

## **ENDRIN** Pesticides (chemicals used for killing pests, such as rodents, insects, or plants) Noncarcinogen

**ID~CAS #: 72-20-8**

Endrin is a solid, white, almost odorless substance. Endrin has not been produced or sold for general use in the United States since 1986. Little is known about the properties of endrin aldehyde (an impurity and breakdown product of endrin) or endrin ketone (a product of endrin when it is exposed to light).

### **USES~**

Endrin was used as a pesticide to control insects, rodents, and birds.

### **EXPOSURE~**

Exposure to endrin can cause various harmful effects including death and severe central nervous system injury. Swallowing very large amounts of endrin may cause convulsions and kill you in a few minutes or hours. Exposure to high doses may result in headaches, dizziness, nervousness, confusion, nausea, vomiting, and convulsions. No long-term health effects have been noted in workers. Endrin has been found in at least 120 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

- Endrin does not dissolve very well in water. It has been found in groundwater and surface water, but only at very low levels. It is more likely to cling to the bottom sediments of rivers, lakes, and other bodies of water.
- Endrin is generally not found in the air except when it was applied to fields during agricultural applications.
- The persistence of endrin in the environment depends highly on local conditions. Some estimates indicate that endrin can stay in soil for over 10 years.
- Endrin may also be broken down by exposure to high temperatures or light to form primarily endrin ketone and endrin aldehyde.
- It is not known what happens to endrin aldehyde or endrin ketone once they are released to the environment. However, the amount of endrin broken down to endrin aldehyde or endrin ketone is very small.

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- You may be exposed to endrin in air, water, or soil if you live near a hazardous waste site.
  - You may be exposed by eating foods that contain endrin.
  - Children living near hazardous waste sites could be exposed to endrin in contaminated soils if they eat dirt.
  - Endrin levels can build up in the tissues of organisms that live in water.
  - Human breast milk may be a route of exposure for nursing infants.

## References

Agency for Toxic Substances & Disease Registry,

[Toxicological Profile for Endrin](#). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

# **ETHYLBENZENE** Hydrocarbons (contain hydrogen and carbon atoms), Volatile organic compounds (VOCs) Noncarcinogen

**ID~CAS #: 100-41-**

Ethylbenzene is a colorless, flammable liquid that smells like gasoline. It is found in natural products such as coal tar and petroleum (gasoline) and is also found in manufactured products such as inks, insecticides, and paints.

## **USES~**

Ethylbenzene is used primarily to make another chemical, styrene. Other uses include as a solvent, in fuels, and to make other chemicals.

## **EXPOSURE~**

Breathing very high levels can cause dizziness and throat and eye irritation. Breathing lower levels has resulted in hearing effects and kidney damage in animals. Ethylbenzene has been found in at least 829 of 1,699 National Priorities List sites identified by the Environmental Protection Agency (EPA).

- Ethylbenzene moves easily into the air from water and soil.
- It takes about 3 days for ethylbenzene to be broken down in air into other chemicals.
- In surface water, ethylbenzene breaks down by reacting with other chemicals found naturally in water.
- Ethylbenzene can move through soil into groundwater
- In soil, it is broken down by bacteria.

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## **References**

Agency for Toxic Substances & Disease Registry,

[Toxicological Profile for Ethylbenzene](#). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

<http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=382&tid=66>

**gamma BHC - Lindane** Pesticides are a class of chemicals designed to kill pests (rodents, insects, or plants) that may affect agricultural crops or carry diseases. Noncarcinogen

**ID~CAS #: 58-89-9**

Lindane is a white crystalline organic solid.

### **USES~**

Most uses being restricted in 1983, lindane is currently used primarily for treating wood-inhabiting beetles and seeds. It is also used as a dip for fleas and lice on pets, and livestock, for soil treatment, on the foliage of fruit and nut trees, vegetables, timber, ornamentals and for wood protection.

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### **EXPOSURE~**

The major source of lindane in drinking water is runoff/leaching from insecticide used on cattle, lumber, gardens.

### **References**

<http://water.epa.gov/drink/contaminants/basicinformation/lindane.cfm#one>

# **PHTHALATES**

## **NONCARCINOGENS**

Phthalates are a group of aromatic chemicals containing a phenyl ring with two attached and extended acetate groups. They are often referred to as “plasticizers”.

