ANVIL® & AQUA ANVIL™

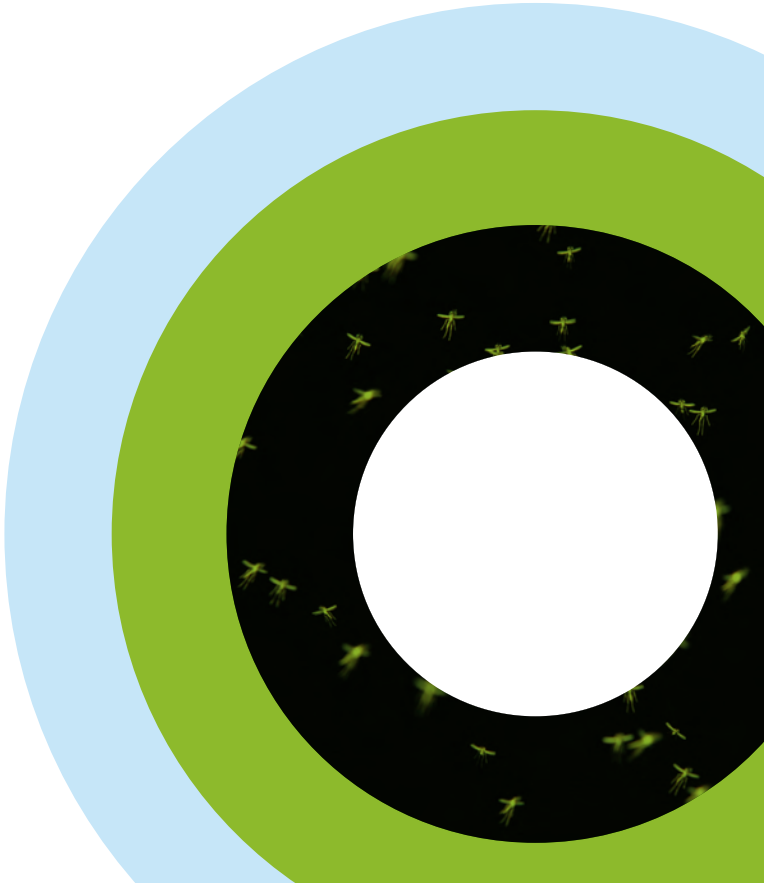
UNPARALLELED PERFORMANCE

Adulticides for Mosquito Control

Proven performance in emergency situations

Crop tolerance labeling broadens application flexibility

Effective against most known arbovirus-carrying vector species



RESOURCE GUIDE

GIVING YOU CHOICES FOR MORE EFFECTIVE MOSQUITO CONTROL

Clarke provides you with two choices for controlling a wide range of mosquito populations effectively and efficiently: Anvil® and AquaAnvil™. Both contain the same active ingredient, Sumithrin®, a pyrethroid. One formulation gives you traditional oil-based solutions for highly effective ground and aerial applications; the other provides an effective water-based alternative to meet growing community needs for green or sustainability initiatives. Both Anvil and AquaAnvil can be applied neat or diluted.

ANVIL AND AQUA ANVIL'S BENEFITS »

Proven performance in emergency situations

Crop tolerance labeling broadens application flexibility

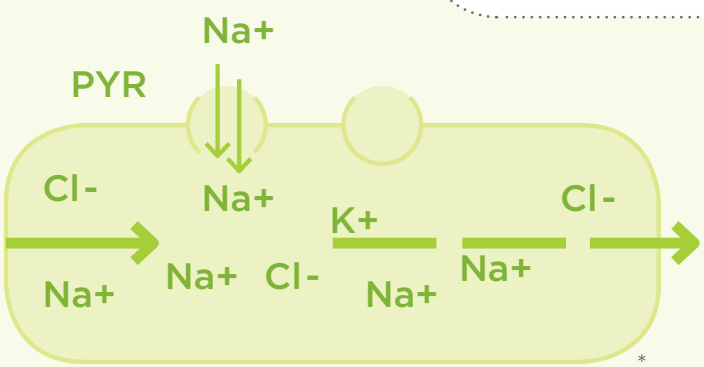
Effective against most known arbovirus-carrying vector species

We believe that an important part of being an environmental steward is product rotation. Product rotation maximizes the effectiveness of every program by preventing cross-resistance.

To help select products for rotation in your program, visit clarke.com/mosquitocontrolproducts to view our full line of product offerings.

Nerve Axon with Pyrethroid Present

Sumithrin,® d-Phenothrin, is an insecticide that acts on an insect's axons in the peripheral and central nervous systems by disrupting the sodium channel complex. This sets off a nerve reaction that ultimately leads to pest mortality.



*Coats J; Mechanism of Toxic Actions and Structures Activity Relationships for Organic Chlorine and Pyrethroids. Environmental Heath Perspective, Vol. 87, p.255–262, 1990.

