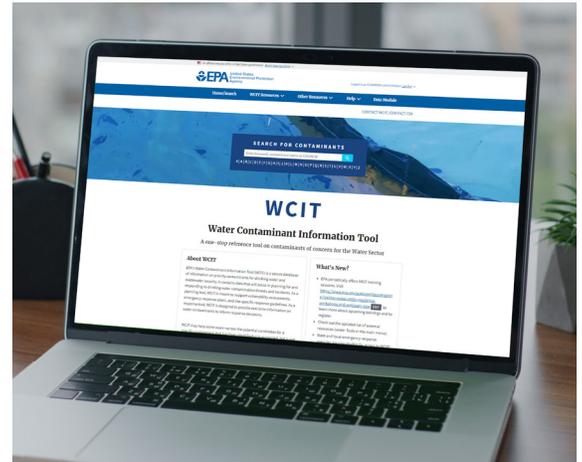


## Water Contaminant Information Tool

A one-stop reference tool for contaminants of concern for the Water Sector

### The Water Contaminant Information Tool

(WCIT) is a secure online database comprised of comprehensive information about chemical, biological and radiochemical (CBR) contaminants of concern for the Water Sector. WCIT provides drinking water- and wastewater-specific data from peer-reviewed sources and research in a one-stop, easy-to-use tool. WCIT's functionality and content were shaped and validated by water utility professionals, scientists and public health experts. The purpose of WCIT is to assist drinking water and wastewater utilities prepare, respond, and recover from contamination threats and incidents. WCIT is updated on an ongoing basis as new information or contaminants warrant inclusion.



**WCIT contains information on more than 800 contaminants.** This information can be accessed through toolbars, menus and a Google-like search function. Features of the database include profiles, risk calculator, reports and other resources.



WCIT contains **CONTAMINANT SPECIFIC INFORMATION** on 14 key topics, including: contaminant names (including CAS and NCBI, other names and related contaminants); physical or pathogen properties; availability; fate and transport; medical information; toxicity and infectivity; water quality indicators; environmental indicators; drinking water treatment; wastewater treatment; laboratory methods and field tests; infrastructure decontamination; threat type; and helpful response advice for utilities.



Contaminant information is presented in either comprehensive, partial or lab method **PROFILES**. Comprehensive profiles include information in all 14 topic areas, while partial profiles include information in some of the topic areas. Lab method profiles include analytical method information.



**RISK CALCULATOR** Provides an indication of the relative risk which can be used as a benchmark for broadly assessing the impact of contaminants via a specified exposure route.



WCIT provides three different types of **REPORTS**: Profile, Information Officer, and User Selection. These are print-friendly formatted content customized to your needs that can facilitate collaboration in the field. For example, the Information Officer Report presents basic information on the contaminant, that can be used as a reference when developing briefings and communicating with the public.



Provides **RESOURCES** that can supplement the information contained in WCIT. The resources cover thirteen topic areas with a brief resource description and their respective links to access them. For example you will find the following topics: accessing laboratory support, drinking water security, technical assistance, and more.

# WCIT Data Supports Multiple Users in the Water Sector

CONTACT WCIT | CONTACT CDX

## Dicrotophos

Comprehensive Profile, last updated on 02/14/2023 04:36 PM

Risk Calculator

Show References | [Comprehensive Profile Report](#) | [Information Officer Report](#) | [User Selection Report](#)

**Select Topics**

<input type="checkbox"/> General Information	<input type="checkbox"/> Fate and Transport	<input type="checkbox"/> Water Quality Indicators	<input type="button" value="Select All"/> <input type="button" value="Deselect All"/> <input type="button" value="Reset"/>
<input checked="" type="checkbox"/> Contaminant Summary	<input type="checkbox"/> Medical Information	<input type="checkbox"/> Environmental Indicators	
<input type="checkbox"/> Other Names/Forms	<input type="checkbox"/> Toxicity Information	<input type="checkbox"/> Wastewater Treatment	
<input type="checkbox"/> Physical Properties	<input type="checkbox"/> Laboratory Methods and Field Tests	<input type="checkbox"/> Infrastructure Decontamination	
<input type="checkbox"/> Availability	<input type="checkbox"/> Drinking Water Treatment		

*This image is a contaminant summary.*

*More information is available by selecting additional topics.*

For EPA, other federal organizations, and technical assistance providers, WCIT provides information on contaminant properties; availability; fate and transport; water quality and environmental indicators; and treatment process options.

For State Drinking Water Programs, WCIT provides information on threat type; contaminant properties; water quality and environmental indicators; analytical methods; and toxicity.

For Utilities, WCIT includes drinking water and wastewater treatment and infrastructure decontamination processes.

