



Potassium Permanganate to Control Pond Invertebrates

By Jan Schreier

Potassium Permanganate is an oxidizing agent that is able to chemically “burn up” organic matter such as bacteria, parasites, and fungus. It is commonly used by municipalities to treat drinking water. It is lethal to invertebrates such as leaches, but does not harm fish or frogs at lower dosages. It can damage the gills of fish at moderate dosages, so if you can remove your fish before treating your pond, it is preferred. The water also needs to be oxygenated (by continuing to run the waterfalls) and moving water helps to ensure the dosage is consistent throughout the pond.



While it is active, the water will turn purple. The water needs to remain purple for a minimum of 4 hours to provide effective control of parasites & invertebrates. Once the chemical is deactivated, the water will change from purple to yellow/brown. If this does not happen within 12 hours, adding hydrogen peroxide to the pond can deactivate the chemical. Once the water changes to brown, then plants and fish can safely be reintroduced. Organic matter can use up the chemical

faster, which is why it is best to do the treatment immediately after the pond is cleaned. I've looked up tables for the proper dosages of potassium permanganate, but because ornamental ponds tend to have quite an accumulation of organic matter (even after spring cleaning), I have found the tables to be useless. Instead, I judge based upon the darkness of the color purple in the water, and the timed effect it takes for the purple to leave. For ponds with fish, I will err on the lower side starting with the table recommendation and timing the color change. I will then do a second immediate dosage if the change occurs in less than 4 hours. For example, if I add 2 Tablespoons of potassium permanganate, and the water clears after 1 hour, I will add a second dosage of 6 Tablespoons. Most of the time, when the water changes back, it is pretty clear, and one is not left with tea-colored water. If the water is tinted brown after deactivation, adding activated carbon to the biofalls can eliminate the tint.

Place the bag of activated carbon in the biofalls after the water changes from purple to brown. If the water does not clear up within 48 hours after the activated carbon has been added, do a partial water exchange. The activated carbon can remain in the biofalls all summer, if desired.

After the water has cleared up, seed bacteria should be added to the pond to help with spring algae control. To add the seed bacteria to the pond, take a bucket of pond water (tap water will kill the bacteria because of the chlorine), and add the powdered bacteria to the pond water mixing it in until it is dissolved. Once it is dissolved, pour the bacteria/pond water mixture around the perimeter of the main pond.

Wear waterproof, latex or nitrile gloves whenever handling potassium permanganate, as it will discolor skin and clothing, adding a brown stain that won't wash out. Because it is so concentrated, I will mix my initial dosage in a small bucket of water prior to adding it to the pond, and then I'm careful not to let it splash on myself or rocks as I'm adding the dissolved mixture to the pond. I usually add it just in front of the skimmer box, so the pump will help distribute it throughout the pond.

I've used potassium permanganate with moderate success in controlling bad infestations of leaches in ornamental ponds with fish. Usually I've had to come back for a second treatment several months after the first since the first treatment didn't completely take care of all the leaches. But in the end, I've prevailed, and the leaches were gone.