Benefits of Pyrethroids

The active ingredient in Anvil® and AquaAnvil™ is a pyrethroid called d-Phenothrin (brand name Sumithrin). It emulates the naturally derived insecticides known as pyrethrins, found in chrysanthemum flowers. In Anvil and AquaAnvil, d-Phenothrin is combined with a synergist, piperonyl butoxide (PBO), to enhance the active's ability to provide fast knock-down and control.

Registered for use by the U.S. Environmental Protection Agency in 1975, d-Phenothrin biodegrades rapidly in the presence of sunlight and/or microorganisms.

As a result, Anvil and AquaAnvil are excellent choices for:

- Inhabited outdoor areas — municipalities, residential, parks, camp grounds, golf courses
- Areas that surround recreational facilities — woodlands, swamps, marshes, overgrown areas
- Cropland, pastures, rural communities

Active Ingredients

Anvil 10+10 and AquaAnvil:

Sumithrin (10%) (d-Phenothrin)

Piperonyl Butoxide (10%)

Other Ingredients (80%)

Anvil 2+2:

Sumithrin (2%) (d-Phenothrin)

Piperonyl Butoxide (2%)

Other Ingredients (96%)

EVOLUTION OF SUMITHRIN® PROVIDING MORE EFFECTIVE CONTROL AFTER 30+ YEARS

Natural pyrethrins were developed for adult insect control in the 1950s. This was soon followed by development of pyrethroids, including d-Phenothrin. Registered by the EPA since 1975, Sumithrin (the name brand for d-Phenothrin) has been used extensively throughout the world for protection against public health insects, noxious household insects, stored grain insect pests and for dis-insecting commercial aircraft. From simple nuisance control labeling, to aerial application, to water-based formulation, and now to crop tolerance labeling, the evolution of Sumithrin's usage continues!

A History of Effectiveness for Emergency Use

The use of Anvil® and AquaAnvil™ with Sumithrin has played an important role in many high-profile mosquito outbreaks, including environmental disasters and mosquito-borne disease. Beginning in 1999, Anvil was used following hurricanes Dennis and Floyd. Throughout the next 11 years, Anvil has been used for the suppression of West Nile virus and Eastern Equine encephalitis throughout the country including New York City, Chicago, Maricopa County in Arizona, Plymouth and Boston. Additionally, in many post-hurricane and flooding situations, such as hurricanes Katrina and Rita, Anvil applications have proven successful.

Sumithrin®: 12 Years of Stewardship

1969 d-Phenothrin first synthesized

1975 Sumithrin registered by US EPA

1977 First labeled for mosquito control

Other markets where Sumithrin is used include agriculture, PCO and personal hygiene (human lice shampoos)

1997 **+ Synergized Sumithrin registered as Anvil® and introduced in two formulations: 2+2 and 10+10**

Clarke oversaw the characterization to help make the lighter density of Anvil work by air

1998 FL DACS first authorized aerial application

1999 **+ Refined aerial application label**

2007 **+ Introduced AquaAnvil™, an advanced, water-based formulation, and Duet™, both containing Sumithrin**

Duet formulated a new active, prallethrin, with Sumithrin to bring a new level of natural population control; AquaAnvil delivers Sumithrin in an advanced water-based formulation to provide superior efficacy in wide-ranging climate conditions

2008 **+ New enhanced formulation introduced that is virtually odorless**

2009 **+ Crop tolerance labeling**

AquaAnvil and Anvil received crop tolerance labeling, further extending the utility of Sumithrin into Public Health markets by resolving the agriculture/urban interface dilemma

+ Clarke led initiatives

Three Unique Formulations:

Anvil 2+2:

- Ready-to-use product
- 0.14 lbs. d-Phenothrin/gal.
- Gallon treats 39–118 acres
- Application range 1.08–3.24 fl oz/acre
- Eliminates excess handling and mixing
- Used primarily for ground applications (truck, ATV, backpack)

Anvil 10+10:

- 0.74 lbs. d-Phenothrin/gal.
- Gallon treats 206–610 acres
- Application range of 0.21–0.62 fl oz/acre
- Aerial application rate of 0.62 fl oz/acre
- Can be used neat (undiluted) or mixed with suitable dilutants (a light mineral oil such as BVA 13)
- Used for air and ground applications

AquaAnvil:

- 0.85 lbs. d-Phenothrin/gal.
- Formulated with unique Droplet Optimization Technology
- Water-based for easier mixing, excellent environmental compatibility
- Apply between 0.18–0.54 fl oz/acre
- Gallon treats 237–711 acres

DROPLET OPTIMIZATION TECHNOLOGY (DOT) ENHANCES EFFICACY

Droplet Optimization Technology provides optimal stability for AquaAnvil's™ active ingredient particles and protects them from evaporation within the droplet. As a result, a more concentrated, more effective droplet is delivered. This consistent performance results in higher kill rates.

