

DO YOU HAVE A WEED PROBLEM IN YOUR POND OR LAKE?

This office recently received some literature (upon request) from two chemical companies that manufacture chemical for the control of aquatic weeds. One of these chemicals is the well known Sodium Arsenite manufactured by the Chipman Chemical Company. The other is a relatively new product in our profession and that is Aquathol manufactured by the Pennsalt Chemicals Corporation.

Sodium Arsenite is available in the liquid form as well as the dry formulation. They are equally effective. The liquid is a little easier on the spraying equipment because it is not abrasive to the metal.

The United States Department of Interior recommends sodium arsenite for controlling certain submersed vegetation in farm ponds, hatchery ponds and small lakes. This chemical has been used for a number of years and results show that sodium arsenite is a cheap and most effective chemical for submersed weed control in STILL waters.

The liquid form of sodium arsenite is more effective for spraying in water because it does not have to dissolve like the dry formulation. One gallon contains 4 pounds of arsenic trioxide.

DOSAGES REQUIRED: In small lakes and ponds (2 acres and less) during the warm growing season, 4 parts arsenic trioxide per million parts of water will kill even the heaviest growth of plants in both hard and soft waters. If weeds are not too dense, $2\frac{1}{2}$ parts per million (ppm.) will generally give good results. Use 5 ppm. for lakes ranging from 2 to 10 acres in size, when treated in their entirety.

HOW TO CALCULATE VOLUME OF WATER AND CHEMICAL REQUIRED: Before making any treatment, it is necessary to know the cubic foot volume of water to be treated. The average length multiplied by the average width of the body of water

gives its surface area. This area multiplied by the average depth (obtained by soundings) gives the volume of water. For simplicity, measurements should be expressed in feet; then the volume of water calculated will be in cubic feet (water weighs 62.4 pounds per cubic foot). The following formula may be used to calculate the quantity of chemical needed for each section of water to be treated:

$$\begin{aligned} &\text{No. cu. ft. water} \\ &\text{to be treated} \times 62.4 = \text{lbs. arsenic trioxide} \quad \times \text{no. ppm. needed} \\ &1,000,000 \quad \quad \quad \text{needed to give 1 ppm.} \quad \quad \quad \text{for treatment} \\ &= \text{lbs. arsenic trioxide needed} \div 4 = \text{gals. Sodium Arsenite to use} \\ \text{Example:} & \quad \quad \quad \text{Pond containing} \\ & \quad \quad \quad 64,080 \text{ cu. ft.} \times 62.4 = 4 \text{ lbs. arsenic trioxide} \times 2\frac{1}{2} \text{ ppm.} = \\ & \quad \quad \quad 1,000,000 \quad \quad \quad \text{to give 1 ppm.} \\ &10 \text{ lbs. arsenic trioxide needed} \div 4 = 2\frac{1}{2} \text{ gals. of liquid Sodium Arsenite.} \end{aligned}$$

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WHEN TO TREAT: For best results treat early in the growing season when plants are young and growing vigorously, and before they have reached the fruiting stage. Young plants absorb the chemical more readily and are most easily killed. This will also reduce the population of Oxygen depletion caused by decay of large masses of vegetation.

EFFECTS OF TREATMENT. There are no harmful affects to fish from the use of Sodium Arsenite as described, since higher concentrations or longer exposures are required to kill fish. Fish and some aquatic organisms are repelled by sodium arsenite and tend to move out of the treated areas.

The second chemical I wish to cover is Aquathol. I failed to mention earlier that there is also a product produced by Pennsalt Corp. called Aquathol Plus. Aquathol products used at recommended dosages kill certain undesirable submerged and emergent weeds without harm to fish. They both come in granular or liquid form. Each has been developed to give control of specific weed problems. These products have been thoroughly tested and registered with the United States

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Department of Agriculture and comply with food and drug laws. Aquathol is a good aquatic weed killer for most submerged weeds. Treated water may be used for watering turf immediately. Water may be used for swimming and recreational purposes after 24 hours. After 7 days the water may be used for irrigation, agricultural sprays, watering of livestock and domestic purposes. The usual rate of application is 2½ gallons of liquid or 50-100 pounds of granular per acre foot of water (one acre of water one foot deep).

Aquathol Plus kills a larger number of water weeds, including emergent weeds, in addition to submerged weeds. Some weeds are killed by contact action and some by systemic action. Weeds killed by systemic action die more slowly (2 to 4 weeks), consequently, all susceptible weeds will not disappear at the same time. Treated water may be used for swimming and recreational purposes after 24 hours; however, it should not be used for irrigation, agricultural sprays, turf watering, domestic water or watering livestock. The usual rate of application is 1¼ gallons of liquid or 50 pounds of granular per acre foot of water.

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