

US EPA ARCHIVE DOCUMENT

# Consumer Factsheet on: DI (2-ETHYLHEXYL) PHTHALATE

[List of Contaminants](#)

As part of the Drinking Water and Health pages, this fact sheet is part of a larger publication:  
**National Primary Drinking Water Regulations**

This is a factsheet about a chemical that may be found in some public or private drinking water supplies. It may cause health problems if found in amounts greater than the health standard set by the United States Environmental Protection Agency (EPA).

## What is DEHP and how is it used?

Di (2-ethylhexyl) Phthalate, or DEHP, is the most commonly used of a group of related chemicals called phthalates or phthalic acid esters. The greatest use of DEHP is as a plasticizer for polyvinylchloride (PVC) and other polymers including rubber, cellulose and styrene. A number of packaging materials and tubings used in the production of foods and beverages are polyvinyl chloride contaminated with phthalic acid esters, primarily DEHP.

The list of trade names given below may help you find out whether you are using this chemical at home or work.

## Trade Names and Synonyms:

DEHP  
BEHP  
Dioctyl phthalate  
Pittsburgh PX-138  
Platinol AH  
RC Plasticizer DOP  
Reomol D79P  
Sicol 150  
Stafflex DOP  
Truflex DOP  
Vestinol AH  
Vinicizer 80  
Palatinol AH  
Hercoflex 260  
Kodaflex DOP  
Mollan O  
Nuoplaz DOP  
Octoil  
Eviplast 80  
Fleximel  
Flexol DOP  
Good-rite GP264  
Hatcol DOP  
Ergoplast FDO  
DAF 68  
Bisoflex 81

## Why is DEHP being Regulated?

In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine safe levels of chemicals in drinking water which do or may cause health problems. These non-enforceable levels, based solely on possible health risks and exposure, are called Maximum Contaminant Level Goals.

The MCLG for phthalate has been set at zero because EPA believes this level of protection would not cause any of the potential health problems described below.

Based on this MCLG, EPA has set an enforceable standard called a Maximum Contaminant Level (MCL). MCLs are set as close to the MCLGs as possible, considering the ability of public water systems to detect and remove contaminants using suitable treatment technologies.

The MCL has been set at 6 parts per billion (ppb) because EPA believes, given present technology and resources, this is the lowest level to which water systems can reasonably be required to remove this contaminant should it occur in drinking water.

These drinking water standards and the regulations for ensuring these standards are met, are called National Primary Drinking Water Regulations. All public water supplies must abide by these regulations.

## What are the Health Effects?

Short-term: EPA has found phthalate to potentially cause the following health effects when people are exposed to it at levels above the MCL for relatively short periods of time: mild gastrointestinal disturbances, nausea, vertigo.

Long-term: Phthalate has the potential to cause the following effects from a lifetime exposure at levels above the MCL: damage to liver and testes; reproductive effects; cancer.

## How much DEHP is produced and released to the environment?

Disposal of polyvinyl chloride and other DEHP-containing materials by incineration, landfill, etc., will result in the release of DEHP into the environment. DEHP has been detected in the effluent of numerous industrial plants.

From 1987 to 1993, according to EPA's Toxic Chemical Release Inventory, DEHP releases to land and water totalled over 500,000 lbs., of which about 95 percent was to land. These releases were primarily from rubber and plastic hose industries. The largest releases occurred in Wisconsin and Tennessee.

## What happens to DEHP when it is released to the environment?

DEHP will adhere to soil, and so will neither evaporate nor leach into groundwater. DEHP has a strong tendency to adsorb to soil and sediments. In water, it will be degraded by microbes in a matter of weeks. DEHP does have a tendency to accumulate in aquatic organisms.

## How will DEHP be Detected in and Removed from My Drinking Water?

The regulation for phthalate became effective in 1994. Between 1993 and 1995, EPA required your water supplier to collect water samples every 3 months for one year and analyze them to find out if phthalate is present above 0.6 ppb. If it is present above this level, the system must continue to monitor this contaminant.

If contaminant levels are found to be consistently above the MCL, your water supplier must take steps to reduce the amount of phthalate so that it is consistently below that level. The following treatment methods have been approved by EPA for removing phthalate: Granular activated charcoal.

## How will I know if DEHP is in my drinking water?

If the levels of phthalate exceed the MCL, 6 ppb, the system must notify the public via newspapers, radio, TV and other means. Additional actions, such as providing alternative drinking water supplies, may be required to prevent serious risks to public health.

## Drinking Water Standards:

Mclg: zero

Mcl: 6 ppb

## DEHP Releases to Water and Land, 1987 to 1993 (in pounds):

|                            |       | Water         | Land           |
|----------------------------|-------|---------------|----------------|
| <b>TOTALS* (in pounds)</b> |       | <b>16,910</b> | <b>471,191</b> |
| <b>Top Five States*</b>    |       |               |                |
| WI                         | 500   | 255,000       |                |
| TN                         | 3,491 | 80,419        |                |
| OH                         | 268   | 62,982        |                |
| NJ                         | 3,956 | 23,139        |                |
| NY                         | 500   | 13,284        |                |
| <b>Major Industries</b>    |       |               |                |
| Misc rubber products       |       | 274           | 311,900        |
| Rubber, plastic hose       |       | 10            | 80,019         |
| Cyclic crudes, intermed.   |       | 3,099         | 12,200         |

\* Water/Land totals only include facilities with releases greater than 100 lbs.

## Learn more about your drinking water!

EPA strongly encourages people to learn more about their drinking water, and to support local efforts to protect and upgrade the supply of safe drinking water. Your water bill or telephone book's government listings are a good starting point.

Your local water supplier can give you a list of the chemicals they test for in your water, as well as how your water is treated.

Your state Department of Health/Environment is also a valuable source of information.

For help in locating these agencies or for information on drinking water in general, call: EPA's Safe Drinking Water Hotline: (800) 426-4791.

For additional information on the uses and releases of chemicals in your state, contact the: Community Right-to-Know Hotline: (800) 424-9346