How DOT Results in Better Performance

Operational field trials have shown improved kill rates over traditional pyrethrin options — even when applied at low rates.

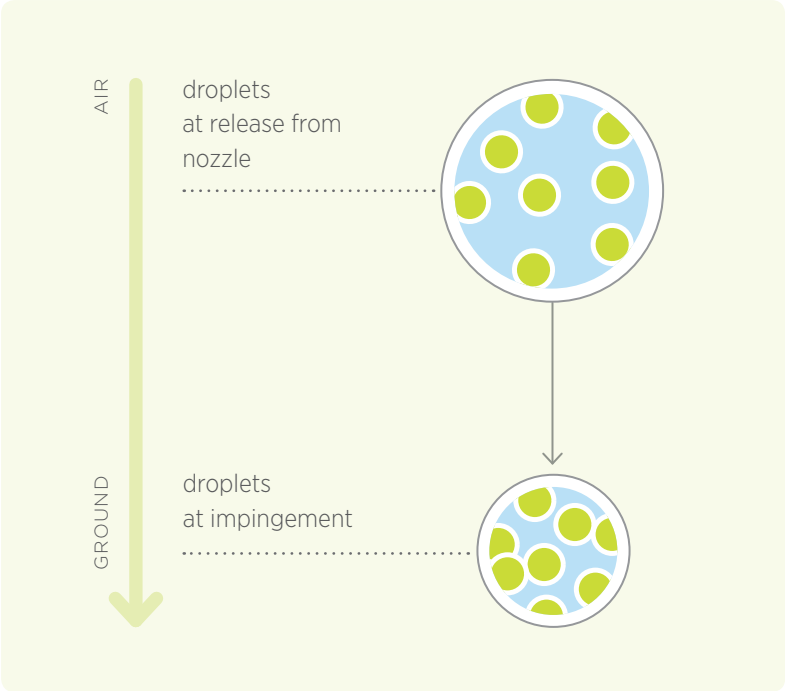
Why AquaAnvil is So Effective:

The DOT formulation of AquaAnvil allows larger active particles to be present in an optimized spray droplet. As the droplet leaves the spray nozzle, the aqueous carrier begins to evaporate until it reaches an optimized droplet size. At this point, evaporation ceases and the droplet is stabilized.

When airborne, a water-based droplet will lose about 50% of its volume immediately after it is released from the nozzle. In AquaAnvil, the "DOT" droplet becomes more concentrated as the water evaporates. This phenomenon makes AquaAnvil effective by ground and air.

Key: water active and inerts

DOT: The Science of Evaporation



Evaporation:

Spray droplet evaporation is limited to:

$$\sqrt[3]{\text{non volatile fraction}^{*}} \times \text{Original droplet diameter}$$ [1]

Aerial Example:

A spray droplet has a beginning diameter of 50 µm and the non volatile fraction = 36% (0.36)

$$\sqrt[3]{0.36} = 0.711$$

$0.711 \times 50 = 35.6$ µm – Minimum droplet diameter

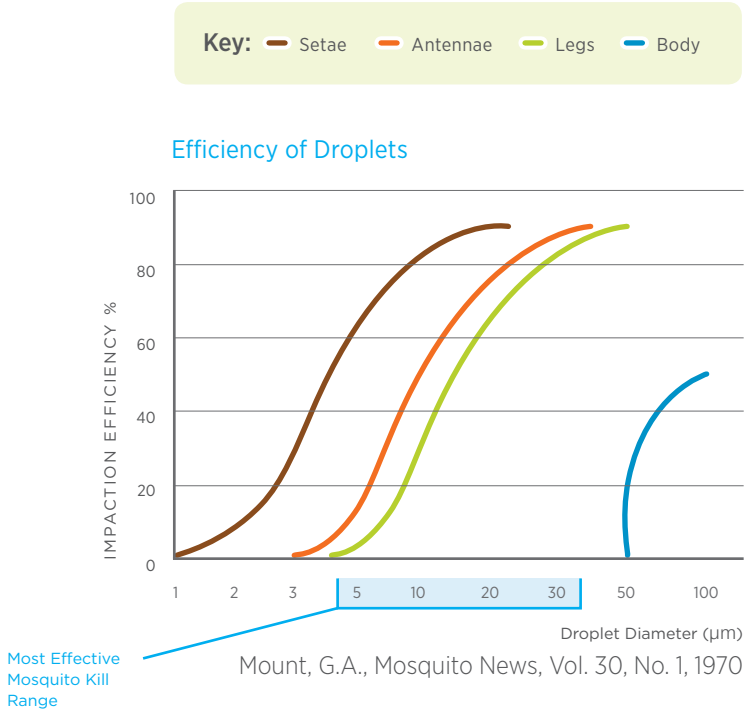
[1] 1 R.E. Mickle, RemSPEC 2006

*Non volatile fraction for AquaAnvil is 36%

The AquaAnvil™ concentrated spray droplet will fall within the *optimized* size range that has been demonstrated to have the best chance of impinging upon flying mosquitoes. These optimum results can be achieved when droplet size of 30–35 microns from the air and 15–20 microns from the ground are used.

