

NAPHTHALENE

What is naphthalene?

Naphthalene is a solid white chemical that vaporizes easily. It has a strong smell. You can sometimes smell naphthalene in the air or in water. Called white tar and tar camphor, naphthalene is used in mothballs and moth flakes. Petroleum and coal contain naphthalene.

Where can naphthalene be found and how is it used?

In industry, naphthalene is used to manufacture a plastic called polyvinyl chloride (PVC). In public restrooms, naphthalene can be found in toilet deodorant blocks. At home, naphthalene can be found in moth repellents.

Naphthalene enters the environment when factories produce it, when accidental spills occur, when moth repellents vaporize, or when wood or tobacco burn. At hazardous waste sites and landfills, naphthalene can dissolve in water, attach to soil, and leach into underground drinking water. Some naphthalene dissolves in rivers, lakes, or wells and evaporates within two weeks. Bacteria destroy naphthalene in water.

Naphthalene does not build up in the flesh of animals and fish. However, dairy cows exposed to naphthalene could have some naphthalene in their milk. Likewise, laying hens exposed to naphthalene will have some of the chemical in their eggs. Some fish and shellfish from polluted waters can contain naphthalene.

How can people be exposed to naphthalene?

You could be exposed to naphthalene through:

- **Breathing** low levels in outdoor air. You could breathe it from a factory release or if you work where moth repellents, coal tar products, dyes, or inks are produced. Exposure can also happen from breathing smoke from burning wood, tobacco, coal, or natural gas.
- **Drinking** well water with naphthalene in it. Eating foods or beverages with naphthalene is unlikely.
- **Touching** fabrics treated with moth repellents containing naphthalene.
- **Eye Contact** by getting naphthalene in your eyes from vapors or by touching eyes with contaminated hands.

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Frequently Asked Questions

How does naphthalene work?

Naphthalene enters your body if you breathe air containing it. Since some air fresheners contain naphthalene, breathing that indoor air could lead to exposure. Naphthalene can also enter your body if you smoke, eat mothballs, or drink water containing it. If you touch mothballs, naphthalene can enter your body. Low levels of naphthalene have been found in some samples of fatty tissue and breast milk.

The body dissolves naphthalene in your blood, which carries it to the liver and other organs. It then passes through your body and exits in the urine and waste matter. Most naphthalene leaves the body within three days.

How can naphthalene affect my health?

Exposure to large amounts of naphthalene may damage or destroy red blood cells, a condition called hemolytic anemia. Symptoms of hemolytic anemia are feeling very tired or restless, lack of appetite, and pale skin. Exposure to large amounts of naphthalene may also cause upset stomach, diarrhea, blood in the urine, and yellow-colored skin.

Very young children and unborn children are at higher risk if they are exposed to naphthalene, especially if they ingest the chemical. Some infants have become ill when they were close to clothing or blankets stored in naphthalene mothballs.

Rats and mice breathing naphthalene vapors daily for a lifetime had irritated noses and nose tumors and irritated lungs. Some female mice had lung tumors. Some animals got cloudy eyes after ingesting it.

It is not clear if naphthalene causes reproductive problems in animals. Although there is no direct data showing that naphthalene can cause cancer in people, naphthalene exposure can lead to cancer in animals.

How is naphthalene poisoning treated?

A doctor may treat naphthalene poisoning with special substances or medications. In some cases, small, repeated blood transfusions may be needed.

What should I do if exposed to naphthalene?

- **If naphthalene gets into your eyes**, flush with water right away for 15 minutes. Get medical help.

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- **If naphthalene gets on your skin**, wash with plenty of water right away. Remove clothes and shoes that contacted it. Wash clothes before wearing them again. If rash or irritation occurs, see a doctor.
- **If you breathe naphthalene**, get to fresh air. Give oxygen if needed. Get medical help for severe symptoms.
- **If you swallow naphthalene**, do not vomit. Get medical help right away.

What factors limit use or exposure to naphthalene?

At home, reduce the risk of exposure by avoiding smoke from tobacco, from cooking, or from fireplaces used for heat. Store moth repellents in closed containers and out of reach of children. Wash and air out blankets and clothing stored with moth repellents before using them. Do not use air fresheners containing it.

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

Tests can show naphthalene and its breakdown products in urine, waste matter, blood, breast milk or body fat. If the samples are taken within a day or two of exposure, they can determine the amount of exposure. They cannot tell if harmful effects will occur.

Technical information for naphthalene

CAS Number: 91-20-3

Chemical Formula: C₁₀H₈

Carcinogenicity (EPA): Group C, a possible human carcinogen.

MCL (Drinking Water): No MCL has been established.

OSHA Standards (PEL): 10 ppm (50mg/m³) TWA

NIOSH: 10 hr. Time Weighted Average (TWA): 10 ppm; short term 15 min: 15 ppm
IDLH –500ppm

ACGIH: 8 hr. Time Weighted Average (TWA): 10 ppm

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**DELAWARE HEALTH
AND SOCIAL SERVICES**
Division of Public Health

Frequently Asked Questions

Resources

Agency for Toxic Substances and Disease Registry (ATSDR). 2005. *Toxicological profile for Naphthalene 1methylnaphthalene 2-methylnaphthalene*. Atlanta, GA: U.S. Department of Health and Human Services.

American Conference of Governmental Industrial Hygienists (ACGIH). 2003. *Guide to Occupational Exposure Values*. Cincinnati, OH.

NIOSH *Pocket Guide to Chemical Hazards*. 2003. Atlanta, GA: U.S. Department of Health and Human Services.

New Jersey Department of Health and Senior Services, Right to Know Hazardous Substances Fact Sheet, Naphthalene,
<https://nj.gov/health/eoh/rtkweb/documents/fs/1322.pdf>

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