FEED AND ENVIRONMENTAL WATER LABORATORY

AESL, UGA

IN-SITU HYDROGEN SULFIDE TEST KIT

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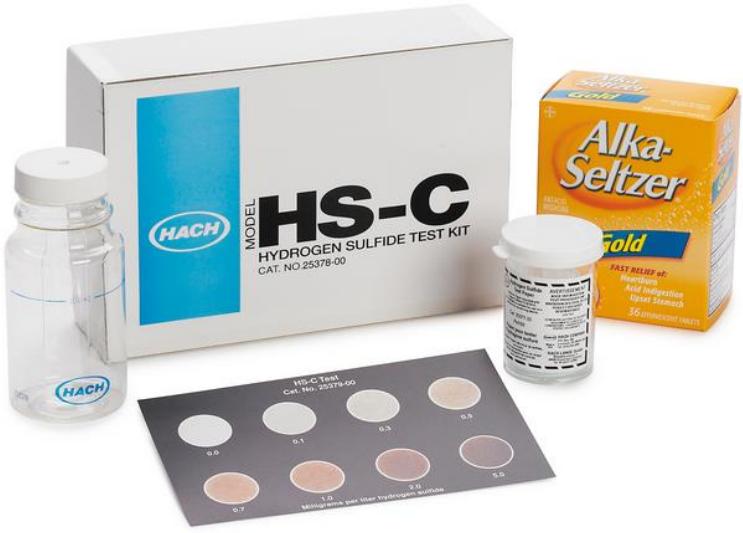
Hydrogen sulfide is a gas that may occur in household water. Its presence causes the water to smell like rotten eggs. Hydrogen sulfide gas in water may originate from different sources:

- It may be produced as a byproduct from the decomposition of organic matter underground, possibly aided by sulfur-reducing bacteria.
- It may be produced by chemical reduction of dissolved sulfate by sulfate-reducing bacteria.
- Wells with inadequate wellhead protection measures often get contaminated by surface water loaded with organic materials that encourage bacterial growth and turns the well anaerobic, which may result in hydrogen sulfide production.
- The magnesium corrosion control rod present in many electric hot water heaters can chemically change naturally occurring sulfates in water to hydrogen sulfide.
- An ion exchange water softener is another possible contributor to the odor problem. The softened water is more corrosive, increasing the rate at which the magnesium rod is dissolved.

Most people can detect the odor of hydrogen sulfide in water with concentration as little as **0.5 parts per million (ppm)**. Concentrations less than **1 ppm** imparts "musty" or "swampy" odor to water. A **1-2 ppm or higher** concentration gives water the unmistakable odor of “rotten eggs” and also makes the water corrosive to plumbing. The odor may be noticeable only when the water is initially turned on or when hot water is running. Heat forces the hydrogen sulfide gas into the air, which may cause the odor to be particularly offensive in the shower.

Hydrogen sulfide gas is very insoluble in water. When the water is exposed to air, the hydrogen sulfide gas is free to escape and this is why it is so easy to smell. Hydrogen sulfide escapes very quickly from the water and may not be present by the time the water sample reaches the lab. Because of the fast dissipation, the FEWL recommends the following onsite hydrogen sulfide testing kits for use by the clients.



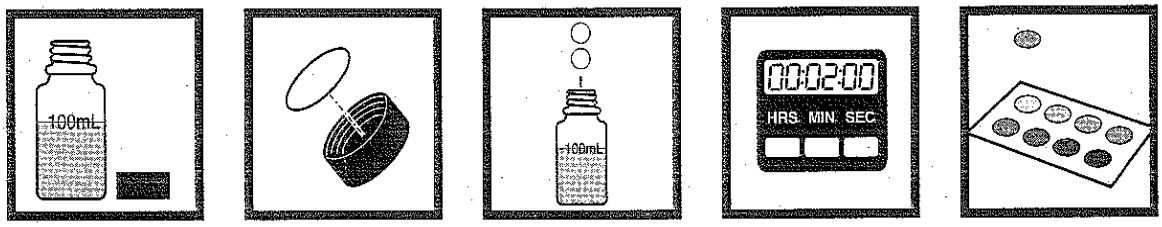
- Counties or clients can purchase Hydrogen Sulfide Test Kits from Hach at: https://www.hach.com/ .

- Additional information about hydrogen sulfide can be found at: https://extension.uga.edu/publications/detail.html?number=C858-8 https://extension.uga.edu/publications/detail.html?number=C858-15

Testing Protocol

Hydrogen Sulfide Test Kit 0–5 mg/L as Hydrogen Sulfide

WARNING: Handling chemical samples, standards, and reagents can be dangerous. Review the Material Safety Data Sheets before handling any chemicals.



English

1. Immediately after sampling, fill the bottle to the 100-mL mark with sample.

2. Place a circle of Hydrogen Sulfide Test Paper inside the sample bottle cap. Do not get the paper wet.

3. Add two Alka-Seltzer® tablets to the sample bottle. Cap the bottle immediately.

4. Wait two minutes for the tablets to dissolve and the effervescence to subside.

5. Remove the test paper from the cap. Compare the color of the test paper to the color on the color chart.