Additional Benefits of AquaAnvil:

- Yields a more consistent droplet from the beginning of the application to the end
- Unique colloidal suspension won't break down nor gum up high-pressure nozzles
- Offers excellent storage stability
- Flushes from equipment simply with 50/50 mix of water/isopropyl alcohol, or windshield washer fluid



Mount, G.A., Mosquito News, Vol. 30, No. 1, 1970

This graph illustrates that there is an optimum size range for mosquito adulticide sprays. This range has been found to be between 5–30 microns.

PROFILE DESIRABLE FOR WIDE AREA USE

Acute Toxicology

ACUTE TOXICOLOGY	D-PHENOTHRIN
Oral LD50 (rats)	> 5000 mg/kg
Dermal LD50 (rats)	> 5000 mg/kg
Eye Irritation (rabbits)	Minimal irritation
Inhalation LC50 (rats)	> 2100 mg/kg for 4 hr
Skin Sensitization (guinea pig)	Negative

Product Density

	ANVIL® 2+2	ANVIL®10+10	AQUA ANVIL™
Specific Gravity	0.850	0.887	1.016
Viscosity	15.5 @CPS 24 °C	25 CPS @24 °C	16 CPS @20 °C
Density	7.1 lbs/gal.	7.4 lbs/gal.	8.47 lbs/gal.

Environmental Toxicity

In Sunlight: d-Phenothrin is photolabile, i.e. the molecule easily decomposes in the presence of sunlight. The half-lives of d-Phenothrin in water in the presence of light range from 9.1 to 13.9 hours depending upon the location of the radiolabel. The degradation products of d-Phenothrin are nonpersistent. Moderately rapid aerobic and anaerobic soil degradation was found in the absence of sunlight. The half-lives for d-Phenothrin in aerobic soil ranged from 18.6 to 26.0 days, depending upon the location of the radiolabel.

In Soil and Water: d-Phenothrin is not readily transported from the site of application. Very little movement of d-Phenothrin and its degradation products from soil into plants or through soil columns was observed using radiolabeled material. d-Phenothrin hydrolyzes in water, or breaks down into lesser components, at pH of 9 or greater. d-Phenothrin does not bioaccumulate and is subject to both oxidation and cleavage of the ester linkage in biological systems.

On Nontarget Species: Studies conducted in the absence of sunlight found the 96 hour LC50 for fish ranged from 17 to 200 µg/liter. The 3-hour LC50 for daphnia was 25–50 mg/liter. The LD50 for bobwhite quail was greater than 2500 mg/kg body weight and the LD50 was 5000 ppm of diet for the bobwhite quail.

Eco-Tier™ Ranking:

The Clarke Eco-Tier Index guides our development for future offerings and allows our customers and their communities to understand they have options.

TRADITIONAL (Anvil) ADVANCED (AquaAnvil)

NATURAL POPULATION RESULTS EFFECTIVE IN DIVERSE ENVIRONMENTS

Natural Population Research

Natural population studies were conducted across the country in many diverse habitats including: mangrove swamps, cedar swamps, marshes, heavily wooded, overgrown and recreational areas. Several of these studies were conducted during operational spray missions as a result of natural disasters such as the hurricanes in North Carolina in 1999 and West Nile Virus outbreaks in 2000 through 2003.

Aerial applications were made utilizing many types of aircraft including:

» Large two and four engine aircraft (e.g. C130 and DC-3)

» Smaller single and twin engine aircraft (e.g. Air Tractor 400 and Piper Aztec)

» Rotary wing aircraft (e.g. Bell 47)

Protocols:

» Aircraft equipped with spray systems

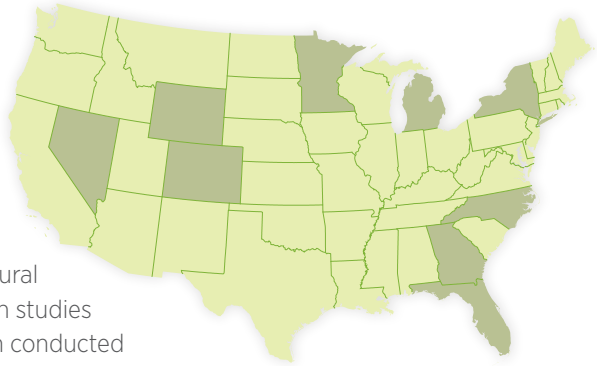
» Calibrated to deliver a droplet distribution (vmds of 30 microns or less)