### **USES~**

Phthalates are typically colorless liquids used to make plastics more flexible and resilient, and are often referred to as plasticizers. These plastics are found in products such as toothbrushes, automobile parts, tools, toys, and food packaging. Some are also used in cosmetics, insecticides, and aspirin.

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### **EXPOSURE~**

Because they are not a part of the chain of chemicals (polymers) that makes up plastics, they can be released fairly easily from these products in which they are used.

### **References**

<http://www.atsdr.cdc.gov/substances/toxchemicallisting.asp?sysid=41>

Agency for Toxic Substances and Disease Registry, 4770 Buford Hwy NE, Atlanta, GA 30341

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. [Toxicological Profile for diethyl phthalate](#). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Agency for Toxic Substances and Disease Registry (ATSDR). 2002. [Toxicological profile for Di\(2-ethylhexyl\)phthalate \(DEHP\)](#). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

U.S. Environmental Protection Agency. Health and Environmental Effects Profile for Phthalate Acid Alkyl, Aryl, and Alkyl/Aryl Esters. ECAO-CIN-P188. Environmental Criteria and Assessment Office, Office of Health and Environmental Assessment, Office of Research and Development, Cincinnati, OH. 1987.

U.S. Department of Health and Human Services. Hazardous Substances Data Bank ([HSDB, online database](#)). National Toxicology Information Program, National Library of Medicine, Bethesda, MD. 1993.

<http://www.cdc.gov/niosh/npg/npgd0416.html> National Institute for Occupational Safety & Health (NIOSH), Pocket Guide to Chemical Hazards

New Jersey Department of Health. *Hazardous Substance Fact Sheet on Dimethyl Phthalate*. New Jersey Department of Health, Trenton, NJ. 1986.

# Butyl benzyl Phthalate

**ID~CAS #: 85-68-7**

Butyl benzyl phthalate (BBP) is a clear oily liquid that is one of the diester phthalates, industrial chemicals, used primarily as plasticizers to impart flexibility to polyvinylchloride plastics.

## **Uses~**

It is used as a plasticizer mainly in the polyvinyl chloride for vinyl floor tile, vinyl foams and carpet backing and in cellulose plastics and polyurethane. Used as an organic intermediate and a plasticizer for PVC-based flooring products, polyvinyl acetate emulsion adhesives, polyvinyl and cellulose resins, vinyl foams, and other plastics; [HSDB].

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## **Exposure~**

- Workers in a PVC processing plant are exposed to diisodecyl phthalate and/or butylbenzyl phthalate in the air.
- Occupational exposure to butyl benzyl phthalate may occur through inhalation of aerosols and dermal contact with this compound at workplaces where butyl benzyl phthalate is produced or used.
- Monitoring data indicate that the general population may be exposed to butyl benzyl phthalate via inhalation of ambient air, ingestion of food and drinking water, and dermal contact with products containing butyl benzyl phthalate(SRC).

Available data in humans are inadequate to serve a basis for assessment of effects of long term exposure to butyl benzyl phthalate in human populations. This compound is readily metabolized by vertebrates and invertebrates.

Butyl benzyl phthalate is not classifiable as to its carcinogenicity to humans

# Diethyl Phthalate

**ID~CAS #: 84-66-2**

Diethyl phthalate is a colorless liquid that has a bitter, disagreeable taste.

## **Uses~**

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.

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## **Exposure~**

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).

- 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.
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- 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

No information is available regarding possible effects caused by diethyl phthalate if you breathe, eat, or drink it, or if it touches your skin.

# Dimethyl Phthalate

**ID~CAS #: 13-111-3**

Dimethyl phthalate is a colorless oily liquid with a slightly sweet odor. It is slightly soluble in water.

## **Uses~**

Dimethyl phthalate has many uses, including in solid rocket propellants, plastics, safety glasses, rubber coating agents, molding powders, insect repellants, and pesticides.

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## **Exposure~**

- Exposure to dimethyl phthalate may occur from food, from the use of hemodialysis tubing and polyvinylchloride bags containing intravenous solutions, and from drinking water.
- Occupational exposure to dimethyl phthalate may occur for those workers in factories that manufacture or use the chemical.

Acute (short-term) exposure to dimethyl phthalate, via inhalation in humans and animals, results in irritation of the eyes, nose, and throat. No information is available on the chronic (long-term), reproductive, developmental, or carcinogenic effects of dimethyl phthalate in humans.

EPA has classified dimethyl phthalate as a Group D, not classifiable as to human carcinogenicity.

