

## Chemicals in Private Drinking Water Wells Dieldrin Fact Sheet

Florida Department of Health, Division of Environmental Health

*This fact sheet discusses possible health risk from exposure to low levels of chemicals typically found in private drinking water wells.*

**Updated July 2011**

### **Dieldrin**

#### **What is Dieldrin?**

Dieldrin is synthetic chemical used to kill insects. It has a chemical structure similar to aldrin. Aldrin quickly breaks down to dieldrin. Pure aldrin and dieldrin are white powders with a mild chemical odor. The less pure commercial powders have a tan color.

From the 1950s until 1970, dieldrin was used widely on corn and cotton. Because of concerns about damage to the environment and potentially to human health, the US Environmental Protection Agency (EPA) banned all uses of dieldrin in 1974, except to control termites. In 1987, EPA banned all uses.

#### **How might I be exposed to dieldrin in my drinking water?**

- It is widespread in the environment, but at very low levels.
- In drinking water, it breaks down very slowly.

#### **What is the standard for dieldrin in drinking water?**

The Florida Department of Health (DOH) drinking water guideline for dieldrin is 0.002 micrograms per liter (0.002 ug/L). This drinking water guideline limits the lifetime risk of developing cancer from exposure to dieldrin to 1 in 1,000,000 (1E-6). There is no required sampling of private household wells.

#### **How can dieldrin affect my health?**

Drinking water guidelines are set at very low levels. Drinking water every day at or below the guideline for your entire lifetime is unlikely to cause illness.

To set drinking water guidelines, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that doesn’t cause illness. Then, to be on the safe side, scientists set drinking water guidelines hundreds or thousands of times less than the “no-effect level.” Therefore, drinking water with levels slightly above the guideline for a short time period does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure? (Did someone eat, drink or breathe the chemical into their body?)

Health effects are also determined by a number of personal factors. From person to person, how someone is affected by a chemical exposure ranges widely. The guideline is set to protect the

most sensitive individuals. Health effects are also determined by a number of personal factors. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are they to be affected by exposure to a chemical, in general?

Little information is available about what kind of health risks are likely from drinking water with low levels of dieldrin. More is known about what health effects might occur if someone is exposed at higher levels in a different way, such as applying pesticides.

#### **How likely is dieldrin to cause cancer?**

The ability of dieldrin to cause cancer in humans is unknown. At present, human studies do not show significant increases in cancer due to dieldrin exposure. However, dieldrin does cause liver cancer in mice. The International Agency for Research on Cancer (IARC) has determined that dieldrin is not classifiable as to human carcinogenicity. The U.S. EPA has determined that dieldrin is a probable human carcinogen. Based upon the weight of evidence, dieldrin can be classified as a rodent carcinogen that is “likely to be carcinogenic to humans by the oral route of exposure.” Therefore, the drinking water standard is set to protect against the risk of cancer.

#### **Is there a medical test to see if I have been exposed to dieldrin?**

There are laboratory tests that can measure dieldrin in your blood, urine, and body tissues. Dieldrin stays in the body for months. The tests cannot tell you whether harmful health effects will occur. These tests are not routinely available at the doctor's office because they require special equipment.

#### **Should I continue to use my drinking water if dieldrin is found?**

Levels of dieldrin less than the drinking water standard are not likely to cause illness. Drinking water with levels slightly above the drinking water standard for a short time period does not significantly increase the risk of illness. Because the risk does, however, increase as the level of chemical increases and the length of time you drink the water increases, you should seek drinking water that meets the drinking water standard.

#### **Who should I consult to discuss concerns about my personal health effects from dieldrin exposure?**

Bring this fact sheet and discuss with your doctor, the professional with the best understanding of your overall health.

#### **At the doses of dieldrin found in Volusia County, are there other health concerns besides cancer?**

At the low levels of exposure found in Volusia County, non-carcinogenic health effects are not expected. Most of the adverse effects of dieldrin are manifested only at moderate to high doses that can occur during an overdose or occupational exposure.

**For additional health information:** Please call the Florida Department of Health toll-free help line 877-798-2772 during business hours. After hours, you may leave a voice mail. Outside of Florida, please call 850-245-4299 between 8:00 a.m. and 5:00 p.m. Or visit us online at: [www.myfloridaeh.com/com](http://www.myfloridaeh.com/com)

For more information about the health effects from exposure to this chemical in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for aldrin/dieldrin at: <http://www.atsdr.cdc.gov/tfacts1.pdf>