

US EPA ARCHIVE DOCUMENT

Naphthalene

CAS Number: 91-20-3

What is naphthalene?

Found naturally in fossil fuels like coal and oil, naphthalene looks like a white solid. It is produced when these fuels are burned and when tobacco or wood is burned. It has a strong odor that smells like tar or mothballs.

What is naphthalene used for?

Naphthalene is used to make products like moth balls that repel and keep moths away. It is also used to make dyes, leather goods, and insecticide.

How can naphthalene enter and leave your body?

Naphthalene can enter your body when you breathe contaminated air or eat and drink contaminated food and water. Once inside your body, it can damage the body's red blood cells. It also changes into other chemicals and leaves your body through urine in just a matter of days.

How can you be exposed to naphthalene?

You can be exposed to naphthalene from breathing contaminated air if you work in an industry that produces naphthalene. Examples of these industries include coal tar production, wood preserving, tanning, ink and dye production or an industry that burns wood, coal or oil. You can also be exposed to naphthalene from cigarette smoke in your home or business. If you work in a business that uses moth repellants, you

could also be exposed.

Although you can be exposed to naphthalene from eating or drinking contaminated food and water, these are not common sources of exposure. In fact, the amount of naphthalene found in food is not known. You can also be exposed if you touch clothes or blankets that have come into contact with naphthalene.

What are the health effects of exposure to naphthalene?

If you are exposed to large doses of naphthalene, your red blood cells could be damaged or destroyed. This condition is called hemolytic anemia. Children who eat mothballs made with naphthalene can damage their red blood cells. If you or a child show signs of being tired, decrease in or no appetite, and pale or yellow skin, these symptoms may indicate your exposure to naphthalene. Other symptoms of exposure include nausea, vomiting, diarrhea and blood in your urine. Eating or breathing naphthalene caused cataracts in some animals but it is not clear if it will have the same effect on humans. Cataracts can cloud your vision making it difficult to see.

The noses and lungs of mice exposed to naphthalene vapors for two years were inflamed and irritated.

Naphthalene is not considered a cancer-causing substance. While there aren't any studies on the effects of naphthalene on humans, naphthalene caused cancer in female mice but not the male mice. It did not cause cancer in male or female rats.

What levels of exposure can result in harmful health effects?

Animal studies showed that giving animals 2,300 parts per million (ppm) to 20,400 ppm of naphthalene in their food from 1 to 10 days (short-term) reduced the litters of pregnant female mice, caused death in mice, increased the liver weight in rats and caused cataracts in rabbits.

Rats exposed to 9,000 ppm of naphthalene for 9 weeks (long-term) had a change in their liver enzyme activity.

Where can you get more information?

Contact your state health or environmental department, or:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road, N.E., E-29
Atlanta, Georgia 30333

References

1. Agency for Toxic Substances and Disease Registry (ATSDR). *Public Health Statement for Naphthalene*. Atlanta, GA: U.S. Department of Health and Human Services, 1990.
2. Agency for Toxic Substances and Disease Registry (ATSDR). *Toxicological Profile for Naphthalene*. Atlanta, GA: U.S. Department of Health and Human Services, 1996.
3. New Jersey Department of Health and Senior Services. *Hazardous Substance Fact Sheet: Naphthalene*. Trenton, NJ. Right To Know Program, 1998.
4. U.S. Environmental Protection Agency. *Health Effects Notebook for Hazardous Air Pollutants, Naphthalene*, Office of Air Planning & Standards, 1994.