

FACT SHEET



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Arsenic

Office of Water Quality

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Description:

- Arsenic is a naturally occurring element found primarily in rocks, soil, water, and plants in many areas of the United States, including Indiana.
- Natural events, such as water interacting with soil, minerals, and rocks, can release arsenic into water.
- Arsenic can be released into the environment as a byproduct of industrial activities, such as wood preservation, mining, and smelting. Some products manufactured with arsenic include pesticides, paints, dyes, metals, drugs, soaps, and semi-conductors.
- Arsenic compounds are usually white or colorless. When dissolved in water, arsenic has no smell, taste, or coloration, even at high concentrations.
- The U.S. Environmental Protection Agency (U.S. EPA) sets the maximum contaminant level (MCL), the highest amount of a contaminant allowed in a public water supply.
 - In 2002, U.S. EPA lowered the MCL for arsenic to 10 parts per billion (ppb). This means there are 10 molecules of arsenic for every 999,999,990 molecules of water. This is roughly the equivalent to a few drops of ink in an Olympic-sized swimming pool. The standard required drinking water systems to become compliant by January 23, 2006.
 - In Indiana, naturally-occurring levels of arsenic can be found at concentrations exceeding the MCL.

Potential Health Impacts:

- Because arsenic is a natural part of the environment, low levels of arsenic are present in soil, water, food, and air (for most people food is the major source of exposure).
- If you are exposed to high levels of arsenic, the appearance of symptoms and their seriousness is dependent upon the degree and manner of exposure.
- Exposure pathways to arsenic include:
 - Drinking water from a ground water source contaminated with arsenic;
 - Eating small amounts of arsenic present in or on food;
 - Breathing air with dust particulates containing arsenic; and
 - Breathing or incidentally ingesting arsenic in the workplace (if suitable worker safety measures are not in place for jobs involving arsenic production or use).
- Ingesting or breathing low levels of arsenic over a long period of time can cause a darkening of the skin, the appearance of small corns or warts on the palms, soles, and torso, nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, and damage to blood vessels.
- Ingesting very high levels of arsenic over a short period of time can be extremely hazardous to a person's health.
- Breathing high levels of arsenic can give you a sore throat or irritated lungs.
- According to the National Institutes of Health, there is some evidence that long-term exposure to arsenic in children may result in lower IQ scores.
- Arsenic is a known human carcinogen, and studies have shown that ingestion of arsenic can increase the risk of skin cancer and cancer in the liver, bladder, and lungs.

IDEM's Role:

- The Indiana Department of Environmental Management (IDEM) is responsible for protecting human health and the environment while providing for safe industrial, agricultural, commercial, and governmental operations vital to a prosperous economy.
- IDEM's Office of Water Quality regulates public water supplies to ensure they meet the compliance standards for arsenic set by U.S. EPA.
- IDEM's Office of Water Quality does some monitoring of ground water for contamination and ensures the public has access to monitoring data for all regulated public water systems.
- IDEM's Office of Land Quality regulates the cleanup of arsenic contamination resulting from human activities through environmental remediation programs.

Citizen's Role:

- If you do not use a public water source and your water is supplied by a private well, have the arsenic concentration in your well tested. Water quality in private wells are not regulated and it is the homeowner's responsibility to ensure water supplies are safe. Testing for arsenic is recommended every five years. If arsenic has been detected, a well should be tested every year as water quality may vary with season, rainfall, and other conditions:
 - An arsenic test can be acquired through an accredited lab and generally costs around \$20.00 per sample plus shipping. When you contact a lab, they will send you the appropriate sample bottle and directions for proper sampling procedures.
 - The Indiana State Department of Health (ISDH) provides guidance to homeowners and a list of labs certified to test for arsenic.
- If you use arsenic treated wood in home projects, you should wear dust masks, gloves, and protective clothing to decrease exposure to sawdust.
- If you work in a job that involves arsenic when making or using products, such as copper or lead smelting, pesticide application or wood treating, be aware that you may carry arsenic home on your clothing.
- If you suspect exposure to arsenic, contact your family physician or healthcare provider for medical testing and consultation.

More Information:

- For more information on arsenic levels in public drinking water supplies throughout Indiana, visit IDEM's searchable database at http://www.in.gov/apps/idem/sdwis_state.
- For more information on arsenic distribution in Indiana's ground water, visit IDEM's Ground Water Monitoring Network website at <http://in.gov/idem/cleanwater/2453.htm>.
- For more information on water testing, please visit the ISDH website at <http://www.in.gov/isdh/26973.htm> or call (317) 921-5874.
- For more information on arsenic health effects, please visit the U.S. Centers for Disease Control website at <http://www.atsdr.cdc.gov/toxfaqs/faq.asp?id=19&tid=3>.
- For an interactive arsenic website, please visit the Dartmouth's Arsenic and You website at <http://www.arsenicandyou.org>.