

This fact sheet answers the most frequently asked health questions (FAQs) about di-*n*-butyl phthalate. 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. 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: Di-*n*-butyl phthalate is a manufactured chemical that is added to plastics, paint, glue, hair spray, and other household products. It is commonly found in the environment, and most people are exposed to low levels in the air, water, and food. No harmful effects have been found in humans. In laboratory animals, oral exposure to very high levels can cause impaired reproduction and developmental effects. This substance has been found in at least 471 of the 1,585 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is di-*n*-butylphthalate? (Pronounced di n byewt'yl thal'ate)

Di-*n*-butyl phthalate is a manufactured chemical that does not occur naturally. It is an odorless and oily liquid that is colorless to faint yellow in color. It is slightly soluble in water and does not evaporate easily.

Di-*n*-butyl phthalate is used to make plastics more flexible and is also in carpet backings, paints, glue, insect repellents, hair spray, nail polish, and rocket fuel.

What happens to di-*n*-butylphthalate when it enters the environment?

- Di-*n*-butyl phthalate is released to air as a vapor. It can react with other chemicals in the air and is usually broken down within a few days. Di-*n*-butyl phthalate can also attach to particles in the air and eventually settle to the land and water.
- Most of the di-*n*-butyl phthalate in water attaches to sediment and settles out of the water or is broken down by bacteria. Small amounts may evaporate to the air.
- When released to the soil, it attaches to soil particles and is broken down by bacteria.
- There is no evidence that it builds up in the food chain.

How might I be exposed to di-*n*-butylphthalate?

- Most people are probably exposed to low levels of di-*n*-butyl phthalate in the air because it is used in so many household products.
- People who use products which contain di-*n*-butyl phthalate, such as nail polish, may be exposed by breathing it in the air or getting it on their skin.
- The general population may also be exposed by eating food containing di-*n*-butyl phthalate, such as fish and shellfish, or food which is packaged or stored in materials containing di-*n*-butyl phthalate.
- If you work or live near a factory where di-*n*-butyl phthalate is made or used, you could be exposed to higher than usual levels.
- People living near uncontrolled hazardous waste sites may also be exposed to higher than usual levels of di-*n*-butyl phthalate.

How can di-*n*-butylphthalate affect my health?

Di-*n*-butyl phthalate appears to have relatively low toxicity. Adverse effects have not been reported in humans as a result of exposure to di-*n*-butyl phthalate.

In laboratory animals, studies show that eating large amounts of di-*n*-butyl phthalate can affect their ability to

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reproduce. Sperm production can decrease, but returns to near normal levels when exposure stops. Large amounts of di-*n*-butyl phthalate repeatedly applied to the skin for a long time can cause mild irritation. We do not know if similar effects would occur in humans.

How likely is di-*n*-butylphthalate to cause cancer?

There have been no cancer studies in humans and the one study in laboratory animals is inadequate. The EPA has determined that di-*n*-butyl phthalate is not classifiable as to human carcinogenicity based on inadequate evidence in both humans and animals.

How can di-*n*-butylphthalate affect children?

It is likely that health effects seen in children exposed to high levels of di-*n*-butyl phthalate will be similar to the effects seen in adults. We do not know whether children differ from adults in their susceptibility to di-*n*-butyl phthalate.

We do not know if exposure to di-*n*-butyl phthalate will result in birth defects or other developmental effects in people. Birth defects have been observed in laboratory animals exposed to high levels of di-*n*-butyl phthalate during development. Death, low body weights, skeletal effects, cleft palate, and damage to the testes have been observed in animals exposed during development.

How can families reduce the risk of exposure to di-*n*-butylphthalate?

Di-*n*-butyl phthalate is used in many household products. The level of di-*n*-butyl phthalate in a product is higher when the product is new than when the product is old. Because di-*n*-butyl phthalate may be in some toys, children chewing on such toys could be exposed; however, no measurements have yet been made to show whether children are exposed in this way.

Children should avoid playing in soils near uncontrolled hazardous waste sites where di-*n*-butyl phthalate may have been discarded.

Is there a medical test to show whether I've been exposed to di-*n*-butylphthalate?

Tests are available to measure di-*n*-butyl phthalate in blood and body tissues, and its major breakdown products in urine. However, these tests cannot determine whether you will experience health effects or be used to predict the nature or severity of any effects. Because special equipment is needed, these tests are not usually done in the doctor's office.

Has the federal government made recommendations to protect human health?

The EPA recommends that levels of di-*n*-butyl phthalate in lakes and streams should be limited to 34 parts of di-*n*-butyl phthalate per million parts of water (34 ppm) to prevent possible human health effects from drinking water or eating fish contaminated with this chemical.

The Occupational Safety and Health Administration (OSHA) has set a limit of 5 milligrams of di-*n*-butyl phthalate per cubic meter of workplace air (5 mg/m³) for 8 hour shifts and 40 hour work weeks.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2001. Toxicological Profile for Di-*n*-Butyl Phthalate. 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, 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.

