

## What are naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene?



Naphthalene is a white solid with a strong odor that evaporates easily.

1-Methylnaphthalene and 2-methylnaphthalene are chemicals similar to naphthalene.

1-Methylnaphthalene is a clear liquid and 2-methylnaphthalene is a solid. Fuels such as oil and coal contain these chemicals. Smoking tobacco or burning wood products produces naphthalene and methylnaphthalenes. These chemicals are also found in some wood treatment products like creosote, and in coal tar sealant products used on driveways.

Naphthalene is used in manufacture of polyvinyl chloride (PVC) plastics, dyes, and resins. It is also used in mothballs and in repellants for small mammals, snakes, and bats. 1-Methylnaphthalene and 2-methylnaphthalene are also used to make other chemicals such as dyes and resins. In addition, 2-methylnaphthalene is used to make vitamin K.

## What happens to naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene in the environment?

These chemicals are released into the air from burning wood and fossil fuels, such as oil and coal. They may also enter the environment from industries that use these chemicals. In the air, sunlight and moisture break down naphthalene and methylnaphthalenes quickly. One-half will be removed in less than a day. In the water, most of the chemical will evaporate into the air. Depending on the soil type, naphthalene may stick weakly to the soil or pass through to the groundwater. Bacteria in the soil and water break down these chemicals. Naphthalene and methylnaphthalenes are not expected to build up in plants and animals.

## How can I be exposed to naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene?

You may be exposed to these chemicals by breathing smoke from burning wood, coal, oil, or tobacco. You may breathe in naphthalene or absorb it through your skin if you apply coal tar sealant to your driveway. Using mothballs that contain naphthalene could expose you to this chemical if you touch the mothballs or breath in contaminated air. People who work in facilities that produce polyvinyl chloride (PVC) plastics, inks, dyes, and resins may be exposed to higher levels of naphthalene.

## How can naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene affect my health?

People that breathed in air containing naphthalene had irritation and inflammation in their noses, decreased lung function, headaches, and confusion, or felt tired and dizzy. Damage to red blood cells has also been reported in people exposed to naphthalene. Rats and mice that breathed in these three chemicals experienced inflammation and damage to their noses and lungs. Liver damage was seen in rats that ate or breathed in these chemicals.

**Exposure to naphthalene, 1-methylnaphthalene, or 2-methylnaphthalene can occur from breathing in tobacco smoke or from mothballs. You may experience breathing and/or neurological problems if exposed. Health effects may happen at air levels that you can't smell.**

# Naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene

## Can naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene cause cancer?

The ability of naphthalene and methylnaphthalenes to cause cancer in people has not been well studied.

Animals that breathed naphthalene for a long-time developed tumors in their noses and lungs.

The [U.S. Department of Health and Human Services \(DHHS\)](#) concluded that naphthalene is reasonably anticipated to be a human carcinogen (cancer causing). 1-Methylnaphthalene and 2-methylnaphthalene are not on the list of known carcinogens or reasonably anticipated to be human carcinogens.

The [U.S. Environmental Protection Agency \(EPA\)](#) has classified naphthalene as a possible human carcinogen. The EPA determined there was “suggestive evidence of carcinogenicity” for 1-methylnaphthalene, and concluded there was not enough information to determine if 2-methylnaphthalene causes cancer.

The [International Agency for Research on Cancer \(IARC\)](#) has classified naphthalene as possibly carcinogenic to humans. IARC has not determined if methylnaphthalenes may cause cancer.

## Can I get a medical test to check for naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene?

There are tests to measure naphthalene, 2-methylnaphthalene, and their breakdown products in urine. The tests show recent (not long-term) exposure. These tests cannot predict whether you will have health problems from the exposure. Doctor's offices do not routinely offer these tests. If you think you have been exposed to these chemicals, or any other chemical, talk to your doctor or nurse or call poison control.

## How can I protect myself and my family from naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene?

Avoid smoking tobacco products and keep children away from tobacco smoke. Avoid breathing in smoke from fires. Keep naphthalene-containing mothballs away from children. If you do use these products, they should be enclosed in containers that prevent vapor escaping. Blankets or clothing stored with naphthalene should be aired outdoors and washed before using.

### For more information:

Call **CDC-INFO** at 1-800-232-4636, or submit your question online at <https://wwwn.cdc.gov/dcs/ContactUs/Form>

Go to ATSDR's Toxicological Profile for Naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene: <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=240&tid=43>

Go to ATSDR's Toxic Substances Portal: <https://wwwn.cdc.gov/TSP/index.aspx>

Find & contact your ATSDR Regional Representative at [http://www.atsdr.cdc.gov/DRO/dro\\_org.html](http://www.atsdr.cdc.gov/DRO/dro_org.html)

