Triclopyr Chemical Fact Sheet

Formulations

Triclopyr was initially registered with the EPA in 1979 and was reregistered in 1997. Triclopyr acid has different formulations for aquatic and terrestrial use. The active ingredient triethylamine salt (3,5,6-trichloro-2-pyridinyloxyacetic acid), commonly called triclopyr, is the formulation registered for use in aquatic systems. It is sold both as a liquid (Renovate 3™) as well as a granular form (Renovate OTF™) for control of submerged, emergent and floating-leaf vegetation. There is also a liquid premixed formulation (Renovate Max G™) that contains triclopyr plus 2,4-D, another aquatic herbicide.

Aquatic Use and Considerations

Triclopyr is used to treat the invasive Eurasian watermilfoil (Myriophyllum spicatum). Desirable native species that may also be affected include native milfoils, water shield (*Brasenia schreberi*), pickerelweed (*Pontederia cordata*), and lilies (*Nymphaea* spp. and *Nuphar* spp.).

Triclopyr is a systemic herbicide that moves throughout the plant tissue and works by interfering with cell growth and division. Following treatment, plant growth will be abnormal and twisted, and then plants will die within two to three weeks after application. Plants will decompose over several weeks.

Triclopyr needs to be applied to plants that are actively growing. A water body should not be treated with triclopyr if there is an outlet, or in moving waters such as rivers or streams. If there is water movement at a treated site, higher concentrations or a repeated application may be required.

Post-Treatment Water Use Restrictions

There are no restrictions on swimming, eating fish from treated water bodies, or pet/livestock drinking water use. Before treated water can be used for irrigation, the concentration must be below one part per billion (ppb), or at least 120 days must pass. Treated water should not be used for drinking water until concentrations of triclopyr are less than 400 ppb.

Herbicide Degradation, Persistence and Trace Contaminants

Triclopyr is broken down rapidly by light and microbes and has a half-life (the time it takes for half of the active ingredient to degrade) of about a day. Dissipation studies in lakes indicate that the half-life in natural systems ranges from 0.5 to 7.5 days. Lakes with more organic matter in the soil will have more rapid degradation.

The initial breakdown products of triclopyr are TCP (3,5,6-trichloro-2-pyridinol) and TMP (3,5,6-trichloro-2-methoxypridine). TCP and TMP appear to be slightly more toxic to aquatic organisms than triclopyr; however the peak concentration of these degradates is very low following treatment, so that they do not pose a concern to aquatic organisms. The half-lives for TCP and TMP are similar to those of triclopyr.

Triclopyr doesn't bind to soil, and limited leaching of triclopyr and its degradation products may occur. It likely is not mobile enough to contaminate groundwater, and EPA has determined that the evidence of possible leaching is not sufficient to require further study.

Impacts on Fish and Other Aquatic Organisms

Testing indicates that the aquatic formulation of triclopyr is practically non-toxic to fish and invertebrates. Species tested included catfish, trout, bluegill, minnows, crayfish and water fleas (*Daphnia* sp.). Triclopyr is slightly toxic to mallards, but at concentrations well above (400x) the highest allowed application rate. Water pH will affect toxicity because greater exposure to triclopyr will occur in low pH water. Tests have not been conducted in low pH water except for salmon species. However, the margin of safety in the toxicity tests that were conducted suggest that even in low pH water there would not be toxic effects on fish.

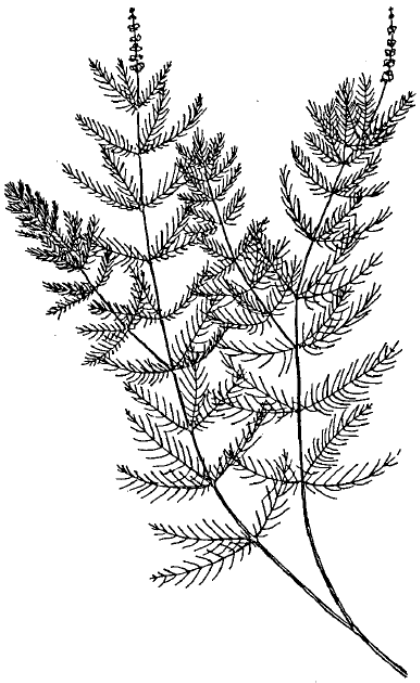
Tests on the degradation product TCP indicate that acute effects to bluegill and rainbow trout would not occur at label usage rates, although it is slightly more toxic than triclopyr. The degradation product TMP is moderately toxic to fish, but after treatment is found only in low proportions if it is detected at all. The EPA has requested additional data to evaluate the fate of the degradation product TCP in aquatic systems as well as its chronic toxicity to fish.

Triclopyr and TCP do not bioaccumulate and clear from fish and crayfish tissues at rates similar to that which occurs in the water. TMP does appear to bioaccumulate in fatty fish tissues, such as inedible and visceral tissues, but does not persist in fish following TMP disappearance from the water.

Human Health

The risk of acute exposure to triclopyr would be primarily to chemical applicators. Concentrated triclopyr does not pose an inhalation risk, but can cause skin irritation and eye corrosion. Persons who mix or apply triclopyr need to protect their skin and eyes from contact. In its consideration of exposure risks, the EPA believes no significant risks will occur to recreational users of water treated with triclopyr.

Triclopyr does not show evidence of birth defects, reproductive toxicity or genetic mutations in mammals tested. Triclopyr is not metabolized by humans and the majority is excreted intact. Some tumors of breast tissue occurred in tests on rodents; however there was no consistent pattern and insufficient evidence to list triclopyr as a carcinogen. Based on its low acute toxicity to mammals, and its rapid disappearance from the water column due to light and microbial degradation, triclopyr is not considered to pose a risk to water users.



For Additional Information

Environmental Protection Agency
Office of Pesticide Programs
www.epa.gov/pesticides

Wisconsin Department of Agriculture, Trade, and Consumer Protection
http://datcp.wi.gov/Plants/Pesticides/

Wisconsin Department of Natural Resources
608-266-2621
http://dnr.wi.gov/lakes/plants/

Wisconsin Department of Health Services
http://www.dhs.wisconsin.gov/

National Pesticide Information Center
1-800-858-7378
http://npic.orst.edu/