» Ground applications use both gas powered and electric ULV sprayers

» Efficacy protocols included landing rate and CO2 baited light trap data (from 1–7 days pre treatment and 1–7 days post treatments)

States tested in Population Study

Species involved: *Ae. vexans, Coq. perturbans, Oc. dorsalis, Oc. canadensis, Oc. atlanticus/tormentor, O. taeniorhynchus, An. crucians, An. punctipennis, An. quadrimaculatus, Cx. pipiens, Cx. restuans, Cx. salinarius, Cx. nigripalpus, Cu. melanura, Ps. ferox, Ps. ciliata, Ps. columbiae*



Anvil® natural population studies have been conducted in 9 states.

Natural Population Study

Species: *Culex nigripalpus*

Location: Fargo, ND 3/18/1998–1/2/1998

*No data collected 3/20

Key: Anvil Dibrom Control

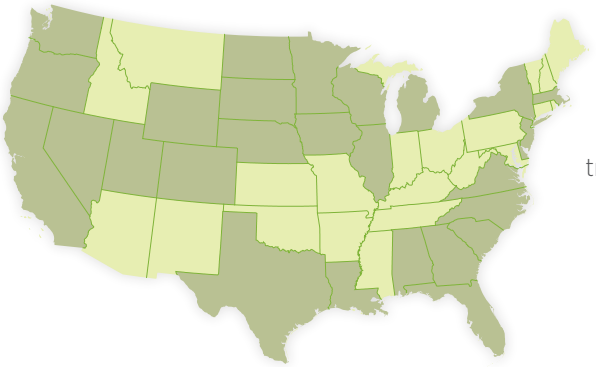
CAGED TRIAL RESULTS PROVEN CONTROL EXCELLENCE

Caged Trial Research

Since 1997, field studies have shown Anvil® and AquaAnvil™ yield excellent control in many diverse habitats. A minimum of 12 studies were conducted with natural mosquito populations over an extended period of time. Additional short-term studies (3–5 days) evaluated different application systems and environmental conditions using sentinel cage testing with wild-caught mosquitoes. Strict adherence to protocol kept untreated control mortality levels below 5%.

Anvil Caged Trial Studies

# OF CAGES	KNOCKDOWN	24 HOUR MORTALITY	UNTREATED MORTALITY
1270	80–90%	95–100%	1.8%

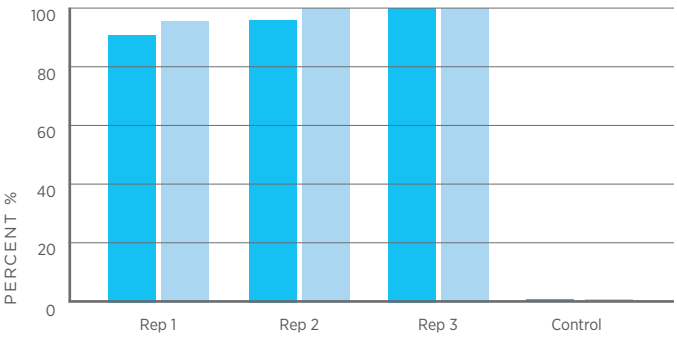


Anvil caged trials have been conducted in 27 states.

Anvil Results

Anvil 10+10 Aerial Application

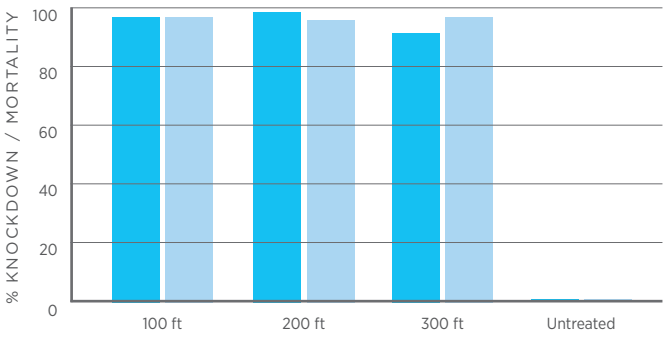
Rate: 0.62 oz/acre undiluted
Species: *Culex quinquefasciatus*
Location: Valle de Banderas, Nayarit, Mexico 3/24/08



Key: 1 hr Knockdown 24 hr Mortality

Anvil 2+2 Ground Application

Rate: 0.0018 #ai/acre
Species: *Aedes vexans, Culex tarsalis*
Location: Fargo, ND 2003



