



Hydro-Lok Frequently Asked Questions FAQ

The Hydro-Lok hydrogen leak Detection System is designed to detect leaks in underground pipe using a non-flammable mixture of 5% Hydrogen/95% nitrogen as a tracer gas. User can inject this gas into the pipe and then probe along the length of the pipe to detect the leak location. Hydrogen in the tracer gas will come out of the leak and then move through the ground and come out at the leak location. The Hydro-Lok provides a signal when it detects this hydrogen.

Q. Will the Hydro-Lok work through asphalt and concrete?

A. Yes, you may have to wait longer for the hydrogen to move through the more dense material. If there are cracks in the concrete, the hydrogen can move through the cracks quicker, but may not be the exact leak location.

Q. How long does it take for hydrogen to reach the surface?

A. That length of time depends on the depth of the pipe and somewhat on the density of the material. If the line is 2 feet below ground, the time to detect could be a few minutes. If 8 ft under, you might want to run the tracer gas overnight before detecting starts above the ground.

Q. Is this hydrogen mixture tracer gas dangerous or flammable?

A. No, as long as the mixture is 5% hydrogen in nitrogen, it is green label non-combustible. This is the only mixture permissible unless you want to reduce the amount of hydrogen in the mixture.

Q. Will the mixture ever build up and become explosive?

A. No, once the Hydrogen leaves the cylinder, the concentration can only go down. The hydrogen gas does not separate from the nitrogen gas.

Q. How much tracer gas do I need to find the leak?

A. Amount of tracer gas needed depends a lot on the volume of the pipe. Estimate the area of the pipe and then multiply by the length to get total volume. A typical gas cylinder has about 250 cu.ft of gas that can be used. So if you have 250 cu ft of volume in the pipe, that one gas cylinder of the 5% H₂/95% N₂ will fill that pipe one atmosphere of gas. It is suggested that you have extra gas as the gas will leak out and reduce the pressure. If the line volume is large and deep underground, running the gas overnight could use quite a bit of gas.

Q. How much is the gas and where do I get it?

A. Cost should be about \$50 a cylinder. You can obtain the gas through a gas supplier like Prax or AirGas. Other supplier would be a welding gas supplier as mixtures like this are used in welding as a shield gas. Always ask for industrial grade or cheapest gas they offer. Gas purity is not important. You do not need 5 9's research grade with certificate. You just need the basic gas.

Q. What are the consumable parts of the Hydro-Lok? How long before it needs service?

The sensor in the Hydro-Lok is an impact sensor. The hydrogen molecule impacts on the sensor, so there is nothing that is “sucking” in the sample as in other helium or refrigerant type leak detectors. This sensor on the Hydro-Lok usually lasts 2-5 years or longer. We can replace for about \$350. There are no consumable parts needed to keep in stock.

Q. Do I have to remove the water from the pipe before putting in the hydrogen tracer gas?

No, it is best to remove the water but not required. If you inject the tracer gas mixture into the water stream, it leaks out just like the water does. It might take longer for hydrogen to reach the surface.

Q. How close can you locate the leak location?

A. Usually, a 3 ft radius of where you find the largest leak indication. Hydrogen gas is high energy and moves straight up out of the leak. Hydrogen is hard to contain as it is a very small molecule and also high energy.

Q. How does this technology compare to helium as a tracer gas?

A. The 5% H₂/ 95% N₂ mixture is about 25% the cost of helium. Helium is a mined gas while hydrogen and nitrogen can be created. Helium is a precious gas used in research and medical applications. So it is more expensive. Our sensor is as sensitive as helium sensors, so there is no reduction in sensitivity. Cost of our system vs. helium systems is about one-third the cost of the helium system. So we are just as good or better at a much lower price point.

Q. How sensitive is the Hydro-Lok?

A. We have measured the sensitivity of the Hydro-Lok at about 25 ppm or less if the leak source is right at the tip. Of course, in a pipe, the leak could be 8 ft underground. But the typical leaks are large compared to a system containing a gas. So we can measure 25 ppm coming out of the ground. So that is pretty impressive.