Contaminant Summary	
<b>Description:</b>	Dicrotophos is an organophosphate pesticide that occurs as a yellow to brown liquid with a mild ester odor (fruit or flower-like odor). Dicrotophos is used as an insecticide to control flea hoppers, aphids, thrips, stink bugs and plantbugs in cotton. Dicrotophos can also be applied by tree injection to control insects on ornamental and non-food bearing trees.
<b>Threat Type:</b>	Dicrotophos is a public health and environmental threat. It is highly toxic to humans through the ingestion, inhalation, and dermal pathways of exposure. It is also hazardous to animals.
<b>Availability:</b>	Dicrotophos is manufactured in the U.S. Most uses are restricted. Acquisition of sufficient material to effectively contaminate drinking water would not be difficult. Available formulations of dicrotophos range from 0.5% to 90% active ingredient. Low background levels of dicrotophos also have been known to occur in surface waters in the U.S.
<b>Fate and Transport:</b>	Dicrotophos is stable in water under normal conditions. It has a half life of 72 days in water at pH 7 and 25°C. For some organophosphate pesticides, the degradation by-products have higher toxicity than the original pesticides themselves, as a result of the reaction between chlorine or ozone and pesticides in raw water during water purification. Pesticides having the P = O bond in their molecules are easily degraded by chlorination to produce oxons as primary degradation by-products. Since oxons are stable against chlorine and hardly degradable, they may remain in purified water from water purification plants if chlorinated organophosphate pesticides are present in raw water. Dicrotophos is unlikely to volatilize or breakdown in sunlight. Dicrotophos may adsorb to sediments and therefore may also be expected to adsorb to infrastructure. It is also corrosive to some metals and is soluble in water. Based on its solubility, slow hydrolysis rate, and lack of volatilization, dicrotophos would be expected to persist in drinking water long enough to be a public health threat.
<b>Early Warning, Field Tests, and Analytical Methods:</b>	The pH, conductivity, and total organic carbon (TOC) of water are likely to increase if dicrotophos is added, while chlorine levels may decrease. Dicrotophos has a mild ester odor in its pure form, but it is unknown whether this odor would be detectable when diluted in drinking water. Field tests are available to detect the presence of organophosphate pesticides, but no specific field tests were found to detect dicrotophos. Several gas chromatography methods are available for laboratory analysis of dicrotophos in water.
<b>Medical:</b>	Dicrotophos is highly toxic with an oral median lethal dose (LD50) of 13 mg/kg. Dicrotophos poisons humans and animals by inhibiting the enzyme acetyl cholinesterase, which is essential for muscle contraction. Ingestion is the primary route of exposure, but exposure via the dermal and inhalation pathways is also possible. Exposure may result in symptoms such as sweating, headaches, difficulty breathing, blurred vision, and gastrointestinal distress. Symptoms observed will depend on the route of exposure and dose, but mortality is possible at high doses. Symptoms may appear between five minutes and 12 hours after exposure depending on the dose. An antidote is available and is most effective within 15 minutes of a fatal dose. Full recovery may take several weeks.
<b>Drinking Water Treatment:</b>	Reverse Osmosis (RO) can be a highly effective treatment process for the removal of dicrotophos.
<b>Utility Response Considerations:</b>	Any domestic use of contaminated water may present a public health threat due to the potential for dicrotophos to cause acute health effects via all routes of exposure. Boiling would not remove dicrotophos. Dicrotophos contaminated water should not be used to water livestock, as dicrotophos is toxic to mammals. Flushing of water contaminated with dicrotophos from the distribution system without any additional treatment could pose a threat to the environment due to its toxicity to fish and other wildlife. Use of contaminated water for irrigation would not harm crops, but exposure of people and animals to irrigation water should be avoided.
<b>Decontamination:</b>	A highly effective procedure to decontaminate solid surfaces and equipment of the infrastructure is washing surfaces with a sodium hydroxide solution followed by rinsing.
<b>Wastewater:</b>	Direct photolysis is a highly effective treatment method for the removal of organophosphorous pesticides (OPPs). Photodegradation of OPPs in UV/Fe2+/H2O2 systems nearly completes degradation within 240 minutes.

For Emergency Responders, WCIT provides support for response efforts by offering information on toxicity; first aid and medical treatments; fate and transport; and field detection and analysis.

For Environmental Laboratories, WCIT provides information on analytical methods for unregulated contaminants.

For Public Health Officials, WCIT provides valuable contaminant specific information including clinical signs, treatment, and toxicity values based on routes of exposure.

**REGISTERING FOR WCIT IS EASY AND FREE** To apply for access as a member of the Water Sector, visit <https://www.epa.gov/waterdata/water-contaminant-information-tool-registration>.

For more information on WCIT, visit <https://www.epa.gov/waterdata/water-contaminant-information-tool-wcit> or send an email to [WCIT@epa.gov](mailto:WCIT@epa.gov).