

## Water Contaminant of the Month

**Benzene** (Chemical Formula:  $C_6H_6$ ): Benzene is an organic chemical that is a colorless or light yellow liquid at room temperature. It has a sweet odor and is highly flammable. Benzene evaporates very quickly and its vapor is heavier than air and may sink into low-lying areas. Benzene dissolves only slightly in water and will float on top of water.

Benzene is formed by both natural processes and human activities. Natural sources of benzene include volcanoes and forest fires. Benzene is also a natural part of crude oil, gasoline, and cigarette smoke. Benzene is widely used in the United States and ranks in the top 20 chemicals for production volume. Some industries use benzene to make other chemicals that are used to make plastics, resins, and nylon and synthetic fibers. Benzene is also used to make some types of lubricants, rubbers, dyes, detergents, cleaning solvents, drugs, and pesticides.

Leaks from underground gasoline storage tanks, from hazardous waste disposal sites, spills at petroleum refineries and from other industrial sites are the most common ways benzene can contaminate ground water. Drinking water containing high levels of benzene can cause vomiting, stomach irritation, dizziness, sleepiness, convulsions, rapid or irregular heartbeat, and death (at very high levels).

The EPA has found benzene to potentially cause the following health effects when people are exposed to it at levels above the MCL for relatively short periods of time: temporary nervous system disorders, immune system depression, and anemia. Long-term exposure to benzene has the potential to cause chromosome aberrations and cancer.

Benzene is a regulated primary contaminant under the US EPA Safe Drinking Water Act. The legally enforceable Maximum Contaminant Level (MCL) for benzene in public water supplies is 5 parts per billion (ppb). The Maximum Contaminant Level Goal (MCLG) is zero.

Benzene in surface water evaporates into the air relatively quickly. In soil it can be degraded by microbes. The most effective point-of-use treatment method for removing benzene from drinking water is granular activated carbon filtration. Vented distillation can also remove benzene from water.

(Sources: <http://www.bt.cdc.gov/agent/benzene/basics/facts.asp>  
[http://www.epa.gov/ogwdw/contaminants/dw\\_contamfs/benzene.html](http://www.epa.gov/ogwdw/contaminants/dw_contamfs/benzene.html))