

Hydrogen Sulfide Fact Sheet

Fenimore Landfill, Roxbury, Morris County

New Jersey Department of Health (DOH)

What is hydrogen sulfide?

Hydrogen sulfide is a flammable, colorless gas with a characteristic odor of rotten eggs. It is heavier than air and is commonly known as hydrosulfuric acid, sewer gas, and stink damp. People can smell it at low levels. Some people may be more sensitive to hydrogen sulfide odors than others, and can smell it at levels as low as 0.5 parts of hydrogen sulfide in one billion parts of air (ppb). Hydrogen sulfide occurs both naturally and from industrial processes. Natural sources include crude oil, natural gas, salt marshes, sulfur springs, and swamps. Industrial sources include manure handling operations, oil refineries, pulp and paper mills, tanneries, wastewater treatment plants, and solid waste landfills.

How might I be exposed to hydrogen sulfide from the landfill?

Because hydrogen sulfide gas is being released from the landfill, people living near the landfill may be exposed by breathing it in. Recent air monitoring data on the landfill itself indicate hydrogen sulfide levels ranging from 1 to 7,000 ppb. Recent air monitoring data from the residential neighborhoods surrounding the landfill range from 0 to 160 ppb. The residential monitoring data was collected from both inside and outside people's homes.

How can hydrogen sulfide affect my health?

Exposure to low concentrations within the range of 30 ppb may cause eye, nose, or throat irritation, headaches and nausea. It may also cause difficulty breathing for some individuals with respiratory problems, such as asthmatics. Brief exposures to high concentrations of hydrogen sulfide (greater than 500,000 ppb) can cause serious health effects including a loss of consciousness, headaches, poor attention span, memory, and/or motor function. In some individuals, these effects may be long-term or even permanent. No health effects have been found in humans exposed to typical environmental background concentrations of hydrogen sulfide (0.11–0.33 ppb).

How likely is hydrogen sulfide to cause cancer?

Hydrogen sulfide has not been shown to cause cancer in humans, and its possible ability to cause cancer in animals has not been studied thoroughly. The Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC), and the Environmental Protection Agency (EPA) have not classified hydrogen sulfide for carcinogenicity.

How does hydrogen sulfide affect children?

Children are likely to be exposed to hydrogen sulfide in the same manner as adults, except for adults at work. However, because hydrogen sulfide is heavier than air and because children are shorter than adults, children sometimes are exposed to more hydrogen sulfide than adults. Whether children are more sensitive to hydrogen sulfide than adults or whether hydrogen sulfide causes birth defects in people is not known.

Is there a medical test for hydrogen sulfide exposure?

Hydrogen sulfide can be measured in exhaled air, but samples must be taken within 2 hours after exposure to be useful. A more reliable test to determine if you have been exposed to hydrogen sulfide is the measurement of thiosulfate levels in urine. This test must be done within 12 hours of exposure. Both tests require special equipment, which is not routinely available in a doctor's office. Samples can be sent to a special laboratory for the tests. These tests can tell whether you have been exposed to hydrogen sulfide, but they cannot determine exactly how much hydrogen sulfide you have been exposed to or whether harmful effects will occur.

Who should I talk to if I am concerned about my health or my child's health?

You should begin by discussing your concerns with your physician or your child's pediatrician. There are clinics that specialize in environmental health problems that your primary care provider may want to contact.

For adults: The Environmental and Occupational Health Clinical Center in Piscataway, NJ sees adults who have been exposed to contaminants occupationally or environmentally. They can be reached at (848) 445-0123.

For children: Pediatricians can contact the Mt. Sinai Medical Center's Pediatric Environmental Health Specialty Unit at (866) 265-6201.

For general questions: Contact the New Jersey Department of Health, Consumer, Environmental, and Occupational Health Services at 609-826-4920.



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