



HYDROGEN SULFIDE

What is HYDROGEN SULFIDE?

Hydrogen sulfide is a colorless gas that burns easily. It is most distinguished by its odor resembling rotten eggs. Hydrogen sulfide is produced by a variety of natural and human sources and processes.

Where can hydrogen sulfide be found and how is it used?

Hydrogen sulfide is found naturally in crude petroleum and natural gas. It is also produced through the bacterial breakdown of organic matter. Hydrogen sulfide can be produced by decomposing human and animal waste, and is found in sewage treatment plants and livestock areas.

Hydrogen sulfide in the atmosphere is often from refineries, natural gas plants and food processing plants. Automobiles emit hydrogen sulfide in their exhaust.

How can people be exposed to hydrogen sulfide?

You could be exposed to hydrogen sulfide through:

Breathing hydrogen sulfide during accidental releases. This can occur at worksites where the chemical is stored, transported, used or produced. Such facilities include sewage treatment plants, petroleum refining and natural gas plants, tanneries and paper mills. People living near these sites can be exposed by breathing their emissions.

Drinking water contaminated by hydrogen sulfide. This is most likely to occur near industries where the chemical is used or produced.

Touching liquid hydrogen sulfide.

Most people are exposed to low levels of hydrogen sulfide every day since it is a normal part of the atmosphere. It is unlikely that most people would be exposed to a high level.

How does hydrogen sulfide work and how can it affect my health?

The first sign of exposure to hydrogen sulfide is usually a rotten egg smell. However, the rotten egg smell usually occurs when the chemical is at a low level. At higher, more harmful levels, there is no odor. Breathing very high levels of hydrogen sulfide can be fatal.

Exposure can irritate the eyes and throat and cause coughing, shortness of breath and fluid in the lungs. Symptoms of long-term exposure to hydrogen sulfide can cause tiredness, dizziness, irritability, headache, loss of appetite and memory problems.

The effects of being exposed to low levels are less severe. Liquid hydrogen sulfide causes frostbite if it contacts the skin.

It is not known if hydrogen sulfide causes cancer.

How is hydrogen sulfide poisoning treated?

Hydrogen sulfide poisoning is treated by getting to fresh air and/or breathing oxygen.



What should I do if exposed to hydrogen sulfide?

If you breathe hydrogen sulfide, get to fresh air. Get medical help.

If you touch liquid hydrogen sulfide, you may get frostbite. Get medical help.

What factors limit use or exposure to hydrogen sulfide?

At work, safe work methods can limit exposure. Have a source of fresh air as well as a ventilation system. Wear breathing protection, protective clothing and safety glasses. Restrict visits to natural or industrial sources of hydrogen sulfide, such as hot springs, manure holding tanks, or pulp and paper mills.

Is there a medical test to show whether I've been exposed to hydrogen sulfide?

Urine tests can show the level of exposure to hydrogen sulfide when the exposure is life-threatening. The test must be given right after exposure.

Technical information for hydrogen sulfide

CAS Number: 7783-06-4

Chemical Formula: H₂S

Carcinogenicity (EPA): data are *inadequate* for an assessment of the carcinogenic potential of hydrogen sulfide.

MCL (Drinking Water): Not Established

OSHA Standards: 20 ppm (ceiling value - should not be exceeded at any time)

NIOSH Standards: 10 ppm (ceiling, 10-minute)

Immediate Dangerous to Life and Health (IDLH):100 ppm

References and Sources

Agency for Toxic Substances and Disease Registry (ATSDR). 2004. *Toxicological Profile for Hydrogen Sulfide (Draft for Public Comment)*. Atlanta, GA: U.S. Department of Health and Human Services.

Air Quality Guidelines, World Health Organization for Europe, 2000. <http://toxnet.nlm.nih.gov/>, May, 2006.