

Methane is the primary component of natural gas. It is a colorless, odorless and tasteless greenhouse gas. Methane is emitted into the air during the extraction and transportation of coal, natural gas and oil from the ground. It is also emitted from livestock and decaying organic waste in landfills and marshes. It is slightly soluble in water.

HOW DOES METHANE GET INTO MY BODY?

Methane gets into your body by breathing it in, by drinking contaminated water or by eating foods prepared with contaminated water.

WHAT CAN METHANE DO TO ME?

Methane does not accumulate in the body. You can get rid of it by breathing, urinating and flatulence. However, when the air has high concentrations of methane, it displaces oxygen and can cause symptoms of oxygen deprivation, or asphyxiation. It also poses a serious explosion risk. Contact with refrigerated liquefied gas or compressed gas containing methane may cause frostbite.



WHAT ARE THE ENVIRONMENTAL REGULATIONS FOR METHANE?

Air concentrations of methane between five and 15 percent by volume are potentially explosive. The National Institute for Occupational Safety and Health (NIOSH) recommends a maximum safe methane air concentration of 1,000 parts per million (0.1%) during an eight-hour work day.

Water concentrations of methane around 28 mg/L pose a potential explosion risk. Above this concentration, methane is no longer soluble in water and is released into the air. The Pennsylvania Department of Environmental Protection (DEP) has set a methane contamination action level of seven mg/L. Above this level, DEP follows up with homeowners to reduce methane in the water supply or wellhead. A [Penn State University study](#)¹ of 233 water wells throughout the Marcellus shale region of Pennsylvania found detectable methane in 24% of water wells before nearby oil and gas drilling began. However, only two percent of wells contained dissolved methane above 10 mg/L and less than one percent were above 28 mg/L.

Pennsylvania's [Statewide Fixed Station Groundwater Quality Monitoring Network](#)² samples 22 groundwater wells located in 21 counties twice a year for many chemical constituents, including methane.

WHAT CAN I DO?

- Because of its explosive nature, efforts should be made to avoid buildup of methane in air.
- Install a gas leak detector in your home.
- Test well water for methane.
- If your water is high in methane, install a vent on your wellhead and consider installing water treatment.
- If you experience symptoms of dizziness, difficulty breathing or rapid heartbeat that you think may be related to loss of oxygen, go outside and call 911.

If you have any questions, contact us at env.health.concern@pa.gov.

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¹ https://www.rural.palegislature.us/documents/reports/Marcellus_and_drinking_water_2012.pdf

² <https://pa.water.usgs.gov/projects/groundwater/gwmn/>