



PERSISTENT ORGANIC POLLUTANTS (POPS) FACT SHEET SERIES

# DDT

DICHLORODIPHENYLTRICHLOROETHANE

## HIGHLIGHT

- DDT is a human-made chemical. DDT is not found in nature.
- DDT is persistent, accumulates in the food chain and is toxic.
- DDT degrades much more slowly in the cold northern environment.
- DDT use has been banned in most northern countries, including Canada, for over 20 years.
- DDT is still used in some countries, mostly for controlling mosquitoes that carry malaria.
- DDT is carried to the North by air currents.
- Traditional foods in the Arctic and sub-Arctic are not highly contaminated with DDT.
- DDT levels are declining in Yukon lake trout and are below Health Canada guidelines.

## WHAT IS DDT?

Dichlorodiphenyltrichloroethane (DDT) is human-made. It is a white, crystalline, tasteless and almost odourless insecticide. It belongs to the organic halogen family of compounds. DDT kills insects by acting as a nerve poison, although exactly how DDT affects the nervous system is poorly understood.

Although no longer produced or used in North America, DDT continues to be found in our environment. DDT degrades much more slowly in cold climates than in warmer areas.

DDT was used during World War II to control body lice that spread typhus and was subsequently used to control mosquito-borne malaria. In the 1950s, it quickly became the most popular control method for forestry, agricultural and domestic insect pests. Liquid spray was the most commonly used form of DDT.

DDT was a commonly used insecticide until the early '70s, when it was banned or restricted in Canada, the United States, and most European countries. DDT is still used as an agricultural insecticide and in disease-control programs in other parts of the world.

## HOW DOES DDT ENTER THE ENVIRONMENT?

Despite its limited use, DDT continues to appear in our environment, even in places such as the Arctic, where it was never applied. New DDT contamination is the result of long-range atmospheric transport and the accumulation of the chemical in soil, water and snow. DDT is also carried to northern regions by migratory birds.

DDT has been detected in air, rain, snow, surface water and soil, as well as in the tissues of plants and animals. In the North, the highest concentrations of DDT have been found in carnivorous predators and scavengers such as hawks, gulls, seals and polar bears.

DDT has been found in human fat tissue and milk.

Although DDT has not been used in most northern countries for over 20 years, it is still the best hope for controlling parasitic diseases such as malaria in many parts of the world. Expensive alternatives for preventing the transmission of malaria are not affordable in countries where this disease is most common. For these countries, DDT is still the most effective insecticide.

## HOW TOXIC IS DDT?

DDT is moderately toxic to humans. It mainly affects the nervous system and the liver. Acute effects in humans exposed to low-to-moderate levels of DDT may include nausea, diarrhea, increased liver enzyme activity, and irritation of the eyes, nose and/or throat. Tremors and convulsions may occur with higher doses. Deaths from exposure to DDT are rare.

In test animals, very high doses of DDT have caused chronic effects on the nervous system, kidneys, liver and immune system. Experiments have also shown evidence that DDT can cause sterility and birth defects. DDT is toxic to fish.

There is no conclusive evidence linking DDT to cancer, although DDT has caused

increased tumour production in the lungs and livers of test animals such as rats and mice.

## WHAT ARE THE EFFECTS OF DDT ON OUR ENVIRONMENT?

DDT appears to be on the decline in the Yukon environment. The formerly endangered peregrine falcon has recovered rapidly in the Yukon since 1978, when the Canadian Peregrine Falcon Recovery Program began.

Since then, the number of peregrines nesting along major Yukon rivers has increased dramatically. In 1999, the peregrine falcon's status was changed to "threatened" rather than "endangered" species.

The Northern Contaminants Program has monitored lake trout in Kusawa Lake and Lake Laberge for all organic POPs, including DDT, since 1993. The level of DDT in Yukon freshwater fish has declined between 1993 and 2008 and remains well below Health Canada guidelines.

## WHERE TO FIND MORE INFORMATION ON THE WEB:

- **Health Canada**  
<http://www.hc-sc.gc.ca/sr-sr/finance/tsri-irst/proj/persist-org/index-eng.php>  
<http://www.hc-sc.gc.ca/fn-an/securit/chem-chim/envIRON/index-eng.php>  
<http://www.hc-sc.gc.ca/ewh-semt/contaminants/index-eng.php>
- **Environment Canada**  
[http://www.chemicalsubstanceschimiques.gc.ca/fact-fait/chem-chim\\_envIRON-eng.php](http://www.chemicalsubstanceschimiques.gc.ca/fact-fait/chem-chim_envIRON-eng.php)  
<http://www.ec.gc.ca/default.asp?lang=En&n=FD9B0E51-1>  
<http://www.ec.gc.ca/CEPARRegistry/search/Search.cfm>
- **Indian and Northern Affairs Canada, Northern Contaminants Program**  
[www.inac-ainc.gc.ca/ncp/index\\_e.html](http://www.inac-ainc.gc.ca/ncp/index_e.html)
- **Arctic Borderlands Ecological Knowledge Society**  
[www.taiga.net](http://www.taiga.net)
- **Government of Yukon, Environment**  
<http://www.environmentyukon.gov.yk.ca/monitoringenvironment/>
- **Our Stolen Future: authors**  
[http://www.ourstolenfuture.org/searchresults.html?cx=000948349435611362955%3Awww\\_g\\_w5czkctc&q=DDT&cof=FORID%3A11#913](http://www.ourstolenfuture.org/searchresults.html?cx=000948349435611362955%3Awww_g_w5czkctc&q=DDT&cof=FORID%3A11#913)

## REFERENCES

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- G.A. Stern, "Trace metals and organohalogen contaminants in fish from selected Yukon lakes: A temporal and spatial study", in *Synopsis of Research, Northern Contaminants Program*, Department of Indian and Northern Affairs, Ottawa, 2008.
- Department of Indian and Northern Affairs. *Canadian Arctic Contaminants Assessment Report*. J. Jensen, K. Adare and R. Shearer, eds. 1997.
- Gamberg, M. *Contaminants in Yukon Country Foods*. Unpublished report for the Department of Indian and Northern Affairs, Northern Contaminants Program. Whitehorse, Yukon, 2000. 99pp.

The Yukon Contaminants Committee co-ordinates the Northern Contaminants Program for the territory. Its members represent Canada, Yukon and the Council of Yukon First Nations, Yukon Conservation Society and Yukon College. Since its establishment in 1991, the Committee has acted as a link between the scientific community and Northerners on contaminants issues.

Please direct any comments to the Yukon Contaminants Committee at (867)667-3283 or toll-free 1-800-661-0451, ext. 3283

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