# Di-n-butyl Phthalate

**ID~CAS #: 84-74-2**

Di-*n*-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.

## **Uses~**

Di-*n*-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.

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).

- 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.

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## **Exposure~**

- 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.

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.

# **THALLIUM** Inorganic substances

Noncarcinogen

**ID~CAS ID #: 44-28-0**

Pure thallium is a bluish-white metal that is found in trace amounts in the earth's crust. In the past, thallium was obtained as a by-product from smelting other metals; however, it has not been produced in the United States since 1984. Currently, all the thallium is obtained from imports and from thallium reserves.

In its pure form, thallium is odorless and tasteless. It can also be found combined with other substances such as bromine, chlorine, fluorine, and iodine. When it's combined, it appears colorless-to-white or yellow.

## **USES~**

Thallium is used mostly in manufacturing electronic devices, switches, and closures, primarily for the semiconductor industry. It also has limited use in the manufacture of special glass and for certain medical procedures.

- Thallium enters the environment primarily from coal-burning and smelting, in which it is a trace contaminant of the raw materials.
- It stays in the air, water, and soil for a long time and is not broken down.
- Some thallium compounds are removed from the atmosphere in rain and snow.
- It's absorbed by plants and enters the food chain.
- It builds up in fish and shellfish.

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## **EXPOSURE~**

- Eating food contaminated with thallium may be a major source of exposure for most people.
- Breathing workplace air in industries that use thallium.
- Smoking cigarettes.
- Living near hazardous waste sites containing thallium (may result in higher than normal exposures).
- Touching or, for children, eating soil contaminated with thallium.
- Breathing low levels in air and water.

Breathing high levels of thallium may result in effects on the nervous system, while ingesting high levels of it results in vomiting, diarrhea, temporary hair loss, and other effects. This chemical has been found in at least 210 of 1,416 National Priorities List sites identified by the Environmental Protection Agency.

Ingestion of toxic amounts of thallium might cause gastrointestinal signs and symptoms, most commonly abdominal pain. Subacute symptoms (onset of days to weeks) after a substantial, acute exposure or a chronic exposure to limited amounts of thallium might include severely painful ascending neuropathy, ataxia, seizure, alopecia, and neurocognitive deficits (1-3).

## **References**

~<http://emergency.cdc.gov/agent/thallium/index.asp>

~Agency for Toxic Substances and Disease Registry (ATSDR). 1992. Toxicological Profile for thallium. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

# **TOLUENE** Hydrocarbons (contain hydrogen and carbon atoms), Volatile organic compounds (VOCs) Noncarcinogen

**ID~CAS #: 108-88-3,**

Toluene is a clear, colorless liquid with a distinctive smell. Toluene occurs naturally in crude oil and in the tolu tree. It is also produced in the process of making gasoline and other fuels from crude oil and making coke from coal. Hydrocarbons (contain hydrogen and carbon atoms), Volatile organic compounds

## **USES~**

Toluene is used in making paints, paint thinners, fingernail polish, lacquers, adhesives, and rubber and in some printing and leather tanning processes.

- Toluene enters the environment when you use materials that contain it. It can also enter surface water and groundwater from spills of solvents and petroleum products as well as from leaking underground storage tanks at gasoline stations and other facilities.
- When toluene-containing products are placed in landfills or waste disposal sites, the toluene can enter the soil or water near the waste site.
- Toluene does not usually stay in the environment long.
- Toluene does not concentrate or buildup to high levels in animals.

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## **EXPOSURE~**

Exposure to toluene occurs from breathing contaminated workplace air, in automobile exhaust, some consumer products paints, paint thinners, fingernail polish, lacquers, and adhesives. Toluene affects the nervous system. Toluene has been found at 959 of the 1,591 National Priority List sites identified by the Environmental Protection Agency (EPA).

Cardiovascular (Heart and Blood Vessels), Neurological (Nervous System):

- Toluene may affect the nervous system. Low to moderate levels can cause tiredness, confusion, weakness, drunken-type actions, memory loss, nausea, loss of appetite, and hearing and color vision loss. These symptoms usually disappear when exposure is stopped.
- Inhaling High levels of toluene in a short time can make you feel light-headed, dizzy, or sleepy. It can also cause unconsciousness, and even death.
- High levels of toluene may affect your kidneys.

## **References**

~ <http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=29>

~Agency for Toxic Substances and Disease Registry, 4770 Buford Hwy NE, Atlanta, GA 30341