

This fact sheet answers the most frequently asked health questions (FAQs) about naphthalene. 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. This information is important 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.

**SUMMARY:** Exposure to naphthalene happens mostly from breathing air contaminated from the burning of wood or fossil fuels, industrial discharges, tobacco smoke, or moth repellents. Exposure to large amounts of naphthalene may damage or destroy some of your red blood cells. Naphthalene has been found in at least 536 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

## What is naphthalene?

(Pronounced năf'thə-lēn')

Naphthalene is a white solid that is found naturally in fossil fuels. Burning tobacco or wood produces naphthalene. It has a strong, but not unpleasant smell.

The major products made from naphthalene are moth repellents. It is also used for making dyes, resins, leather, tanning agents, and the insecticide, carbaryl.

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

- Naphthalene enters the environment from industrial uses, and from its use as a moth repellent.
- It also enters from the burning of wood or tobacco, and from accidental spills.
- Naphthalene evaporates easily.
- In air, moisture and sunlight break it down, often within 1 day.
- Naphthalene in water is destroyed by bacteria or evaporates into the air.
- Naphthalene binds weakly to soils and sediment.
- It does not accumulate in animals or fish.

- If dairy cows are exposed to naphthalene, some of it will be in their milk.
- If laying hens are exposed, some of it will be in their eggs.

## How might I be exposed to naphthalene?

- Breathing low levels in outdoor air.
- Breathing air contaminated from industrial discharges or from burning wood or fossil fuels.
- Breathing air in homes or businesses where cigarettes are smoked, wood is burned, or moth repellents are used.
- Drinking water from contaminated wells.
- Touching clothing, blankets, or coverlets that are treated with naphthalene.

## How can naphthalene affect my health?

Exposure to large amounts of naphthalene may damage or destroy some of your red blood cells. This could cause you to have too few red blood cells until your body replaces the destroyed cells. People, particularly children, have developed this problem after eating naphthalene-containing moth-balls or deodorant blocks. Some of the symptoms of this

ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>

problem are fatigue, lack of appetite, restlessness, and pale skin. Exposure to large amounts of naphthalene may also cause nausea, vomiting, diarrhea, blood in the urine, and a yellow color to the skin.

Animals sometimes develop cloudiness in their eyes after swallowing naphthalene. It is not clear if this also develops in people.

When mice were repeatedly exposed to naphthalene vapors for 2 years, their noses and lungs became inflamed and irritated.

### How likely is naphthalene to cause cancer?

The Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC) and the EPA have not classified naphthalene as to its human carcinogenicity.

No studies are available in people. Naphthalene has caused cancer in studies in female mice, but not in male mice or in rats of either sex.

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

Tests are available that measure levels of naphthalene and its breakdown products in urine, stool, blood, or maternal milk. A small sample of your body fat can also be removed and analyzed for naphthalene. These tests are not routinely available in a doctor's office. However, a sample taken in a doctor's office can be sent to a special laboratory, if needed.

These tests cannot determine exactly how much naphthalene you were exposed to or predict whether harmful effects will occur.

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

The EPA recommends that children not drink water containing over 0.5 parts of naphthalene per million parts of water (0.5 ppm) for more than 10 days, or 0.4 ppm for longer than 7 years. Adults should not drink water with more than 1 ppm for more than 7 years. For water consumed over a lifetime, the EPA suggests it contain no more than 0.02 ppm naphthalene. The EPA requires that discharges or spills into the environment of 100 pounds or more be reported.

The Occupational Safety and Health Administration (OSHA) has set a limit of 10 parts per million (10 ppm) for the level of naphthalene in workplace air over an 8-hour workday, 40-hour workweek.

The National Institute for Occupational Safety and Health (NIOSH) considers more than 250 ppm of naphthalene in air to be immediately dangerous to life or health. This is the exposure level of a chemical that is likely to cause permanent health problems or death.

### Glossary

Carcinogenicity: Ability of a substance to cause cancer.

CAS: Chemical Abstracts Service.

Insecticide: A substance that kills insects.

Sediment: Mud and debris that have settled to the bottom of a body of water.

### References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene (update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Services.

**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.

