

Health Questions and Answers

On use of triclopyr to treat Eurasian watermilfoil

What is triclopyr?

Triclopyr (*pronounced tri-clo-peer*) is an herbicide that can control infestations of *Eurasian watermilfoil* and other invasive water plants. *E. watermilfoil* is more sensitive to triclopyr than many native pond weed species including coontail, rushes and cattails. Triclopyr can therefore be used at low concentrations to remove *E. watermilfoil* without killing many native plants. One triclopyr product is currently marketed for aquatic weeds under two names: Garlon 3A and Renovate 3. Both products contain mostly triclopyr and water. Other ingredients include ethanol, 3% triethylamine, and 2.3% ethylenediaminetetraacetic acid (EDTA). The whole product, including these other ingredients, is diluted more than 100,000-fold during an application for *E. watermilfoil*.

How toxic is triclopyr?

Only dilute amounts of triclopyr are needed to kill *E. watermilfoil*. These dilute concentrations have not been shown to cause skin irritation or other health effects. Triclopyr is not well absorbed through skin. If ingested, research has shown that low doses of triclopyr are rapidly excreted in humans and are unlikely to accumulate in human tissue or cause adverse effects. Concentrated triclopyr products are corrosive and can cause skin irritation and irreversible eye damage. Pesticide applicators must take care to protect their eyes and skin during the application.

In natural waters, the initial breakdown products of triclopyr are TCP and TMP.¹ Tests in laboratory animals on both these metabolites have shown that their toxicity to mammals is less than or equal to triclopyr. These metabolites are relatively short-lived in the environment. Complete breakdown of triclopyr results in carbon dioxide, oxamic acid, and other low molecular weight carboxylic acids.

Triclopyr is not considered by the EPA to be a cause of cancer, birth defects, or genetic mutations. Nor is it considered likely to cause systemic, reproductive, or developmental effects in mammals at or near concentrations encountered during normal human use.

¹ TCP is 3,5,6-trichloro-2-pyridinol. TMP is 3,5,6-trichloro-2-methoxypyridine

Washington State Department of Health considers it prudent public health advice to minimize exposure to pesticides regardless of their known toxicity.

How long will the herbicide last in the lake water?

In natural water, sunlight and microorganisms rapidly degrade triclopyr.

Triclopyr concentrations decline sharply over the first several days after treatment. Residues should be more than 95% degraded and dissipated from treated water in 1-2 weeks following treatment with triclopyr.

If Capitol Lake is treated with triclopyr, will I be exposed to this herbicide?

Residues of triclopyr and its metabolites should not be detectable in lake water more than a couple weeks past the application. Capitol Lake is not commonly used for swimming or other water play. If you do wade or swim in the lake, touch pets that have been in the lake, or eat fish from treated water shortly after the treatment, you may be exposed to dilute concentrations of triclopyr and its metabolites.

There is little chance of inhalation exposure to bystanders. This is because liquid triclopyr herbicide is injected directly into the water column. The application method eliminates opportunity for drift of sprays onto bystanders or nearby residents during the application. Triclopyr has a low vapor pressure and is quite water-soluble so it will not volatilize from treated water and drift through air following the application.

Is it safe to swim or play in the water following the herbicide application?

There are no swimming restrictions on the Garlon 3A or Renovate 3 labels following applications of triclopyr to water. This means that the federal Environmental Protection Agency (EPA) considers the treated water safe for swimming.

Washington State Department of Ecology recently contracted for an independent scientific assessment of triclopyr safety including this question of a swimmer's exposure. The worst-case scenario considered a 6 year-old who swims for 3 hours and inadvertently swallows 150 ml of water from the treated water immediately following an milfoil application with triclopyr. The estimated amount the child would absorb in this scenario was still more than 100 times less than the daily dose animals were fed over their lifetime with no observable adverse effects.

Washington State Department of Health (DOH) has reviewed the data and agrees that skin contact with treated water at the dilute treatment concentration is unlikely to result in any adverse health effect in people. Triclopyr products are concentrated when initially injected into water during an application so, as a precaution, DOH advises people to avoid contact with water

in treated areas for twelve hours following an application to allow the herbicide concentrate to disperse and reach the dilute treatment concentration.

Are fish from the treated area safe to eat?

One breakdown product of triclopyr, called TMP, can temporarily accumulate in fish and shellfish immediately following a triclopyr application. The EPA did not consider the concentration of this metabolite to be of health concern and requires no fishing restrictions.

Washington State Department of Ecology recently contracted for an independent scientific assessment of triclopyr safety including this question of eating fish from treated waters. Scenarios for children and adults consuming fish every day from treated water resulted in estimated exposures that were more than 1000 times less than the daily doses animals were fed over their lifetime with no observable adverse effects.

Has Triclopyr been tested for special sensitivity to children?

The EPA is required to assess each pesticide for its potential to cause toxicity specifically to infants and young children. This is because children's bodies are still developing and they may be more susceptible to the action of a toxicant. EPA conducted this assessment using animal tests and concluded "Reliable pre-and post-natal data indicate no special sensitivity of young animals to triclopyr residues."

FOR MORE INFORMATION CONTACT:

Washington State Department of Health
Office of Environmental Health and Safety - Pesticide Program
(360) 236-3360

National Pesticide Information Center
1-800-858-7378

This hotline provides pesticide information to the public and health care providers. Funding comes from state university cooperative extension and from the Environmental Protection Agency.

Risk Assessments of triclopyr that are available online:

<http://www.epa.gov/oppsrrd1/REDs/factsheets/2710fact.pdf> (fact sheet on triclopyr by EPA)
<http://www.epa.gov/oppsrrd1/REDs/2710red.pdf> (detail risk assessment of triclopyr by EPA)
<http://www.ecy.wa.gov/pubs/0410018.pdf> (Environmental Impact Statement for use of triclopyr on aquatic weeds, prepared by WA Dept of Ecology)