

This fact sheet answers the most frequently asked health questions (FAQs) about atrazine. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

**HIGHLIGHTS: The general population is probably not exposed to atrazine. However, exposure to atrazine may occur at farms where it has been sprayed. Atrazine may affect pregnant women by causing their babies to grow more slowly than normal. Birth defects and liver, kidney, and heart damage has been seen in animals exposed to high levels of atrazine. This chemical has been found in at least 20 of the 1,636 National Priorities List sites identified by the Environmental Protection Agency (EPA).**

### What is atrazine?

Atrazine is an herbicide that does not occur naturally. Pure atrazine is an odorless, white powder that is not very volatile, reactive, or flammable and that will dissolve in water.

Atrazine is used to kill weeds, primarily on farms, but has also been used on highway and railroad rights-of-way. The EPA now restricts how atrazine can be used and applied; only trained people are allowed to spray it.

### What happens to atrazine when it enters the environment?

- Atrazine enters the environment primarily through spraying on farm crops.
- In soil, atrazine is taken up by the plants growing in the soil or is broken down over a period of days to months.
- It may also wash from soil into streams or groundwater where it will stay for a long time, because breakdown of the chemical is slow in water.
- If atrazine enters the air, it may be broken down by reactions with chemicals in the air, or it may adhere to particles such as dust which eventually settle out of the air.
- Atrazine does not accumulate in living organisms such as algae, bacteria, clams, or fish.

### How might I be exposed to atrazine?

- Most people are not exposed to atrazine on a regular basis.
- It is rarely found in food samples; when found, it is only at very low levels.
- Farm workers, chemical sprayers, and people who work in factories that make atrazine may be exposed.
- People may also be exposed to atrazine by digging in dirt that has atrazine in it.
- Individuals may also be exposed by drinking water from wells that are contaminated with the herbicide.

### How can atrazine affect my health?

Liver, kidney, and heart damage has been observed in animals exposed to atrazine; we do not know if this would also occur in humans. Atrazine has also been shown to cause changes in blood hormone levels in animals that affected ovulation and the ability to reproduce. These effects are not expected to occur in humans because of specific biological differences between humans and these types of animals.

### How likely is atrazine to cause cancer?

Available information is inadequate to definitely state whether atrazine causes cancer in humans. There are limited

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human and animal data that suggest that there may be a link between atrazine exposure and various types of cancer. A Cancer Assessment Review Committee (CARC) sponsored by EPA has classified atrazine as not likely to be carcinogenic to humans. The International Agency for Research on Cancer (IARC) has determined that atrazine is not classifiable as to its carcinogenicity to humans.

### **How can atrazine affect children?**

Little information is available regarding the effects of atrazine in children. It is likely that the health effects seen in children should be similar to the effects seen in adults. We do not know whether children differ from adults in their susceptibility to atrazine.

A few studies are available that suggest that atrazine could affect pregnant women by causing their babies to grow more slowly than normal or by causing them to give birth early. However, the women in these studies were also exposed to other chemicals that may have caused or contributed to these effects. In pregnant animals, exposure to atrazine causes a decrease in fetal growth and birth defects. Exposure to high levels of atrazine during pregnancy caused reduced survival of fetuses. It is unclear whether or at what level of exposure this might occur in humans.

### **How can families reduce the risk of exposure to atrazine?**

- The general population is not likely to be exposed to large amounts of atrazine. Populations living in the areas where atrazine is used on crops, however, may be exposed to greater amounts of atrazine. Therefore, staying away from fields that have been recently sprayed may reduce exposure.
- Atrazine may be washed from fields where it is sprayed into streams and rivers or may migrate into wells used for drinking and bathing. In areas of high atrazine use, individuals should avoid swimming in or drinking from

contaminated water sources and may desire to have personal well water tested for the presence of atrazine.

- Children should avoid playing in soils near uncontrolled hazardous waste sites where atrazine may have been discarded.

### **Is there a medical test to show whether I've been exposed to atrazine?**

Atrazine can be detected in your blood and some other body tissues within 24 to 48 hours after your last exposure. These tests are not usually available at your doctor's office, but your doctor can send the samples to a laboratory that can perform the tests. None of these tests, however, can predict whether you will experience any health effects.

### **Has the federal government made recommendations to protect human health?**

The EPA has set a maximum amount of atrazine in drinking water of 0.003 milligrams of atrazine per liter of drinking water (0.003 mg/L).

The Occupational Safety and Health Administration (OSHA) has set a limit of 5 milligrams of atrazine per cubic meter of workplace air (5 mg/m<sup>3</sup>) for an 8-hour workday and 40-hour work week.

The EPA has determined maximum levels allowed in foods of 0.02-15 parts atrazine per million parts of food (0.02-15 ppm).

### **References**

Agency for Toxic Substances and Disease Registry (ATSDR). 2003. Toxicological Profile for Atrazine. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

**Where can I get more information?** For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

