAFETY DIRECTIONS BEFORE OPENING OR USING

KEEP OUT OF REACH OF CHILDREN

# Aquatain AMF Liquid Mosquito Film

### ACTIVE CONSTITUENT

Polydimethylsiloxane 754g/L

FOR THE CONTROL OF MOSQUITOES IN STANDING WATER



Manufactured by:

Aquatain Products Pty Ltd

9-13 Villas Road

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Emergency Contact within Australia: 0409 250 240

Outside Australia: +61 409 250 240

CONTENTS:  
250mL, 500mL, 1L

**Aquatain AMF** is a unique liquid for mosquito control. It works by forming a very thin silicone film on the water surface suffocating immature mosquito stages and disrupting the mosquito lifecycle. In some instances young wrigglers may still be present after treatment but these will be killed before they can turn into adults

#### HOW TO USE

Aquatain AMF is for use in standing water in domestic/suburban areas such as gutters, ponds, drains, water tanks, septic tanks and old tyres. Simply squeeze a few drops on to the water (0.5 – 1mL per m<sup>2</sup> of water surface). Repeat application in 4 weeks.

**NOT TO BE USED FOR ANY OTHER PURPOSE OR IN ANY MANNER CONTRARY TO  
THIS LABEL UNLESS AUTHORISED**

#### CAUTION

**DO NOT allow the treatment area to exceed <100 m<sup>2</sup> and/or must be contained and not possible to flow into the wider aquatic environment.**

**DO NOT allow chemical containers or spray to get into drains, sewers, streams or ponds.**

**DO NOT treat drinking water, as this product has not been assessed for that use.**

#### STORAGE & DISPOSAL

Store in the closed, original container in a cool, dry place out of the reach of children. DO NOT store in direct sunlight or below 5 °C, Keep away from oxidising material. Dispose of empty container by wrapping in paper, and putting in garbage.

#### SAFETY DIRECTIONS

May irritate the eyes. Avoid contact with eyes and skin. Wash hands after use.

#### FIRST AID INSTRUCTIONS

If swallowed seek medical attention and treat symptomatically. Flush eyes with water. After skin contact - rinse with running water. After inhalation - move to fresh air.

If poisoning occurs, contact a doctor or poison information centre. Phone Australia 131126; New Zealand 0800 764 766.

MSDS Additional information is listed in the Material Safety Data Sheet, which can be obtained from the supplier.

WARNING THIS PRODUCT MUST BE USED STRICTLY AS DIRECTED. AQUATAIN PRODUCTS PTY LTD WILL NOT BE LIABLE FOR LOSS OR DAMAGE ARISING FROM FAILURE TO FOLLOW DIRECTIONS FOR USE.

**PATENTS PENDING WORLDWIDE**

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## ABBREVIATIONS

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ADI	Acceptable Daily Intake (for humans)
AICS	Australian Inventory of Chemical Substances
ARfD	Acute Reference Dose
C	celius
cm	centimetre
cSt	centistoke
g	gram
DMSD	Dimethyl silanediol
h	hour
ha	hectare
HDPE	high density polyethylene
kg	kilogram
L	Litre
LC <sub>50</sub>	concentration that kills 50% of the test population of organisms
mg	milligram
MMF	mono molecular film
mol	mole
mL	millilitre
MRL	Maximum Residue Limit
MSDS	Material Safety Data Sheet
NDPSC	National Drugs and Poisons Schedule Committee
NICNAS	National Industrial Chemicals Notification and Assessment Scheme
NOEC/NOEL	No Observable Effect Concentration / Level
NOHSC	National Occupational Health and Safety Commission
PDMS	polydimethylsiloxane

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ppm	parts per million
s	second
SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons
SWA	Safe Work Australia
µg	microgram

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## GLOSSARY

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Active constituent	The substance that is primarily responsible for the effect produced by a chemical product
Acute	Having rapid onset and of short duration.
Carcinogenicity	The ability to cause cancer
Centistoke	A unit of measurement for kinematic viscosity
Chronic	Of long duration
Desorption	Removal of an absorbed material from a surface
Efficacy	Production of the desired effect
Formulation	A combination of both active and inactive constituents to form the end use product
Genotoxicity	The ability to damage genetic material
Hydrophobic	Water repelling
Leaching	Removal of a compound by use of a solvent
Metabolism	The conversion of food into energy
Photodegradation	Breakdown of chemicals due to the action of light
Photolysis	Breakdown of chemicals due to the action of light
Subcutaneous	Under the skin
Toxicokinetics	The study of the movement of toxins through the body
Toxicology	The study of the nature and effects of poisons

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