



Bureau of Environmental Health and Radiation Protection

"Protect and improve the health of all Ohioans by preventing disease, promoting good health and assuring access to quality care."

Hydrogen Sulfide (H₂S)

Answers to Frequently Asked Health Questions

What is hydrogen sulfide (H₂S)?

Hydrogen sulfide (H₂S) is a colorless gas that has a strong rotten egg odor. H₂S gas is also called sewer gas, sour gas or stink damp. H₂S is produced by the sulfur bacteria that break down organic matter. The sulfur bacteria do not cause disease, but their presence can cause a bad taste or odor.

How does hydrogen sulfide get into the environment?

Hydrogen sulfide is found naturally in the environment and is also produced from manmade activities.

In the environment, H₂S gas can be found in natural gas, volcanic gases and hot spring gasses. H₂S gas is also produced from human and animal waste and can be found in sewage treatment facilities and in livestock barns or manure areas. H₂S is also be produced from food processing activities, coke ovens, paper manufacturing mills, tanneries, solid waste disposal facilities and petroleum refineries.



Hydrogen sulfide gas can also be produced at construction, demolition and debris (CD&D) landfills. Some of materials that make up a CD&D landfill include gypsum wallboard (drywall). In an underground environment that is wet and anaerobic (without oxygen), hydrogen sulfide gas is

produced by the sulfur bacteria that feed on the gypsum (drywall) board. The by-product of these bacteria feeding on the gypsum board is hydrogen sulfide gas, just as we produce carbon dioxide gases when we breathe out the oxygen we take in.

How does hydrogen affect my health?

Hydrogen sulfide gas can irritate the eyes, nose and throat. Eyes may become watery, red and itchy. Exposure to H₂S can also cause headaches, nausea (upset stomach), fatigue (feeling tired), shortness of breath, chest pain and other health-related symptoms.

Most people can smell H₂S at levels much lower than the levels that can cause these health effects. Just because you smell H₂S, does not always mean you will experience adverse (bad/negative) health effects. However, sensitive populations, infants, young children, the elderly, people with asthma or other respiratory problems and people with heart problems may be more likely to experience these symptoms and negative health effects from exposure to H₂S.

What if I already have health problems?

People with certain pre-existing health conditions need to pay attention to the air quality because exposure to H₂S can aggravate problems already affecting their health.

People with chronic or sensitive eye irritations are more at risk for having eye problems after exposure to H₂S. People with respiratory (breathing) problems such as asthma, bronchitis, emphysema and other

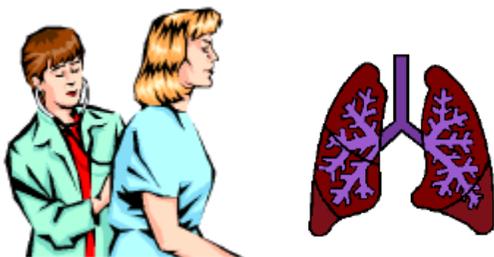
breathing problems are at greater risk of having health problems. Another group at increased health risk is persons with cardiopulmonary (heart) diseases.

*Always consult your family doctor or other medical professional for diagnosis and treatment and keep all medications such as eye drops and inhalers on hand, at home or close by. Ask your doctor about over-the-counter medicines or remedies and be careful, as some of these medicines may worsen the problem.

How can I avoid exposure to hydrogen sulfide?

If the odor is strong and is causing health problems, try to move to an area where you cannot smell the H₂S.

- If the odor is strong outside, go inside, close the doors and windows and avoid using a window fan or air conditioner that is pulling in air from the outside.
- If the odor is strong inside, try going outside.
- If the odor is present indoors and outdoors and if you have access to transportation, you may need to consider temporarily removing yourself and your family from the area.
- Avoid heavy exercise (i.e., jogging or yard work) when there are strong odors.



Odors and your health

Often it is hard to draw a distinct line between a nuisance odor problem and outright public health problem with physical symptoms in the impacted community.

Unpleasant odors have often been recognized as “warning” signs of potential risks to human health rather than direct

triggers of health effects. But we also know that the odors from environmental sources might themselves cause health symptoms depending on the individual's sensitivity to odors and specific environmental factors.

For more information about odors and your health, visit the ODH, Health Assessment Section web page and select the “*Odors and your Health*” fact sheet at:

http://www.odh.ohio.gov/odhprograms/eh/hlh_as/FactSheets.aspx

References:

Agency for Toxic Substances and Disease Registry (ATSDR). October, 2015. Toxicological Profile for Hydrogen Sulfide.

Ohio Department of Health, Bureau of Environmental Health and Radiation Protection. August, 2012. *Odors and your Health*.

Where Can I Get More Information?

Ohio Department of Health
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You can visit the ATSDR web site and read the Toxicological Profile for H₂S at: <http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=389&tid=67> or the Frequently Asked Questions (FAQs) for H₂S at: <http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=388&tid=67>

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