SAMPLE APPLICATION CALENDAR

JULY

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 START APPLICATION	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22 CONTROL ACHIEVED? END APPLICATION	23	24	25
26	27	28	29	30	31	

AUGUST

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4 INSPECTION DAY LARVAE/ADULTS DETECTED?	5 IF YES, BEGIN APPLICATION	6	7	8
9	10	11	12	13	14	15
16	17	18	19 END APPLICATION	20	21	22
23	24	25	26	27	28	29
30	31	**SEPTEMBER**				
		1 INSPECTION DAY	2 START APPLICATION IF MIDGE LARVAE DETECTED	3	4	5

Getting control of midge and filter fly populations is essential to maintaining the efficiency of a wastewater treatment facility. By targeting the pests during development, operators relying on Strike® products can break the pest life cycle and prevent adult populations from emerging.

CENTRAL LIFE SCIENCES

STRIKE®

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CONTROLLING MIDGES AND FILTER FLIES WITH STRIKE® MIDGE CONTROL PRODUCTS



STRIKE® PRODUCT USE GUIDE

Midge and filter flies are more than a nuisance to the staff and surrounding neighbors of wastewater treatment facilities. Their aquatic larvae consume beneficial organisms, deplete water of oxygen and create floating mats of larval and pupal casings. In severe infestations they can alter water quality, clog pipes/equipment, transmit pathogens and generate complaints from surrounding properties. Controlling these pests is essential to keeping a wastewater treatment facility operating efficiently.

Proper control of these pests starts with proper identification and an understanding of their life cycles. Chironomid midge flies, or midges, lay their eggs on the surface of water, with each mass consisting of as many as 3,000 eggs. Eggs sink to the bottom of the water, hatching within one week. Burrowing into sludge, the larvae establish small tubes where they will develop into a dark red worm-like state. The larvae develop into pupae within two to seven weeks depending on the water temperature, emerging as adults after three days in the pupal stage. Adult midge flies resemble mosquitoes in appearance with “bushy” antennae, and are ready to mate and lay eggs within days of emergence.

Within two days of being laid, eggs hatch into small, pale larvae that feed on the layers of slime or nutrient-rich films that develop in treatment beds. After this 9-15-day feeding period, they pupate and quickly emerge as adult flies, known for their “hairy” appearance and pointed moth-like wings. The adults live for only a few days during which the female will lay between 10 and 200 eggs, repeating the life cycle.

For the most effective control of these pests, facility operators need to break this life cycle, preventing future generations from developing. This is the mode of action behind the Strike® lineup of products that work by interfering with the development of larvae, eventually killing them in the pupal stage. Adults that have already emerged or larvae that have pupated prior to treatment will not be affected. Due to the length of the fly life cycle and the specific mode of action of Strike® products, reductions in populations occur 2-3 weeks after treatment. Continuous treatment will ensure that these pests do not rebound to reach infestation levels.

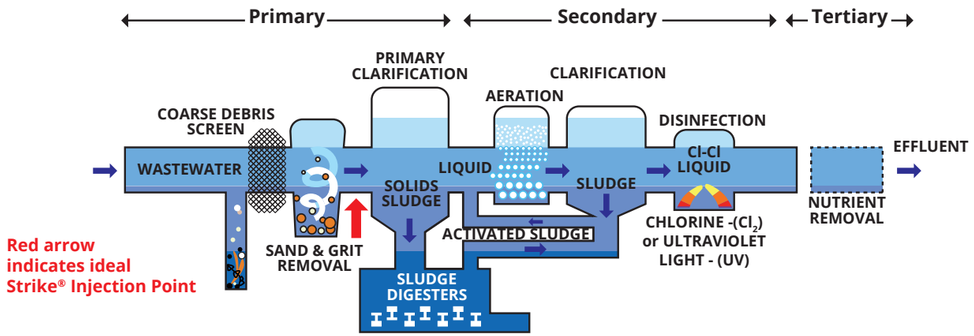


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STRIKE® PRODUCTS AVAILABLE IN THREE FORMULATIONS:

Strike® Midge Control (Liquid) is a microencapsulated formulation that is capable of controlling midges throughout a facility. The active ingredient is protected and time released for the furthest downfield control in wastewater treatment plants. Strike® Midge Control is ideal for facilities experiencing chironomid midges in various stages and areas of the wastewater treatment process. Strike® Midge Control can be added to wastewater flow at a point after sand and grit have been removed from the main channel of flow into the facility, upstream of where midge flies are breeding. It needs to be introduced far enough ahead for the material to properly mix and distribute in the water, before the primary clarifiers. Typically this application will control midges through secondary clarification. Depending on holding times and flow, it is possible for a Strike® treatment to control midges in tertiary treatment. If midge control is not achieved in tertiary filters, it may be necessary to set up another injection point or treat with Strike® Pellets. Apply Strike® Midge Control at the rate of 5 fluid ounces per million gallons of sewage flow passing the injection point.