Key: 1 hr Knockdown 24 hr Mortality

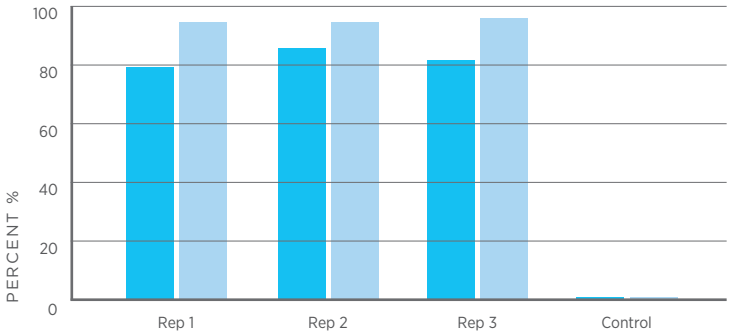
AquaAnvil™ Results

AquaAnvil Aerial Application Trial Results

Rate: 0.0012 #ai/acre and 0.21 oz/acre

Species: *Anopheles quadrimaculatus and Culex salinarius* (5% of total)

Location: Kiln, MS 5/22/07



Key: 1 hr Knockdown 24 hr Mortality

Protocols:

- Mosquitoes collected via CO_2 baited ABC traps or reared from collected larvae
- Mouth-aspirate mosquitoes into spray cages
- Cages placed at 100 ft intervals
- 10 minute exposure
- Transferred to holding cages
- Knockdown is recorded as quickly as possible after mosquitoes are transferred to holding cages, no later than 2 hours after application
- Monitored for 24 hours for mortality

AquaAnvil Ground Application Trial Results

Rate: 0.00234 #ai/acre and 0.41 oz/acre

Species: *Coquillettidia perturbans (84%), Culex salinarius (5%), Aedes vexans (4%), Ochlerotatus sollicitans (3%), Ochlerotatus cantator (2%)*

Location: Newburyport, MA 6/25/07

REPLICATE 1 / 9:03 PM			**REPLICATE 2** / 9:22 PM			**REPLICATE 3** / 9:41 PM		
Distance (ft)	1 Hour	24 Hour	Distance (ft)	1 Hour	24 Hour	Distance (ft)	1 Hour	24 Hour
% Mortality	100.0%	100.0%	% Mortality	100.0%	100.0%	% Mortality	100.0%	100.0%
100 ft	100.0%	100.0%	100 ft	100.0%	100.0%	100 ft	100.0%	100.0%
200 ft	100.0%	100.0%	200 ft	100.0%	100.0%	200 ft	100.0%	100.0%
300 ft	100.0%	100.0%	300 ft	100.0%	100.0%	300 ft	100.0%	100.0%
Control	3.6%	3.6%	Control	2.9%	2.9%	Control	7.7%	7.7%

	VMD	Density		VMD	Density		VMD	Density
100 ft	16.4 µm	50.52*	100 ft	16.9 µm	25.15*	100 ft	16.0 µm	23.36
200 ft	17.0 µm	27.93*	200 ft	16.3 µm	19.68*	200 ft	16.1 µm	10.74*
300 ft	17.0 µm	21.0*	300 ft	17.5 µm	16.57*	300 ft	17.3 µm	9.45*

* drops/cm²

APPLICATION METHODS OPTIMIZED FOR YOUR EQUIPMENT

Anvil® 10+10 and AquaAnvil™ are proven effective whether applied by air or ground (truck, ATV, backpack). Anvil 2+2 is primarily used for ground applications. All formulations have been optimized for all application equipment and nozzles, and they are non-corroding to your application apparatus.

Applying Anvil 10+10 and AquaAnvil by Air

Aerial applications can be completed with fixed wing or rotary aircraft. Using Anvil 10+10 at a rate of .62 fl. oz/acre or AquaAnvil at .54 fl. oz/acre delivers maximum mosquito control coverage over a wide area. Droplet VMD (volume median diameter) should be optimized for aerial application as follows:

» Anvil 10+10:
VMD between 30–35 microns

» AquaAnvil:
VMD at 30–35 microns. Droplet size influences the evaporation process that reduces the droplet's volume after atomization

In wind tunnel atomization studies, Anvil and AquaAnvil have shown to effectively produce this droplet size range when sprayed through equipment that has been correctly calibrated.

To Optimize Your Aerial Application:

1

Select the Proper Nozzle

Refer to the table to achieve droplet VMD between 30–35 µm for Anvil and AquaAnvil. Some of the best nozzles for Anvil and AquaAnvil usage are rotary (e.g. Beecomist or Micronair). Be aware that conventional agriculture nozzles, or flat fan nozzles, may not produce droplets within the appropriate size spectrum.

