



Volatile Organic Chemicals in Drinking Water

Volatile organic chemicals (VOCs) are a variety of compounds composed primarily of carbon and hydrogen. Many VOCs also contain chlorine, fluorine and/or bromine.

What are VOCs used for?

VOCs are predominantly used as solvents, degreasers, cleaning solutions, dry cleaning fluids and components of pesticides and plastics. These chemicals are described as volatile because of their tendency to evaporate.

How do VOCs enter drinking water?

VOCs generally enter drinking water systems through spills and improper disposal. Since surface water supplies are open to the atmosphere, VOCs are more likely to be found in ground water where evaporation would not occur.

Does my water system monitor for VOCs?

Community and Non-Transient Non-Community water systems are the only systems required to monitor for VOCs. Initial VOC monitoring is required on a quarterly basis. The monitoring frequency may be reduced when the VOC results indicate that the water supply is safe.

What level of VOCs is considered “unsafe?”

Each VOC that is regulated by Ohio EPA has been assigned a level that is not to be exceeded by public water systems. This value is known as the maximum contaminant level (MCL). Health advisories, based upon current scientific research, have also been developed by U.S.EPA in order to determine safe levels for shorter time periods. Additional information on each of the 21 regulated VOCs may be found at epa.gov/safewater/hfacts.html#volatile. For public water systems that monitor VOCs quarterly, the MCL is exceeded when the average of four consecutive quarters of monitoring is greater than the MCL or when one sample is greater than four times the MCL. For systems monitoring annually, the MCL is exceeded when one sample is greater than the MCL.

What happens if the VOC level is above the limit?

When an MCL is exceeded, the public drinking water system must notify its customers that the violation has occurred and describe what steps are being taken to remedy the situation. When an MCL violation occurs, the water supply should not be used for human consumption. This includes drinking, hand washing, cooking and bathing.

What precautions should be observed for VOC contaminated water?

Substitute bottled water for tap water until it is determined that the tap water is safe for use. Boiling tap water is only effective for certain VOCs, so it should not be relied upon. Boiling could cause additional problems due to the VOCs being released to the air and subsequently inhaled. Health concerns from VOCs include cancer, organ damage and blood and nervous system disorders.

For more information

For more information, call Ohio EPA's Division of Drinking and Ground Waters at (614) 644-2752.