

This fact sheet answers the most frequently asked health questions (FAQs) about diethyl 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. This information is important 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.

SUMMARY: Exposure to diethyl phthalate occurs when you use plastics that contain it, and when you eat food from plastic containers made with it. Health effects have not been reported in people exposed to diethyl phthalate. This substance has been found in at least 248 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is diethyl phthalate?

(Pronounced dī ěth'əl thāl'āt)

Diethyl phthalate is a colorless liquid that has a bitter, disagreeable taste. This synthetic substance is commonly used to make plastics more flexible. Products in which it is found include toothbrushes, automobile parts, tools, toys, and food packaging.

Diethyl phthalate can be released fairly easily from these products, as it is not part of the chain of chemicals (polymers) that makes up the plastic. Diethyl phthalate is also used in cosmetics, insecticides, and aspirin.

What happens to diethyl phthalate when it enters the environment?

- Diethyl phthalate has been found in waste sites and landfills from discarded plastics.
- It may break down in the air.
- It can become attached to particles of dust in the air, and can settle out.
- It is broken down to harmless products by microorganisms in soil and water.
- Small amounts of it can build up in fish and shellfish living in water containing it.

How might I be exposed to diethyl phthalate?

- Eating food that was contained in plastic packaging.
- Eating contaminated fish and shellfish.
- Drinking contaminated water near waste sites and landfills that contain diethyl phthalate.
- Using consumer products that contain it.

How can diethyl phthalate affect my health?

No information is available regarding possible effects caused by diethyl phthalate if you breathe, eat, or drink it, or if it touches your skin. Very high oral doses of diethyl phthalate have caused death in animals, but brief oral exposures to lower doses caused no harmful effects.

Weight gain was decreased in animals that ate high doses of diethyl phthalate for a long time. The liver and kidneys of these animals were larger than normal, but not from any harmful effects of diethyl phthalate.

It is not known if diethyl phthalate causes birth defects in humans. Fewer live babies were born to female animals that were exposed to diethyl phthalate throughout their lives.

ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>

The presence of an extra rib has been noted in newborn rats whose mothers were given very high dietary doses of diethyl phthalate, but this effect is not considered harmful by all scientists.

Some birth defects occurred in rats whose mothers received high doses of diethyl phthalate by injection during pregnancy. Humans are not exposed to diethyl phthalate by this route.

Diethyl phthalate can be mildly irritating when applied to the skin of animals. It can also be slightly irritating when put directly into the eyes of animals.

How likely is diethyl phthalate to cause cancer?

The EPA has determined that diethyl phthalate is not classifiable as to its carcinogenicity in humans.

Diethyl phthalate placed directly on the skin of rats daily for 2 years was not carcinogenic. Liver tumors were seen in mice that had diethyl phthalate placed directly on their skin daily for 2 years. This type of tumor is common in mice, and the smallest dose resulted in a similar number of tumors as the largest dose.

It is not clear if diethyl phthalate will cause a similar effect in humans. Other studies of cancer in humans or animals exposed to diethyl phthalate were not located.

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

There is no routine medical test to show if you have been exposed to diethyl phthalate. However, it has been measured in semen, fat, and kidney tissue in laboratory studies. These

tests aren't available at most doctors' offices, but can be done at special laboratories that have the right equipment.

Has the federal government made recommendations to protect human health?

The EPA requires that spills or accidental releases into the environment of 1,000 pounds or more of diethyl phthalate be reported to the EPA.

The National Institute for Occupational Safety and Health (NIOSH) and the American Conference of Governmental Industrial Hygienists (ACGIH) recommend a maximum concentration of 5 milligrams of diethyl phthalate per cubic meter of air (5 mg/m³) in workplace air for an 8- to 10-hour workday, 40-hour workweek.

Glossary

Carcinogenicity: Ability to cause cancer.

CAS: Chemical Abstracts Service.

Insecticide: Substance that kills insects.

Milligram (mg): One thousandth of a gram.

Oral: Taken by mouth.

Synthetic: Made by humans.

Tumor: An abnormal mass of tissue.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for diethyl phthalate (update). 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.

