

Hydrogen Sulfide

About 9 minutes to deliver

Smells of rotten eggs until the concentration that kills you, at which point it smells of nothing at all.

Hydrogen sulfide is the gas that has killed more confined space workers than any other, and it does it with a trick nobody expects.

THE SMELL STOPS

At low concentrations it smells strongly of rotten eggs. At higher concentrations it paralyses your sense of smell within a minute or two, so the warning disappears exactly as the danger becomes lethal.

"I can't smell it any more" is not good news. It is the most dangerous moment.

Table Z-2 of 1910.1000 sets the limit as a 20 ppm ceiling, with 50 ppm allowed for a single 10-minute peak only if no other measurable exposure occurs. At a few hundred ppm it causes rapid unconsciousness; higher than that and one breath drops a person where they stand.

WHERE IT IS

It is produced wherever organic material rots without oxygen, and it is heavier than air, so it collects at the bottom of things:

- sewers, manholes, lift stations, wet wells and sumps
- septic tanks, grease traps, digesters and slurry pits
- tanks, vaults, pits and trenches where water has stood
- oil and gas work — "sour" crude and gas
- pulp and paper, tanneries, landfill, and food processing

A trench cut into ground next to an old sewer line is a confined space hazard even though it does not look like one.

THE MONITOR IS THE ONLY WARNING

- Test before entry and monitor continuously. Your nose is not a detector, and the standard test is oxygen, then flammability, then toxics.
- Test at every depth. H₂S sits low, so a reading taken at the top of a manhole tells you nothing about the bottom.
- Personal monitors on the people, not on the truck.
- Bump test them. A monitor that has never been challenged with gas is a device that beeps when the battery is low.

IF THE ALARM GOES

- Leave. Immediately, upwind and uphill. Do not finish the connection, do not pick up the tools.
- Nobody goes back in. More than half of confined space deaths are rescuers, and H₂S is the gas that does it most — someone drops, a workmate goes down after them, and there are two.
- Rescue is from outside, by trained rescuers with supplied air. That is why 1910.146 requires an attendant who never enters.
- Call 911 and say hydrogen sulfide.

BEING EXPOSED

Get them into fresh air, give oxygen if you have it and are trained, and start CPR if they are not breathing. Everybody exposed goes to hospital — H₂S can cause lung injury that shows up hours later, after somebody feels fine and has gone home.

ALSO FLAMMABLE

It burns, and it burns easily. Whatever produces it usually produces methane as well, which is why the same spaces are also an explosion risk and why no ignition source goes near one.

ASK THE CREW

- Are we opening anything today that has held water, waste or product?
- Are the gas monitors bump tested, and who carries them?
- If somebody dropped in a manhole, what would this crew do in the first thirty seconds?

29 CFR 1910.1000 · 29 CFR 1910.146

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ATTENDANCE RECORD

Hydrogen Sulfide

About 9 minutes to deliver · 29 CFR 1910.1000 · 29 CFR 1910.146

Date

Job / site

Delivered by

Company

#	Print name	Signature	Date
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I delivered this talk and determined it was suitable for this crew and this work.

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