**Why does methane outdoors smell, but natural gas (methane) in our homes does not?**

Outdoor methane is produced mainly by bacteria decomposing plants and animal waste at the bottom of freshwater and saltwater bodies. Other sources are sewers coal mines, septic tanks or sewer lines, and cows. Methane is produced from cows (and other livestock) when bacteria in their stomachs digest their feed. When cows burp, they release methane.

What we call natural gas is methane that is found in underground rock formations, including coal seams and deep salt water aquifers. Scientists believe this gas was formed millions of years ago when plants and tiny sea animals were buried by sand and rock, and were decomposed by bacteria. (Pressure and heat from the Earth also produced petroleum.)

But it's all methane, no matter what the source.

The common denominator in all of these sources is bacteria, and what you're smelling is the bacteria's waste products. The bacteria feed on organic matter such as human or animal or plant waste, then digest and produce their own waste. Bacterial waste products are gases: methane, hydrogen sulfide (which smells), and others. Hydrogen sulfide is the rotten egg smell in well water, and what makes sewer gas smell. Since the methane is mixed with hydrogen sulfide when it is produced, you believe you're "smelling" methane. What we call natural gas also contains small amounts of other gases, including ethane, propane, butane and pentane (from being formed with petroleum).

When gases are held in the ground for long periods, the other gases are purged, leaving odorless methane. The smell can also be removed by filtering the gases through calcium carbonate (lime).

When you smell methane (natural gas) at your stove, you are smelling butyl mercaptan (skunk odor), added as a safety measure in case there is a gas leak in your home.

**So, since bacteria are all over our bodies and creatures around us, why don't we constantly smell methane?**

Methane is only produced by anaerobic bacteria – they only live where oxygen (air) is excluded. That is why we'll find methane under water and inside cows, and inside humans (intestinal gas from bacteria digesting our food). Every time a warm-blooded animal defecates, some of the anaerobic bacteria are contained inside of the waste.

Plus, optimum temperature is around 100$^{o}$F, with methane production dropping as the temperature drops. This is why warm swamps and warm droppings smell more.

More than you wanted to know?

Portions from "Al Rutan, the Methane Man."
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