pennsylvania
DEPARTMENT OF HEALTH

BENZENE, TOLUENE, ETHYLBENZENE & XYLENES -BTEX

Benzene, toluene, ethylbenzene, and xylenes are commonly referred to as BTEX. They are volatile organic compounds that are found in petroleum and petroleum products, such as gasoline, coal, and wood tars. BTEX compounds are clear, colorless, highly flammable liquids at room temperature. They have a sweet smell and evaporate quickly. BTEX are used in the manufacture of a variety of consumer goods, including chemicals, rubber, leather, plastics, cleaners and paints, and paint thinners. BTEX are toxic.

HOW DO BTEX COMPOUNDS GET INTO MY BODY?

You breathe in BTEX compounds through contaminated air, including cigarette smoke and vehicle exhaust. You may drink groundwater containing BTEX, primarily if residential drinking water wells are near landfills, waste sites, or leaking underground fuel storage tanks. BTEX compounds enter your body through your skin when you come into contact with products containing them.

WHAT CAN BTEX COMPOUNDS DO TO ME?

BTEX compounds are toxic, particularly with high, long-term exposure. Working in industries that make or use BTEX poses a much greater risk of causing adverse health effects than for the public. BTEX compounds can harm the bone marrow (blood), central nervous system, and immune system.[1] Health effects include dizziness, headache, nausea and vomiting, fatigue, blurred vision, loss of muscle coordination, and irregular heart rate. Short-term exposure to high levels of BTEX can irritate the skin, eyes, nose, and throat. Persons with asthma and other respiratory diseases can experience coughing, wheezing, and shortness of breath with exposure to BTEX. Liver and kidney damage, coma, or death may occur. Benzene is a known human carcinogen (can cause leukemia), and ethylbenzene is a possible human carcinogen.

WHAT ARE THE ENVIRONMENTAL REGULATIONS FOR BTEX?

The Environmental Protection Agency (EPA) limits benzene, toluene, ethylbenzene, and xylenes in public drinking water to 5 parts per billion, 1 part per million, 0.7 parts per million, and 10 parts per million, respectively. Private well owners should test their water to ensure their systems are within EPA regulations. Additionally, the Occupational Safety and Health Agency limits benzene, toluene, ethylbenzene, and xylenes in workplace air to 1 part per million, 200 parts per million, 100 parts per million, and 100 parts per million, respectively, during an 8-hour day and 40-hour week.

WHAT CAN I DO?

- Do not smoke or work to quit smoking since BTEX is found in cigarette smoke.
- Wear dust masks, gloves, and protective clothing when working in industries making or using BTEX.
- Use BTEX-containing products (i.e., gasoline, synthetic rubber, plastics, nylon, insecticides, paints, dyes, resins or glues, furniture wax, detergents, and cosmetics) in well-ventilated areas.
- When not in use, BTEX-containing products should be tightly sealed to prevent evaporation into the air.
- Talk to your children about the dangers of sniffing products containing BTEX compounds.
- Regularly test private wells for BTEX compounds if you suspect a contamination source.
- If your water is high in BTEX, consider installing a water treatment system or change water sources.
- If you work in an occupation that may expose you to BTEX, be aware that you may carry it home. Shower and change clothes before going home.
- Concerned about BTEX compounds in your body? Visit a health care provider for testing and follow-up.

If you have questions or concerns about BTEX, please contact the
Division of Environmental Health Epidemiology at dehe@pa.gov or 717-787-3350.

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[1] https://www.atsdr.cdc.gov/interactionprofiles/ip-btex/ip05.pdf