Wastewater Treatment Process



Strike® Ultra Professional Midge Control (Liquid) is a water-dilutable emulsifiable concentrate that is ideal for treating trickle filters and smaller areas where filter flies are a problem. Being an emulsifiable concentrate, Strike® Ultra Professional Midge Control isn't microencapsulated like Strike® Midge Control, so control down field is reduced. Additionally, the active ingredient is not protected or formulated for time release, making Strike® Ultra Professional Midge Control an economical solution designed for facilities where filter fly breeding is concentrated and contained to a defined area. Apply Strike® Ultra Professional Midge Control at a rate of 3 fluid ounces per million gallons at the influent side where water enters the targeted processing area.

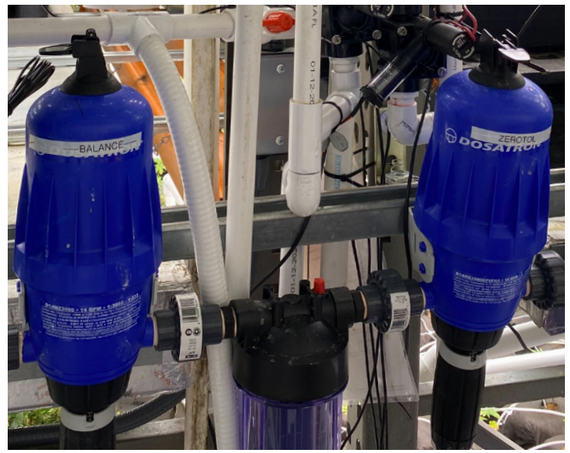
Strike® Pellets are an ideal formulation where there are extended holding times and areas can be uniformly and completely treated easily by hand on the basis of surface area. Lagoons and ponds can be treated with a 20-foot band of Strike® Pellets around the perimeter in some cases for sufficient control. It is always best to treat the entire surface area for best results. Apply Strike® Pellets at the rate of 5-10 pounds per acre where wastewater treatment pests are an issue.

Scan to find more information about Strike® at www.StrikeProducts.com

APPLICATION GUIDANCE

All Strike® formulations can be applied to sludge-drying beds. The liquids are metered into the sludge flow at labeled rates while the pellets can be spread over the sludge after the beds are full. Flies will be controlled as the sludge dries.

When making applications to trickle filters, operators should apply liquid formulations during time of low flow (typically overnight) using a metering device. A metering device consists of a tank and agitation device and a precision pump that will introduce the Strike® liquid mixture into the flow ahead of the trickle filters. Tanks typically used have a 35-gallon capacity and are partnered with a pump capable of delivering 1-2 gallons per hour. Dilute Strike® liquids in sufficient water to match the viscosity of water. This increases the accuracy of the pumping mechanisms as most equipment is graduated and calibrated using water.



Operators should mix enough Strike® product to apply over a 48-hour period, which will provide two 6-8-hour applications. The tank and pumps were designed to account for situations when operators need to apply multiple Strike® mixtures within 48 hours. For example, an operator wanting to apply at 2 gallons per hour for two nights over two eight-hour nights (16 hours) would need 32 gallons in the tank with the labeled amount of Strike® liquid.

Because any diluted Strike® liquid product needs to be used within 48 hours, operators should not mix more than can be used in this time frame. The active ingredient and formulation starts to break down and will be less effective if pushed beyond 48 hours.

EXAMPLE SITUATION:

Assume a facility handles one million gallons of water per day (MGD). This would require 5 fluid ounces of Strike® liquid per day, or 0.21 fluid ounces/hour, to treat its water. To make an eight-hour application for two consecutive nights using a 1-gallon-per-hour (GPH) pump, the facility would need to add 3.36 fluid ounces of Strike® liquid (0.21 fluid ounce/hour*8 hours*2 days) to the tank, and fill to the 16-gallon mark (16 hours*1 GPH). This would need to run for eight hours per night over the next two nights.

Sample application calendar: Operators should apply Strike® products daily for at least two weeks or until control is achieved. They are encouraged to re-evaluate the status of midge populations – looking for the presence of larvae and adults – every two weeks. If activity is detected, two-week applications should begin immediately. Due to the length of the life cycle, it is important that operators make solid decisions and begin applications promptly before re-infestation occurs. Midge populations need to be evaluated every 15 days after control is achieved with corrective applications following immediately.

See example on the next page