AIRCRAFT TYPE	NOZZLE TYPE	SIZE AND ANGLE	ANGLE
Fixed wing	Flat fan	80–110°, small orifice, 005–01 Anvil; 02–04 AquaAnvil	135° forward
Fixed wing	Micronair AU5000 or AU4000	Standard cage mesh	Straight back
Fixed wing	Beecomist	40 µm screen Anvil; 40–60 µm screen AquaAnvil	Straight back
Rotary wing	Micronair Electric AU6600	30–40 µm screen	Straight back
Rotary wing	Beecomist	40 µm sleeve	Straight back

Note: Data is for general information only. Actual droplet size will depend on the application conditions and factors such as nozzle and atomizer condition. Always calibrate sprayers to ensure required dosage rate and conditions are met. **As always, read and follow label directions.**

2

Calibration Process

To adjust your spray system for proper flow rate:

» Determine the number of acres per minute your aircraft will treat by using the first formula shown

» Select the labeled flow rate (in ounces per acre) for Anvil® 10+10 or AquaAnvil™ required for your needs

» Using the second formula, multiply the figures derived from the two steps above to determine the proper Calibration Flow

$$\frac{\text{Swath} \times \text{Speed}}{495} = \text{Acres} / \text{Min}$$

$$\left(\frac{\text{Acres}}{\text{Min}}\right)\left(\frac{\text{Oz}}{\text{Acre}}\right) = \frac{\text{Oz}}{\text{Min}}$$

↓

Calibration Flow

Anvil 10+10 and AquaAnvil Aerial Application

#ai/acre	fl oz/acre	
DOSAGE RATES	**FLOW RATES**	
0.0036	10+10:	0.62
	AquaAnvil:	0.54
0.0024	10+10:	0.42
	AquaAnvil:	0.36
0.0012	10+10:	0.21
	AquaAnvil:	0.18

Use these calculations to ensure compliance with labeled re-treatment intervals and annual limits.

3

Droplet Dynamics

To achieve maximum performance, droplets can be collected and measured by utilizing a rotary impinger equipped with slides.

» Droplet VMD should be optimized to less than 30 microns. Use Teflon-coated slides in the spinner

For best results when characterizing aircraft, it's recommended wind speeds be between 1–8 mph. Droplets on slides can be measured using a compound microscope with a mechanical stage and an ocular micrometer.

Starting at one end of the slide, measure each droplet as they pass through the eyepiece micrometer. A minimum of 200 droplets should be measured to obtain an adequate sample. Make necessary adjustments to spray apparatus to achieve desired droplet size.

On Teflon-coated slides the spread factors are:*

» Anvil 10+10 is 0.63
» Anvil 2+2 is 0.57
» AquaAnvil is 0.65

Use these factors until the spread factor is confirmed.

To Determine Appropriate Offset:

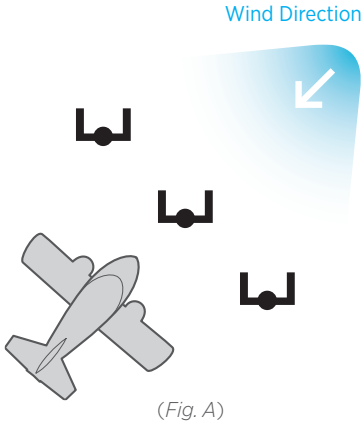
» Place droplet collectors 50 ft apart and 90 degrees to the wind direction (*Fig. A*)

» Fly directly into wind over slides at an altitude that will allow maximum droplet collection for characterization purposes. Spray for 15 seconds after passing over slide collectors**

» Wait 10 minutes after application for upwind droplets to reach collectors

* Determined by Dr. E.J. Beidler, 2009

** Always check with local laws and ordinances prior to characterization flights.



(*Fig. A*)

Anvil® and AquaAnvil™ by Ground

Ground applications of Anvil (both formulations) and AquaAnvil can be completed via truck-mounted equipment or with hand-held or backpack ULV equipment. Each should be applied using cold aerosol generators capable of producing ULV spray droplets with a VMD of 30 microns (50–100 microns for backpack).

Use the Following Guidelines, Assuming a 300 ft Swath:

	Dosage Rate	Flow Rates in fl oz/min at truck speeds of:				
FORMULATION	**#ai/acre**	**fl oz/acre**	**5 MPH**	**10 MPH**	**15 MPH**	**20 MPH**
Anvil 10+10	0.0036	0.62	1.9 oz	3.8 oz	5.7 oz	7.6 oz
	0.0024	0.42	1.3 oz	2.5 oz	3.8 oz	5.1 oz
	0.0012	0.21	0.6 oz	1.3 oz	1.9 oz	2.5 oz
Anvil 2+2	0.0036	3.245	9.8 oz	19.7 oz	29.5 oz	39.3 oz
	0.0024	2.163	6.6 oz	13.1 oz	19.7 oz	26.2 oz
	0.0012	1.081	3.3 oz	6.6 oz	9.8 oz	13.1 oz
AquaAnvil	0.0036	0.54	1.6 oz	3.3 oz	4.9 oz	6.6 oz
	0.0024	0.36	1.1 oz	2.2 oz	3.3 oz	4.4 oz
	0.0012	0.18	0.5 oz	1.1 oz	1.6 oz	2.2 oz

When using non-thermal ULV portable backpack spray units, apply at a walking speed of 2 mph, making sure that the same amount of active ingredient is applied per acre. Use a 50 ft swath for acreage calculations.

