

This fact sheet answers the most frequently asked health questions (FAQs) about 1,3-butadiene. For more information, call the CDC Information Center at 1-800-232-4636. 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: Exposure to 1,3-butadiene occurs mainly from breathing contaminated air. Effects on the nervous system and irritations of the eyes, nose and throat have been seen in people who breathed air contaminated with 1,3-butadiene. 1,3-Butadiene has been found in at least 13 of the 1,699 National Priorities List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is 1,3-butadiene?

1,3-Butadiene is a chemical made from the processing of petroleum. It is a colorless gas with a mild gasoline-like odor.

About 60% of the manufactured 1,3-butadiene is used to make synthetic rubber. Synthetic rubber is widely used for tires on cars and trucks.

1,3-Butadiene is also used to make plastics including acrylics. Small amounts are found in gasoline.

What happens to 1,3-butadiene when it enters the environment?

- It quickly evaporates to the air as a gas from leaks during production, use, storage, transport, or disposal.
- Half of the 1,3-butadiene that enters into air is expected to be broken down in 6 hours.
- It evaporates very quickly from water and soil.
- Since it evaporates so easily, it is not expected to be found in water or soil, but adequate tests are not available to measure the amounts.
- 1,3-Butadiene may be broken down by microorganisms in the soil.
- It is not expected to accumulate in fish.

How might I be exposed to 1,3-butadiene?

- Breathing urban and suburban air, but these levels are generally very low except in polluted cities or near chemical, plastic, and rubber facilities that use it.
- Breathing contaminated workplace air where it is manufactured or used.
- Breathing contaminated air from car and truck exhaust, waste incineration, or wood fires.
- Breathing cigarette smoke.
- Drinking contaminated water near production or waste sites.
- Ingesting foods contained in plastic or rubber food containers, but levels are generally very low or not present at all.
- Skin contact with gasoline and breathing gasoline fumes, but levels are low.

How can 1,3-butadiene affect my health?

In laboratory animals, 1,3-butadiene causes inflammation of nasal tissues, changes to lung, heart, and reproductive tissues, neurological effects, and blood changes.

How likely is 1,3-butadiene to cause cancer?

The Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC), and the EPA have determined that 1,3-butadiene is a human carcinogen.

1,3-Butadiene

CAS # 106-99-0

Studies have shown that workers exposed to 1,3-butadiene may have an increased risk of cancers of the blood and lymphatic system.

Animal studies found increases in a variety of tumor types from exposure to 1,3-butadiene.

How can 1,3-butadiene affect children?

It is likely that health effects seen in children exposed to high amounts of 1,3-butadiene will be similar to the effects seen in adults.

We do not know if exposure to 1,3-butadiene will result in birth defects or other developmental effects in people. Animal studies showed that breathing 1,3-butadiene during pregnancy can decrease fetal weights and increase the number of skeletal defects.

How can families reduce the risk of exposure to 1,3-butadiene?

- Take precautions to minimize the amount of smoke released into the home during wood burning.
- Make sure car engines are shut off when in an enclosed space such as a garage.
- Minimize time spent near areas of heavy traffic and avoid living very close to busy roads.
- 1,3-Butadiene is a component of tobacco smoke. Avoid smoking in enclosed spaces like inside the home or car in order to limit exposure to children and other family members.

Is there a medical test to determine whether I've been exposed to 1,3-butadiene?

There is currently no reliable medical test to determine whether you have been exposed to 1,3-butadiene. However, scientists are working on tests to show if 1,3-butadiene attaches to compounds in the blood.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set an occupational exposure limit of 1 part of 1,3-butadiene per million parts of air (1 ppm).

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2012. Toxicological Profile for 1,3-Butadiene. 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 and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaqs/index.asp>.

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.