Always read and follow label directions.

To Optimize Your Ground Application:

To achieve maximum performance, droplet VMD should be optimized at between:

» 15–20 microns for Anvil and AquaAnvil

Droplet spectrum may be determined by using the hot-wire method using a DCIII (AIMS) unit that measures droplet ranges. Application equipment must be tested at least annually to confirm that pressure at the nozzle and nozzle flow rate(s) are properly calibrated.

Standard Droplet Collection:

For Anvil formulations and AquaAnvil, use standard Teflon-coated microscope slide. Then proceed as follows:

» Attach slide to 3 ft–4 ft rod

» Stand 10 ft–25 ft downwind from nozzle

» Distance is dependent on sprayer velocity

» Higher velocity of sprayer = further distance from nozzle (not to exceed 25 ft)

» Swing rod (with coated slide facing the insecticide) once rapidly in a baseball swing/diagonal motion toward the sprayer, through the spray cloud

Standard Droplet Measurement:

» Use a compound microscope equipped with a mechanical stage and an ocular micrometer placed in the eyepiece

» Starting at one end of the slide, measure each droplet as they pass through the eyepiece micrometer

» A minimum of 200 droplets should be measured to obtain an adequate sample

» Spread factors for the following are as follows:
- Anvil 2+2 = 0.57
- Anvil 10+10 = 0.63
- AquaAnvil = 0.65

ENVIRONMENTAL CONDITIONS FOR AIR AND GROUND APPLICATION

Anvil and AquaAnvil should be applied when conditions are favorable for ULV applications. Favorable application conditions occur when the atmosphere at application height to immediately above ground level is stable. This condition is characteristic of an inversion, which occurs when temperatures increase with height. Never apply above an inversion. Droplets will not reach the ground. Stability is also influenced by solar radiation and heat exchange between air, soil and vegetation. As a result, favorable conditions for ULV applications usually occur prior to sunrise and after dusk. Anvil and AquaAnvil have been shown to have a negative temperature coefficient. This means it is extremely effective, early and late season when temperatures are between 50°–65° F and most mosquitoes are active.

FREQUENTLY ASKED QUESTIONS

Q: What are Anvil® and AquaAnvil™?

A: These are names of adult mosquito control products which have been used with great success to help control adult mosquito populations for many years.

Q: What is the active ingredient in both products?

A: Anvil and AquaAnvil share the same active ingredient, d-Phenothrin, which is also known by the brand name Sumithrin®. This is a pyrethroid similar to natural pyrethrins that are extracted from chrysanthemum flowers. Anvil and AquaAnvil also contain piperonyl butoxide, a synergist which boosts efficacy at very low dosage rates.

Q: Does either Anvil or AquaAnvil pose a health risk to humans?

A: All pesticide products involve a balance between risks and benefits. The active ingredients in Anvil and AquaAnvil have been carefully tested. They are registered for ground and aerial application in outdoor residential and recreational areas.

Q: How soon can a family go outside after an application?

A: There are no re-entry precautions or limitations for Anvil or AquaAnvil. Both degrade rapidly in the environment and do not bio-accumulate.

Q: How will this spraying affect the mosquito population?

A: In the majority of spray applications, spraying with Anvil or AquaAnvil is highly effective at killing adult mosquitoes in the treated area.

Q: How is Anvil applied?

A: Generally, Anvil and AquaAnvil are applied from the air or ground at an ultra low volume in an extremely fine mist of tiny drops, where the average droplet size is 17 microns, smaller than the size of a pinhead.

Q: How much is typically applied?

A: Anvil and AquaAnvil are applied in very low dosages, as low as 6 tenths of an ounce per acre. An acre is the equivalent size of approximately a football field.

Q: How effective is Anvil and AquaAnvil? How many mosquitoes does it kill?

A: The active ingredient in Anvil and AquaAnvil, d-Phenothrin, has proven to be extremely effective in killing mosquitoes worldwide for over 20 years. Anvil and AquaAnvil have been tested in over 50 natural population and caged field trials in the United States against 30 different mosquito species. As with any adulticide, environmental conditions, droplet size and the weather might affect results.

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Clarke is a global environmental products and services company. Each year, Clarke helps make communities around the world more livable, safe and comfortable by pioneering, developing and delivering environmentally responsible disease prevention and habitat management solutions. In 2008, Clarke founded The Clarke Cares Foundation, a non-profit created to provide disease prevention support for communities with critical needs.

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